SOLICITATION, OFFER, AND AWARD *(Construction, Alteration, or Repair)*	1. SOLICITATION NO. N40085-15-R-7903	2. TYPE OF SOLICITATION ☐ SEALED BID (IFB) ☒ NEGOTIATED *(RFP)*	3. DATE ISSUED 07-Jul-2015	PAGE OF PAGES 1 OF 121

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

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.

7. ISSUED BY CODE N40085	8. ADDRESS OFFER TO *(If Other Than Item 7)* CODE
NAVFAC MID ATLANTIC PWD CRANE FEAD 300 HIGHWAY 361 NSA BLDG 2516 CRANE IN 47522-4000 TEL: FAX:	**See Item 7** TEL: FAX:

9. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. *(Include area code)* *(NO COLLECT CALLS)*
	ANNETTE R. TAYLOR	812-854-2673

SOLICITATION

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

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS *(Title, identifying no., date):*

Horizontal Construction Services at the Naval Support Activity, Crane, Indiana is for all w ork associated w ith Horrizontal Construction Services: Including but not limited to asphalt repairs/replacement, highw ay striping, guardrail repair/replacement, concrete w ork, culvert replacement, fence repair/replacement, erosion control, stone road and lot maintenance, sidew alk repair/replacement, sign maintenance repair/replacement and incidental related w ork. The contract aw arded under this solicitation shall be for a 12-month base period, plus tw o 12-month option periods to be exercised at the Government's discretion. The overall term of the contract shall not exceed 36 months. This is an IDIQ Requirements contract w ith no guaranteed minimum and no maximum. The Government intends to aw ard a contract resulting from this solicitation to the responsible offeror w hose proposal represents the best value after evaluation in accordance w ith the factors and their relative importance in the solicitation, as outlined in Section III of this plan. . This acquisition w ill be solicited on an unrestricted basis w ith full and open competition.

11. The Contractor shall begin performance w ithin 15 calendar days and complete it w ithin 365 calendar days after receiving ☒ aw ard, ☐ notice to proceed. This performance period is ☐ mandatory, ☒ negotiable. *(See _____ .)*

12 A. 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 15

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and 3 copies to perform the w ork required are due at the place specified in Item 8 by _____ *(hour)* local time _____ *(date).* If this is a sealed bid solicitation, offers must 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) w ork requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 90 calendar days for Government acceptance after the date offers are due w ill not be considered and w ill be rejected.

SOLICITATION, OFFER, AND AWARD (Continued)

(Construction, Alteration, or Repair)

OFFER ***(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)* **See Item 14**
CODE / FACILITY CODE	

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

AMOUNTS	SEE SCHEDULE OF PRICES

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 *(4 copies unless otherwise specified)*	**ITEM**	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c) ☐ 41 U.S.C. 253(c)
26. ADMINISTERED BY CODE		27. PAYMENT WILL BE MADE BY: CODE

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, requisitions 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 or 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)*
	TEL: EMAIL:
30B. SIGNATURE / 30C. DATE	31B. UNITED STATES OF AMERICA BY / 31C. AWARD DATE

Section 00010 - Solicitation Contract Form

ITEM NO	SUPPLIES/SERVICES	ESTIMATED QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0001		10,000,000	Each		

Horizontal Construction - Base Period
FFP
Services including but not limited to asphalt repairs/replacement, highway striping, guardrail repair/replacement, concrete work, culvert replacement, fence repair/replacement, erosion control, stone road and lot maintenance, sidewalk repair/replacement, sign maintenance repair/replacement and incidental related work. All task orders will be issued electronically.
FOB: Destination

ESTIMATED
NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
9000					

Exhibit A
FFP
FOB: Destination

NET AMT

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	N/A	N/A	N/A	Government

9000	N/A	N/A	N/A	Government

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	N/A	N/A	N/A	N/A
9000	N/A	N/A	N/A	N/A

BASIS OF AWARD

DIVISION O. PRICING INFORMATION

SECTION -- BID SCHEDULE -- BASIS OF PRICES

1. BASIS OF AWARD

1.1 Bidders shall submit a completed Schedule of Estimated Work as part of the price proposal. Upon award, the approved Schedule of Estimated Work shall be a part of the contract and provide the basis for fixed unit prices. Pricing for the Schedule of Estimated Work shall be obtained by entering the proposed unit price for each Exhibit Line Item (**ELIN**) listed, multiplying it by the estimated quantity, and entering the mathematical extension in the subtotal column. Unbalancing or failure to enter a unit price for each EXHIBIT Line Item listed in the Schedule of Estimated Work may be cause for rejection of the bid.

1.2 In the event there is a difference between a unit price and the extended total amount, the unit price will be held to be the intended proposal and the total recomputed accordingly. If the offeror provides a total amount for a contract item but fails to enter the unit price, the amount divided by the specified quantity will be held to be the intended unit price.

1.3 For the purpose of uniformity in proposals, offers shall consider the detailed requirements of Technical Sections, and the conditions listed below in the computation of their unit prices for all tasks listed in the Schedule of Work.

1.4 For Estimated Quantities the Contractor shall reference clauses ***52.216-18*** - *Ordering;* ***52.216-19*** - *Delivery-Order Limitations;* ***52.216-22*** *– Indefinite Quantity.*

1.5 This contract is for maintenance and repair of existing center wide Horizontal work. This work will be accomplished via an indefinite quantity contract. This contract contains provisions for a 12-month base period, plus 2 12-month option periods to be exercised at the Government's discretion. Under no circumstances shall the term of the contract exceed 36 months. Repair or maintenance work that may not have commenced, or is in process, as a result of an awarded contract or delivery order will not be a part of this contract's requirements. The Government may utilize employees or Military Units doing annual training to accomplish maintenance and repair work as required.

2. BASIS OF UNIT PRICES – EXCAVATION AND FILL (**ELIN 001-013)**

2.1 **(ELIN 001-002)** Clearing and Grubbing shall consist of clearing, grubbing, removing, and disposing of all vegetation and debris, except such objects as are designated to remain or are to be removed in accordance with other sections of these specifications, within the construction limits shown on the plans. If no construction limits are shown, the right-of-way and easement areas will be the construction limits. This work shall include the preservation from injury or defacement of all vegetation and objects designated to remain. Right-of-way lines and construction lines will be established, and trees, shrubs, plants, and other things to remain will be designated. All such designated items shall be preserved. Any damage to natural terrain or to vegetation or objects designated to remain shall be repaired, replaced, or otherwise compensated for, as determined, with no additional payment. Tree size will be determined by measuring 4-1/2 feet from ground level using an average of the trees in the area. Refer to technical section 31 11 00.

2.2 (ELIN 003) Scalping areas where excavations are to be made, or embankments are to be placed, shall be scalped to a maximum of 4 in. Scalping shall include the removal of material such as brush, roots, sod, grass, residue of agricultural crops, sawdust, and decayed vegetable matter from the surface of the ground. This line item will be by the square yard of measure referred to in technical section 31 00 00.

2.3 (ELIN 004) Excavation shall consist of embankment construction and excavation, hauling, and disposal or compaction of all material not being removed under some other line item which is encountered within the limits of the work in accordance with the specifications in INDOT Sections and in reasonably close conformance with the lines, grades, thickness, and typical cross sections shown on the plans or as directed. This line item is to be used for purpose of construction of new roads, parking lots and or general excavation other than ditching or culvert work. A site within 3 miles one way will be designated by the OICC for disposal of all excavated material. This line item will be performed by the Cubic Yard of measure referred to in technical section 31 00 00.

2.4 (ELIN 005) Ditching shall be interpreted to mean open ditches and channel changes parallel to and adjacent to the roadbed. Channel changes excavated under the classification of waterway excavation are not included in this definition. Ditches shall be finished to the lines and grades shown on the plans or as otherwise laid out. The edges shall be parallel to the

pavement unless it is necessary to have the gradients different from that of the pavement in order to obtain proper drainage, in which case the edges shall be as determined. All debris shall be hauled to a designated location on the base. The location will be within 3 miles, one way and will be designated by the OICC. This line item will be performed by the Cubic Yard of measure referred to in technical section 31 00 00.

2.5 (ELIN 006) Fill Grading shall consist of leveling, shaping, and otherwise completing an earth-graded area ready for acceptance. Shaping and compacting shall be with approved equipment supplemented with hand methods if necessary. Reasonably smooth surfaces shall be obtained of the required profile and cross sections shown on the plans or as directed. This line item is not for finish type work. This line item will performed by the Square Yard of measure referred to in technical section 31 00 00.

2.6 (ELIN 007) Finish Grading shall consist of leveling, shaping, and otherwise completing an earth graded area ready for acceptance Shaping and compacting shall be with approved equipment supplemented with hand methods if necessary. Reasonably smooth surfaces shall be obtained and finished at least to within 0.1 ft of the required profile and cross sections shown on the plans or as directed. Holes or depressions resulting from the removal of unsuitable material shall be filled with an acceptable material and compacted to conform to the surrounding sub grade. This line item will be performed by the Square Yard of measure referred to in technical section 31 00 00.

2.7 (ELIN 008) Lime rock grading procedures shall result in positive drainage of surface waters into the ditches. It is designed for addition of parking areas and for installation of stone base for the use in building new lot or stone drives. This line item will be performed by the Square Yard of measure referred to in technical section 31 00 00.

2.8 (ELIN 009) Fill shall conform to the general requirements for soil materials and shall be an unclassified soil material possessing the characteristics required for compaction to the specified values of soil density specified for the location of intended use. Maximum practical size shall be 2 inches and shall meet INDOT Standard Specifications. This line item will be performed by the Ton of measure.

2.9 (ELIN 010) Delivered Top Soil Shall be material free of subsoil, stumps, rocks larger than 2-inch diameter, brush, noxious weeds, toxic substances, and other material or substances detrimental to plant growth. Topsoil shall be a neutral, friable soil representative of productive soils in the vicinity. The ph range shall be from 6.2 to 7.4. Topsoil that does not meet this ph range shall be amended by the addition of ph adjusters. This line item will be performed by the ton of measure referred to in technical section 31 00 00.

2.10 (ELIN 011) Compaction shall be for earth work other than stone. The material shall be placed on the prepared sub grade or sub base in layers of uniform thickness. No layer shall exceed 6 inches or less than 3 inches when compacted. The layers shall be so placed that when compacted they will be true to the grades or levels required with the least possible surface disturbance. Such adjustments in placing procedures or equipment shall be made as

may be directed to obtain true grades, to minimize segregation and degradation, to adjust the water content, and to insure an acceptable aggregate base course. The finished and completed fill shall conform to the lines, grades, and cross sections shown. Each layer shall be compacted as specified with approved compaction equipment. In all places not accessible to the rollers, the mixture shall be compacted with hand-operated power tampers. This line item will be performed by the Square Yard of measure referred to in technical section 031 00 00.

2.11 (ELIN 012) Nonwoven Geotextile Filter Fabric made up of polypropylene fibers for use under rip rap and stone areas such as a culvert that requires rip rap and as a filter fabric in sub drains. This line item will be performed by the Square Yard of measure

2.12 (ELIN 013) Geogrid shall be installed in accordance with the manufacturer's recommendations. Excess geogrid shall be removed. As an alternative, the Contractor will be permitted to turn the excess portion of the geogrid into the fill layer as an envelope, provided an acceptable installation is obtained. The geogrid shall be placed taut prior to backfill placement. Installation may require the use of stakes to hold the geogrid in place. Geogrid rolls shall be overlapped a minimum of 2 feet side to side and end to end. The geogrids shall be overlapped 3 feet in areas where foundation conditions cannot support workers' foot traffic or where 2 feet is found to be inadequate during fill placement. Overlaps shall be oriented, or shingled, to prevent advancing fill from lifting the geogrid. Overlaps shall be further secured with metal or plastic ties, hog rings, or small mounds of fill, if necessary, to prevent separation during fill placement. If damage is caused by construction traffic after laying the geogrid, such geogrid shall be patched. Patching shall include placement of a minimum of 3 feet of overlapped geogrid beyond the damaged area. If the damaged portion extends for more than 50 percent of the roll in the width direction, the entire width shall be replaced. This line item will be by the Square Yard of measure.

3. BASIS OF UNIT PRICES – EROSION (ELIN 014-020)

3.1 (ELIN 014) Straw mat may be used for mulch for seeding on projects where mulched seeding is specified or where erosion control blanket is specified. Straw mat shall be placed within 24 hours after seeding. After the area has been properly shaped, fertilized, and seeded, the straw mat shall be unrolled over the designated area so that the plastic mesh is on top and the straw fibers are snugly and uniformly in contact with the soil surface without stretching the material. The rolls shall be butted snugly together and stapled in place. The staples shall be driven through the blanket at a 90-degree angle to the plane of the ground surface. Each staple shall anchor the plastic mesh. The staples shall be spaced at approximately 3 feet increments, both longitudinally and transversely. For placement on slopes, the straw mat shall be placed with the length running from the top of slope to the toe of slope and shall extend a minimum of 3 feet over the crown of the slope. On slope applications, six staples shall be installed across the uphill end of each roll. The downhill ends of the lowermost rolls across the slope shall also be anchored with six staples, placed on uniform spacing. This line item will be by the Square Foot of measure refer to technical section 01 57 23.

3.2 (ELIN 015) Silt fence usage shall follow OEM specifications with regard to shipping, handling, storage, installation, and protection from direct sunlight. Silt fence shall be installed using a trench to bury the bottom of the fabric in accordance with manufacturer's recommendations. The geotextile will be rejected if it has defects, tears, punctures, flaws, deterioration, or damage incurred during manufacture, transportation, storage, or installation. All silt fence shall be 24 inches high and anchored with wooden or steel stakes. Removal shall be included in price of installation and occur at a later date. Temporary erosion and sediment control measures shall remain in place until directed to be removed. Upon removal The Contractor shall remove and dispose of all excess silt accumulations, dress the area, and vegetate all bare areas. This line item will be by the linear foot of measure referred to in technical section 01 57 23.

3.3 (ELIN 016) Straw bales shall be a minimum of 14 inches by 18 inches by 36 inches and shall not weigh less than 35 lb. Bales shall be bound with wire or nylon twine. Straw bales shall be embedded and staked. Removal shall be included in price of installation and occur at a later date. Temporary erosion and sediment control measures shall remain in place until directed to be removed. The Contractor shall remove and dispose of all excess silt accumulations, dress the area, and vegetate all bare areas. This line item will be measured per bale in place as referenced in technical section 01 57 23.

3.4 (ELIN 017) Straw–type mulching material, when specified, shall be applied uniformly in a continuous blanket at the rate of 2 tons per acre. Mulch shall be placed within 24 hours after seeding. The percent of moisture in the mulch shall be determined in accordance with INDOT specifications. This line item will be by the Square Yard of measure referred to in technical section 01 57 23.

3.5 (ELIN 018) The area to be seeded shall be made smooth and uniform and shall be in accordance with the finished grade and cross section shown on the plans or as otherwise designated The seed bed, if not loose, shall be loosened to a minimum depth of 3 inches before fertilizer or seed is applied. In areas of excessive vehicular traffic, such as parking of construction equipment near a bridge repair, the soil shall be loosened to a minimum depth of 6 inches. Areas to be covered with topsoil shall be milled or disked slightly before the topsoil is placed. A disk, spike-toothed harrow, or other similar device may be used for this purpose. INDOT seed mixture R shall be applied at the rate of 170 lb/acre. The mixture shall consist of 95 lb of low endophyte Kentucky 31 Fescue or approved equal, 65 lb perennial rye grass, and 10 lb Jasper Red Fescue or approved equal. This line item will be performed by the Square Yard of measure referred to in technical section 01 57 23.

3.6 (ELIN 019) Hydro seeding shall be the operation of seeding by mixing seed, fertilizer, and wood cellulose fiber in required amount of water to produce homogeneous slurry. Add wood cellulose fiber after seed, water, and fertilizer have been thoroughly mixed and applying hydraulically spraying on the ground. Material shall form a blotter-like cover impregnated uniformly with separate application of wood cellulose mulch at the rate of 1,000 pounds, dry weight, per acre. Cover shall allow rainfall or applied water to percolate to underlying soil. This line item will be performed by the Square Yard of measure referred to

in technical section 01 57 23.

3.7 (ELIN 020) Lime shall be agriculture limestone containing not less than 80 percent of total carbonates, 95 percent calcium, and 5 percent magnesium, gradation to minimum 80 percent passing the No. 8 sieve. This line items will be performed by the ton of measure spread referred to in technical section 32 11 23.

4. BASIS OF UNIT PRICES – ASPHALT REPAIRS (ELIN 021-052, 054-057)

4.1 (ELIN 021, 029, 043) Surface milling (scarifying) to remove existing asphalt or to level existing asphalt surface through the use of a rotor type machine to scarify or grind existing asphalt resulting in removal of lifts up to 1" for the square yard unit price. Removals of 2" would double the unit price and removals of 3" would triple the unit price and so on. This sub-line item will be ordered when Surface Milling (scarifying) is required in conjunction with repairs and maintenance operations. The Contractor shall remove bituminous materials by surface milling methods in accordance with INDOT specifications. The equipment for removing the bituminous pavement shall be a power operated planing machine or grinder equipped with dust control apparatus capable of controlling dust during the removal operation. The equipment shall have an effective means for removing excess material from the surface in order to prevent dust from escaping into the air after the planed surface has been opened to traffic. When located within 3 inches of curbs or asphaltic concrete, which cannot be removed by the planing machine, asphalt shall be removed by other methods acceptable to the Contracting Officer. The pavement and curb surfaces shall be cleaned of all debris and left in a neat and presentable condition. Disposal shall be at a Government designated site on Center. These line items will be performed by the Square Yard of measure referred to in technical section 32 01 16.17.

4.2 (ELIN 022, 030) Removal of bituminous materials shall include excavating and removal of cubic yards of bituminous materials and removal and disposal of excavated materials at a designated disposal site on Center. This sub-line item will be ordered when removal of bituminous materials is required in conjunction with repair or maintenance. All removal of bituminous asphalt shall be saw cut prior to the removal and shall be included in the bid price the work shall be in accordance with INDOT Standard Specifications. These line items will be performed by the Cubic Yard of measure referred to in technical section 32 12 16.

4.3 (ELIN 023, 031) Removal of Stone Materials shall include excavating and removal of cubic yards of stone material and disposal of excavated materials at a designated site on Center. This sub-line item will be ordered when removal of stone is required in conjunction with repair or maintenance. Removal of stone materials shall be accomplished by the Contractor’s choice of methods, after approval of methods by the Contracting Officer and shall be in accordance with INDOT Standard Specifications. These line items will be performed by the Cubic Yard of measure referred to in technical section 32 12 16.

4.4 (ELIN 024, 032) Tack coat unit price shall be for the uniform application of cut back asphalt material applied at the rate of 0.15 gallons per square yard. This sub-line item will be

ordered when tack coat is required in conjunction with repair or maintenance. Aggregate or asphalt course is not part of the unit price. Tack Coat (if required by Government) shall be in accordance with INDOT Standard Specifications. These line items will be performed by the Square Yard of measure referred to in technical section.

4.5 (ELIN 025, 033) Hot-mixed Asphalt 25MM Base Course shall include all costs to apply base course in the thickness specified. Price does not include tack coat, prime coat, or aggregate used in the preparation of surface to receive base course. Bituminous base course shall be the application of one lift of base course in the thickness specified. Materials for base course shall be in accordance with Section 400 of the INDOT Standard Specifications. Construction procedures for base course shall be in accordance with the INDOT Standard Specifications. These line items will be performed by the Ton of measure referred to in technical section 32 12 16.

4.6 (ELIN 026, 027, 034, 035) Hot-mixed asphalt 19.5MM or 12.5MM binder course **u**nit price shall include all costs to apply binder course in the thickness specified. Price does not include base course, tack coat, prime coat, or aggregate used in the preparation of the surface to receive binder course. Bituminous binder course shall be the application of binder course in the thickness specified. Price shall not include tack coat, prime coat, or aggregate used in the preparation of surface to receive binder course. Materials for binder course shall be in accordance with Section 400 of the INDOT Standard Specifications. Construction procedures for binder course shall be in accordance with the INDOT Standard Specifications. These line items will be performed by the Ton of measure referred to in technical section 32 12 16.

4.7 (ELIN 028, 036) Hot-mixed asphalt 9.5MM surface course shall include all costs to apply surface course in the thickness specified. Price does not include base course, binder course, tack coat, prime coat, or aggregate used in the preparation of the surface. Bituminous surface course shall be the application of one lift of surface course in the thickness specified. Materials for surface course shall be in accordance with Section 400 of the INDOT Standard Specifications. Construction procedures for base course shall be in accordance with the INDOT Standard Specifications. These line items will be performed by the ton of measure referred to in technical section 32 12 16.

4.8 (ELIN 037, 042) Chip and seal shall be the application of bituminous material followed by an application of cover aggregate. Aggregate, grading, and road preparation shall be a part of the unit price. Materials for chip and seal shall be in accordance with Section 404 of the INDOT Standard Specifications. Construction of the chip and seal shall be in accordance with INDOT Standard Specifications. Surface preparation, as necessary, shall be a part of chip and seal and shall be as specified in the INDOT Standard Specifications. These line items will be by the Square Yard of measure referred to in technical section 32 12 16. See table below for more information.

TYPE	APPLICATION	COVER AGGREGATE SIZE NO. AND COURSE	RATES OF APPLICATION PER SQUARE YARD (SQUARE METER)	
			AGGREGATE lb (kg)	ASPHALT MATERIAL GALLON (LITER) AT 60°F(16°C)
1*	Single	23, 24	12-15 (5.4-6.8)	0.12-0.16 (0.45-0.61)
2	Single	12	14-17 (6.4-7.7)	0.29-0.33 (1.09-1.25)
3	Single	11	16-20 (7.3-9.1)	0.36-0.40 (1.36-1.51)
4	Single	9	28-32 (12.7-14.5)	0.63-0.68 (2.38-2.57)
5	Double	Top – 12 Bottom –11	16-19 (7.3-8.6) 16-20 (7.3-9.1)	0.33-0.37 (1.25-1.40) 0.36-0.40 (1.36-1.51)
6	Double	Top – 11 Bottom – 9	18-22 (8.2-10.0) 28-32 (12.7-14.5)	0.41-0.46 (1.55-1.74) 0.63-0.68 (2.38-2.57)
7	Double	Top – 11 Bottom – 8	18-22 (8.2-10.0) 28-32 (12.7-14.5)	0.41-0.46 (1.55-1.74) 0.63-0.68 (2.38-2.57)

* Only AE-90 or AE-150 shall be used for seal coat, type 1.

4.9 (ELIN 044) Crack sealing (rubberized sealant) shall include the cleaning of all longitudinal, transverse, and secondary cracks by drying and blowing them out with a combination heat-air lance and the immediate filling of the crack with rubberized hot poured sealant. Unit of measurement, LB, is by the measured amount of material used referred to in technical section 32 12 16.

4.10 (ELIN 045) Seal coating shall be for the installation of coal tar emulsion, 3 pounds of silica sand/gal concentrate. All work shall be in accordance with INDOT specifications and shall include cleaning and all prep work before sealing with two coats of sealer. This line item will be performed by the Square Yard of measure referred to in technical section 32 12 16.

4.11 (ELIN 046-051) Placement of crushed stone shall be to provide and place compacted crushed stone as ordered. Placement will be in conjunction with asphalt repairs or maintenance. Stone aggregate shall be the application of crushed stone in connection with

asphalt repairs, or new roads or lots including replacement of unstable subgrade, backfill for deep patch, or establishment of subgrade. Stone shall be of the size ordered and shall be Type O, Class A or B, in accordance with INDOT Standard Specifications. These line items will be performed by the Ton of measure refer to in technical section 32 11 16.

Washed Sand Size No. 24

Washed clean free of dirt and objectionable matter. In accordance with Indiana Department of Transportation State specifications 2014 or most current update, sizes of fine aggregates (see 904 aggregates):

100% to pass through 3/8" screen
95-100% through No.4 screen
70-100% through No. 8 screen
40-80% through No.16 screen
20-60% through No. 30 screen
7-40% through No.50 screen
1-20% through No.100 screen
0-6% through No. 200 screen

Crushed Limestone Size No. 2

In accordance with Indiana Department of Transportation State specifications 2014 or most current update, size of coarse aggregates (see 904 aggregates):

100% to pass through 2 ½" screen
80-100% through 2" screen
0-25% through 1" screen
0-10% through ¾"screen
0-7% through ½" screen
Decant (Non-PCC) 0-2.5

Crushed Limestone Size No. 8

In accordance with Indiana Department of Transportation State specifications 2014 or most current update, size of coarse aggregates (see 904 aggregates):

100% to pass through 1" screen
75-95% through 3/4" screen
40-70% through 1/2" screen
20-50% through 3/8"screen
0-15% through No. 4 screen
0-10% through No. 8 screen
Decant (PCC) 0-1.5
Decant (Non-PCC) 0-3.0

Crushed Limestone Size No. 11

In accordance with Indiana Department of Transportation State specifications 2014 or most current update, size of coarse aggregates (see 904 aggregates):

100% to pass through ½" screen
75-95% through 3/8" screen

10-30% through No. 4 screen
0-10% through No. 8 screen
Decant (PCC) 0-1.5
Decant (Non-PCC) 0-2.5

Crushed Limestone Size No. 53

In accordance with Indiana Department of Transportation State specifications 2014 or most current update, size of coarse aggregates (see 904 aggregates):

100% to pass through 1½" screen
80-100% through 1" screen
70-90% through ¾" screen
55-80% through ½" screen
35-60% through No. 4 screen
25-50% through No. 8 screen
12-30% through No. 30 screen
5.0-10.0% through No. 200 screen

Stone Revetment Rip-Rap

In accordance with Indiana Department of Transportation State specifications 2014 or most current update, size of coarse aggregates (see 904 aggregates):

100% to pass through 18" sieve
90-100% through 12" sieve
20-40% through 6" sieve
0-10% through 3"sieve
Depth of Rip-Rap minimum 18"

4.12 (ELIN 052) Snowplowable raised pavement markers shall be used as supplemental delineation at the locations shown on the plans or as directed. The pavement or bridge deck surface shall be cleaned of dirt, dust, oil, grease, moisture, curing compound, and loose or unsound layers of all materials, which would interfere with the proper bonding of the marker to the pavement or bridge deck. Marker locations shall be accurately laid out and approved prior to the installation operation. Markers shall not be located on surfaces that show visible evidence of cracking, checking, spalling or failure of underlying materials. Markers shall not be located within the intersection of a public road. Marker installation shall be in accordance with the manufacturer's recommendations. The pavement surface temperature and the ambient temperature shall be at least 50 degrees Fahrenheit. The pavement surface shall be dry at the time of marker installation. The installation slot shall be clean and dry before the adhesive is applied. The slot shall be filled with sufficient adhesive to provide a watertight seal between the marker base and the pavement, and to fill all voids between the marker base and the surfaces of the slot. The marker shall be placed in the slot so that the tips of the snowplow deflecting surfaces are below the pavement surface. If the pavement surface is newly placed HMA, the pavement shall be allowed to cure for two days prior to installing the markers. The number of slots cut in one day shall not exceed the number of markers, which will be installed in that day. No slots shall be left open overnight. Unit of measure for this line item is Each.

4.13 (ELIN 054-056) Unit price shall be to provide a Concrete Manhole Riser Ring to the length ordered in conjunction with asphalt repairs. Price shall include the removal of the existing iron manhole frame with lid, grouting the new riser ring to the manhole, and reinstalling the manhole frame. The Concrete Manhole Riser Ring shall be the correct type and size to match the existing manhole. Risers shall be pre-cast concrete, grouted in place, and the existing manhole frame and lid reinstalled. The Contractor shall be responsible for determining all measurements. Installation shall allow the final grade. Unit of measure for this line item is Each.

4.14 (ELIN 057) Unit price shall be to adjust a Valve Box Riser to the length ordered in conjunction with asphalt repairs. Price includes providing all labor to adjust. Unit of measure for this line item is Each.

5. BASIS OF UNIT PRICES – THERMOPLASTIC, PAINT, RE-PAINT, EPOXY PAINT (ELIN 053, 058-118)

5.1 (ELIN 053, 058-070, 072-087, 089-116, 118) Pavement Markings shall consist of furnishing and installing, or removing, pavement traffic markings and snowplowable raised pavement markers in accordance with the MUTCD, these specifications, and as shown on the plans. The pavement shall be cleaned of all dirt, oil, and grease, excess sealing material, excess pavement marking material and all other foreign material prior to applying new pavement traffic markings. New paint pavement markings may be placed over sound existing markings of the same color. New thermoplastic markings may be applied over sound existing markings of the same type if permitted by manufacturer's recommendations, a copy of which shall be supplied to the Government prior to placement; otherwise, existing markings shall be removed in accordance with INDOT prior to placement of the new markings. All longitudinal lines shall be clearly and sharply delineated, straight and true on tangent, and form a smooth curve where required. Lines shall be square at both ends, without mist, drip or spatter.

Basis of quantity shall be actual length of line not length of roadway. A solid line shall be continuous. A broken line shall consist of 10 ft line segments with 30 ft gaps. New broken line placed over an existing broken line shall laterally match the existing broken line, and the new line segments shall not extend longitudinally more than 10% beyond either end of the existing line segments. The centerline of a multi-lane roadway shall be marked with a double solid line. The two lines forming the double solid line shall be spaced 8 in. apart and shall be equally offset on opposite sides of the geometric centerline. Edge lines shall be used to outline and separate the edge of pavement from the shoulder. Edge line markings shall be 4 in. in width and shall be placed such that the edge of the marking nearest the edge of the pavement shall be offset 4 in. from the edge of the pavement except as otherwise directed. Pavement message marking shall be used as specified or directed for railroad crossing approaches, intersection approaches, crosswalk approaches, handicap parking spaces, and other messages applied to the pavement with pavement marking material. The markings shall consist of all necessary lines, words, and symbols as specified or directed, and shall be

in accordance with the MUTCD. All double line markings, such as a no passing zone or the centerline of an undivided multi-lane roadway, shall be applied in one pass. The machine shall be equipped with the following: an air blast device for cleaning the pavement ahead of the painting operation; a guide pointer to keep the machine on an accurate line; at least two spray guns which can be operated individually or simultaneously; paint agitator(s); a control device to maintain uniform flow and application; an automatic device which will provide a broken line of the required length; and an automatic glass bead dispenser which is synchronized with the marking application. The average thickness of each 36 in. length of thermoplastic marking shall be no less than 3/32 in. nor more than 3/16 in. Immediately following the application of the thermoplastic markings, additional reflectorization shall be provided by applying glass beads to the surface of the molten material at a uniform minimum rate of 6 lb/100 sq ft of marking. The machine used for the spray application of thermoplastic markings shall consist of a kettle for melting the material and an applicator for applying the markings. All of the equipment required for preheating and applying the material shall maintain a uniform material temperature within the specified limits, without scorching, discoloring or overheating any portion of the material. The machine shall be equipped with the following: an air blast device for cleaning the pavement ahead of the marking operation; a guide pointer to keep the machine on an accurate line; at least two spray guns which can be operated individually or simultaneously; agitators; a control device to maintain uniform flow and application; an automatic device which will provide a broken line of the required length; and an automatic glass bead dispenser which is synchronized with the marking application. Marking application vehicles such as edge liner or center liner trucks shall have a rear facing type A or type C flashing arrow sign, an amber flashing warning light mounted near the center of the truck bed and an amber strobe light mounted on each rear corner of the truck bed. The amber flashing warning light and the amber strobe lights shall be mounted on retractable supports and shall be operated at a height of 12 ft above the pavement unless otherwise directed.

5.2 (ELIN 071, 088, 117) Removal of Markings which conflict with revised traffic patterns and may confuse motorists shall be removed immediately before, or immediately following, any change in traffic patterns as directed or approved. Removal of pavement markings shall be to the fullest extent possible without materially damaging the pavement surface. Pavement marking removal methods shall be sandblasting, steel shot blasting, water blasting, grinding or other approved mechanical means. Grooving will not be permitted. Grinding will only be permitted when removing thermoplastic or epoxy pavement markings. Painting over existing pavement markings to obliterate them will not be permitted. When a blast method is used to remove pavement markings, the residue, including sand, dust and marking material, shall be vacuumed concurrently with the blasting operation or removed by other approved methods. Accumulation of sand, dust or other residual material, which might interfere with drainage or constitute a traffic hazard, will not be permitted. All damage to the pavement caused by pavement marking removal shall be repaired by approved methods with no additional payment.

6. BASIS OF UNIT PRICES – CONCRETE (ELIN 119–135)

6.1 (ELIN 119) Flowable Fill shall consist of placing flowable mortar to fill trenches for pipe structures, culverts, utility cuts and other work extending under pavement locations, and other locations in accordance with INDOT Standard Specifications. The Contractor shall submit a mix design and shall arrange a trial batch demonstration to ensure compliance in accordance with the requirements listed herein. The mix design shall include a list of all ingredients, the source of all materials, the gradation of all aggregates, the names of all admixtures and dosage rates, and the batch weights. Except for adjustments to compensate for routine moisture fluctuations, mix design changes after the trial batch verification shall be documented and justified prior to implementation by the Contractor. The test for flow shall consist of filling a 3 in. diameter by 6 in. high open-ended cylinder placed on a smooth level surface to the top with the flowable mortar. If necessary, the cylinder shall be struck off so that the mixture is level. The cylinder shall be pulled straight up within 5 seconds. The spread of the mortar shall be measured. The diameter of the mortar spread shall be at least 8 in. Minor flow adjustments may be made by making minor adjustments in the water or fly ash filler content. This line item will be performed by the Cubic Yard of measure referred to in technical section 03 30 00.

6.2 (ELIN 120) Remove reinforced concrete shall be for the removal of reinforced concrete up to 12 inches thick and disposing of it at a designated site in close proximity to construction site on Center. All seed and mulch or grading shall be paid for by other line items. This line item will be performed by the Cubic Yard of measure referred to in technical section 03 30 00.

6.3 (ELIN 121-123) Non-Reinforced concrete shall have a minimum 28-day compressive strength (f'c) of 4000 psi. Air entrainment shall be 6 percent +/- 1 percent. Provide expansion joints at edges of slabs on grade abutting vertical surfaces, and as indicated. Make expansion joints ½ inch wide unless indicated otherwise. Completely fill joints exposed to weather with joint filler material and joint sealant. Place concrete as soon as practicable after the forms have been inspected and approved. Do not place concrete when weather conditions prevent proper placement and consolidation; in uncovered areas during periods of precipitation; or in standing water. Prior to placing concrete, remove dirt, construction debris, water, snow, and ice from within the forms. Deposit concrete as close as practicable to the final position in the forms. Do not exceed a free vertical drop of 3 feet from the point of discharge. Place concrete in one continuous operation from one end of the structure towards the other. Obtain approval before concrete placement. Provide wood, plywood, or steel forms. Use plywood or steel forms where a smooth form finish is required. Lumber shall be square edged or tongue-and-groove board, free of raised grain, knotholes, or other surface defects. Plywood: PS-1, B-B concrete form panels or better or AHA A135.4, hardboard for smooth form lining. Steel form surfaces shall not contain irregularities, dents, or sags. Concrete finish shall be either steel trowel, bull float, or broom; whichever is indicated in the Delivery Order. These line items will be performed by the Cubic Yard of measure referred to in technical section 03 30 00.

6.4 (ELIN 124-125) Steel Reinforced Concrete shall provide bars, wire fabric, wire ties, supports, and other devices necessary to install and secure reinforcement. Reinforcement

shall not have rust, scale, oil, grease, clay, or foreign substances that would reduce the bond. Rusting of reinforcement is a basis of rejection if the effective cross-sectional area or the nominal weight per unit length has been reduced. Remove loose rust prior to placing steel. Concrete shall have a minimum 28-day compressive strength (f'c) of 4000 psi. Air entrainment shall be 6 percent +/- 1 percent. Place reinforcement and secure with galvanized or non-corrodible chairs, spacers, or metal hangers. For supporting reinforcement on the ground, use concrete or other non-corrodible material, having a compressive strength equal to or greater than the concrete being placed. Provide expansion joint at edges of interior floor slabs on grade abutting vertical surfaces. Make expansion joints 1/2 inch wide unless indicated otherwise. Fill expansion joints not exposed to weather with preformed joint filler material. Completely fill joints exposed to weather with joint filler material and joint sealant. Do not extend reinforcement or other embedded metal items bonded to the concrete through any expansion joint unless an expansion sleeve is used. Provide contraction joints, either formed or saw cut or cut with a jointing tool, to the indicated depth after the surface has been finished. Sawed joints shall be completed within 4 to 12 hours after concrete placement. Protect joints from intrusion of foreign matter. Place concrete as soon as practicable after the forms and the reinforcement have been inspected and approved. Do not place concrete when weather conditions prevent proper placement and consolidation; in uncovered areas during periods of precipitation; or in standing water. Prior to placing concrete, remove dirt, construction debris, water, snow, and ice from within the forms. Deposit concrete as close as practicable to the final position in the forms. Do not exceed a free vertical drop of 3 feet from the point of discharge. Place concrete in one continuous operation from one end of the structure towards the other. Position grade stakes on 10-foot centers maximum in each direction when pouring interior slabs and on 20-foot centers maximum for exterior slabs. These line items will be performed by the Cubic Yard of measure referred to in technical section 03 30 00.

6.5 (ELIN 126) Reinforcement Bars And Mesh shall include all labor and material for the placement of No. 3 bar, No. 4 bar, No. 5 bar, No. 6 bar, 6"x6"x10-GA wire mesh, and 6"x6"x6-GA wire mesh installed in concrete. Materials permitted for use will be described in each delivery order. Unit pricing will be per 100 LB of reinforcement indicated for each delivery order.

6.6 (ELIN 127-135) Curbs and Gutters shall consist of the construction of curb or curb turnouts; combination curb and gutter, combined curb and gutter turnouts in accordance with sections 605 and 606 of INDOT Standard Specifications type B and C drawing # E 605-cccg-01. Concrete used to construct curb or combination curb and gutter shall incorporate Class AP, size No. 8 for its coarse aggregate. Excavation shall be made to the required depth and the base upon which the curb is to be set shall be compacted to a firm even surface. All soft and unsuitable material shall be removed and replaced with suitable material, which shall be thoroughly compacted. The curb shall be set in accordance with the line and grade required. Forms shall be removed within 24 hours after the concrete has been placed. Plane surfaces and exposed sides of the curb shall be checked with a 10 ft straightedge. Portions showing irregularities of 0.25 in. or more shall be removed and replaced in compliance with these specifications. All spaces under the curbing shall be filled with bed course material. The

bed course material shall be coarse aggregate, size No. 53 and shall be thoroughly tamped. Curbing shall be laid with joints as indicated on the plans. These joints shall be filled with mortar as specified. The joint in the curbing shall be filled with expansion joint filler. After the curb has set, any remaining excavated areas shall be filled with approved material. This material shall be placed and thoroughly tamped in layers not exceeding 6 in. in depth. Curb machines may be used to construct curb. These line items will be performed by the Linear Foot of measure referred to in technical section 03300.

7. BASIS OF UNIT PRICES – CULVERTS AND LINERS (ELIN 136-166)

7.1 (ELIN 136) Concrete Headwall shall be for the material, dewatering and labor to form and construct headwalls on the inlet, outlet, or both, on new culverts or replacement of existing culverts. There will be a sketch provided for each headwall due to differing sizes and locations on Center. If reinforcement bars are required they shall be paid for by the line items for reinforcing bars. This line item will be by the Cubic Yard of measure refer to technical section 03 30 00.

7.2 (ELIN 137) Rip Rap Ends shall be for the material and labor to install rip rap around the inlet, outlet, or both on new culverts or on existing culverts. In some areas a layer of geotextile shall be placed under the riprap. In this case the geotextile will be paid on the geotextile bid item. This line item will be performed by the Ton of measure referred to in technical section 32 11 23

7.3 (ELIN 138) The Government reserves the right to require B Barrow backfill specified in bid items for culvert work. This line item shall be for structural backfill installed from the bottom of the pipe to the top of grade. All backfill shall meet all INDOT material and application standards. This line item will be performed by the Ton of measure, refer to technical section 31 00 00.

7.4 (ELIN 139) The specific job mix for grout shall be submitted to ROICC by the foam concentrate supplier certified or licensed grouting contractor for approval prior to use on the contract. The mix shall have a minimum 28-day compressive strength of 150 psi. The mix shall be tested and verified in accordance with INDOT Standard Specifications. The compressive strength shall be determined in accordance with ASTM C 39. Grout shall be injected into the space between the existing pipe and the liner. The injection operation shall provide sufficient grout to fill all voids between the existing pipe and the liner over the entire structure length, but shall also be performed in a manner that does not distort the liner. The pressure developed in the space between the liner and the existing pipe shall not exceed the liner manufacturer's recommended maximum value. All existing culverts, storm drains, under drain pipes, drain tile, or other pipes that are directly connected to the lined structure shall be perpetuated. Grout shall not leak through the liner at these connections. This line item will be by the Cubic Yard of measure referred to in technical section 03 30 00.

7.5 (ELIN 140) Soil Excavation over 5 feet in depth is for culverts that are over 5 feet in depth to the top of the culvert. The Contractor shall be compensated at the bid unit price per

CY of excavation.

7.6 (ELIN 141-149) Culverts shall consist of the construction or reconstruction of pipe culverts, in accordance with INDOT Section 715. The accepted quantities of pipe will be paid for at the contract unit price per linear foot for pipe complete in place. The costs of sawing of pavement, excavation, dewatering, shoring, removal of pavement, existing pipe, end sections, anchors, or headwalls, concrete collars, encasements, and the disposal of surplus materials, shall be included in the cost of the pay items, and all other necessary incidentals. Backfilling with B-borrow for structural backfill or flowable fill shall be paid for under appropriate line item. The culvert pipe is high-density corrugated polyethylene with an integrally formed smooth waterway with molded bell and spigot (N-12), see attachment for specification. Unless otherwise directed, the trench cross sectional dimensions shall be as shown on the plans. The trench bottom shall give full support to the pipe as shown on the plans. Flowable mortar shall be placed in accordance with INDOT Section 213.04(c). All other pipe installations shall be backfilled as shown on the plans or as directed. B-borrow for structure backfill shall be placed in accordance with INDOT Standard Specifications. Prior to placing flowable mortar backfill, all standing water shall be removed from the trench. If the water cannot be removed from the trench, B-borrow for structural backfill shall be used in lieu of flowable mortar to an elevation 2 feet above the groundwater. The remainder of the trench shall be backfilled as shown on the plans. Where material other than B-borrow for structure backfill or flowable mortar is permitted and used for backfilling, it shall be of such nature that compacts readily. That portion around and for 6 in. above the top of the pipe shall be free from large stones. This material shall be placed in layers not to exceed 6 in., loose measurement, and each layer compacted thoroughly by means of mechanical tamps. These line items will be performed by the Linear Foot of measure referred to in technical section 31 00 00.

7.7 (ELIN 150-161) Thermoplastic Liner shall include installing a thermoplastic liner into an existing pipe, all in accordance with INDOT Section 105.03. The liner pipe shall have a male and female connection machined grooved to insure the pipe can be pushed or pulled. The joints shall not create an increase in the outside diameter of the liner pipe. The pipe shall be solid High-Density Polyethylene (HDPE) wall with gaskets that are capable of handling pressures in excess of 25 feet of head per ASTMd-3212. The liner shall be Snap-Tite brand or equal see attachment for specification. All obvious cavities outside the existing pipe shall be filled with flowable mortar in accordance with INDOT Standard Specifications prior to the liner installation, or with grout placed in conjunction with the grouting operation after the liner is installed. Prior to commencing the liner installation, all jagged existing pipe edges or other deformities shall be repaired. All foreign material shall be removed from the existing pipe. After the liner installation is complete and the liner has cooled to approximately the temperature of the existing pipe, the liner shall be cut so that each end is no more than 3 in. outside the end of the existing pipe. The cost of repairing jagged edges or deformities to existing pipe, filling cavities around the existing pipe with flowable mortar or grout, removing foreign material from the existing pipe, and other incidentals will not be paid for separately, but shall be included in the cost. Grouting the space between the existing pipe and the liner shall be paid for under the grouting line item. These line items will be

performed by the Linear Foot of measure referred to in technical section 31 00 00.

7.8 (ELIN 162-166) Trenching excavation shall begin at the outlet end and proceed towards the upper end, true to the required line and grade. If no trench details are shown on the plans, the trench shall be of sufficient width to provide ample working space on each side of the drain tile to permit compaction of the backfill around the tile. Recesses shall be cut into the trench bottom to accommodate any projecting hubs or bells. If excavation is made too deep, proper bearing shall be secured by backfilling to the required elevation with sand, clay, or other approved material, which shall be tamped into place and shaped properly. The pipe sections shall be joined securely with the appropriate couplings, fittings, or bands. Aggregate for under drains shall be placed in a manner which minimizes aggregate contamination. After the outlet pipe installation, the trench shall be backfilled as shown on the plans. Aggregate and stabilized materials removed from an existing shoulder shall not be used as backfill and shall be disposed of. At the time of installation, a rodent screen shall be placed on the outlet pipe or the ends of the under drain pipe when located in inlets or catch basins. Under drain outlet protectors shall be constructed as shown on the plans. These line items will be performed by the Ton of measure referred to in technical section 31 00 00.

8. BASIS OF UNIT PRICES – GUARDRAIL (ELIN 167-172)

8.1 (ELIN 167) Removal of existing guard rail shall be in accordance with the applicable requirements of INDOT and these requirements. The locations shall be as shown on the plans. When it is specified that the removed guardrail is to become the property of the Department of the Navy; elements, posts, and blocks shall be removed without being damaged. The removed material shall be relocated to a storage area as directed. The cost of excavation, backfill, concrete footings, reinforcement, and structural steel tubing required for modified posts and nested guardrail, shall be included in the cost. This line item will be performed by the Linear Foot of measure.

8.2 (ELIN 168-171) Guard Rail shall consist of the fabrication, assembly, and installation of guardrail, guardrail transitions, and guardrail end treatments, in accordance with these requirements, and as shown on the plans. This work may also consist of the extension of existing guardrail with new guardrail. Posts shall be installed plumb at the spacing and embedment depth shown on the plans. Posts shall be driven where subsurface conditions permit the use of normal driving equipment. Where subsurface conditions prohibit driving the posts, a 12 in. diameter hole shall be bored to the required embedment depth. The hole shall be backfilled with suitable material in 6 in. maximum lifts, compacted as directed, and then the post driven. Posts damaged during installation shall be repaired or replaced as directed with no additional payment. When new guardrail is being installed to replace existing guardrail and traffic is to be maintained during the work, the installation of the new guardrail shall follow the removal of the existing guardrail as closely as practical. Adequate safety protection shall be provided as directed between the time that the existing guardrail is removed and the time that the installation of the new guardrail is completed. Guardrail transitions shall be required to connect guardrail to bridge rail, guardrail to piers, and new W-Beam guardrail to existing rub rail type guardrail. The required type of guardrail

transition shall be as shown on the plans. The fabrication, assembly, and installation of thrie-beam components and timber posts and blocks for guardrail transitions will be required for the locations shown on the plans**.** Guardrail end treatments shall be required to terminate guardrail installations at the locations shown on the plans. The Type-I guardrail end treatment shall be either as shown on the plans, or shall be selected from the Department's list of approved Guardrail End Treatments. The Type-II guardrail end treatment shall be as shown on the plans. The type OS or MS guardrail end treatment shall be selected from the Department's list of approved Guardrail End Treatments. The reflectorization of guardrail end treatments and the grading requirements shall be as shown on the plans.

8.3 (ELIN 172) Pipe Bollards shall be for providing and installing 6 inch diameter, schedule 40 steel pipe, placed 3 feet in the ground and 4 feet above the surface, filled with concrete, and installed in a 24" dug or augured hole filled with concrete. Prime and paint as directed by the delivery order. The top of the pipe shall have the concrete crowned to promote drainage of moisture. This line item will be by the each of measure.

9. BASIS OF UNIT PRICES – FENCING PERIMETER (ELIN 173-175)

9.1 (ELIN 173) 47" FIELD FENCE WITH BARB WIRE - This line item shall be for the purpose of constructing new fence around the perimeter of the Center and includes all woven wire, wood post, steel post, fasteners and labor. This line item does not include removal of fence, gates or water gaps. The fence shall meet INDOT Standard Specifications**.** Unless otherwise directed, posts shall be set so that the entire fence is inside the right-of-way and such that the fence can be placed on the side of the post facing the other land owner. Posts for field type fence shall be set on 12 feet maximum centers alternating one wood post then one galvanized steel post and so on. All wood posts shall be pressure treated with creosote with a minimum diameter of 5" on small end and shall be 6-1/2 feet long. Wooden brace posts shall be 8" minimum diameter and 7 feet long. Corner posts shall have a minimum diameter of 10" and shall be 7 feet long. Steel posts shall be galvanized steel T posts 6-1/2 feet long. Spacing of these posts shall be as uniform as practicable under the existing conditions. However, additional posts shall be set at each abrupt change in grade. The tops of all posts shall be set to the required grade and alignment. Pull posts or brace post shall be set at 500 feet maximum intervals. Extra length posts shall be required at stream crossings as shown on the plans or as directed and also at small ground depressions where it is not practical for the fencing to follow closely the contour of the ground. The bottom of the fabric shall be placed above the ground line as shown on the plans. Over irregular ground, a minimum of 3" and a maximum of 6". All fence fabric and barbed wire shall be fastened with 1-½" staples. All necessary excavation and backfilling required shall be performed in accordance with these provisions. All splices in the fabric and wire shall be securely made in accordance with the best practice and the manufacturer's recommendations, and by the use of tools designed for that purpose. One strand of bar wire shall be placed at the top of fence fabric 3" above woven wire. This line item will be performed by the linear Foot of measure referred to in technical section 02821.

9.2 (ELIN 174) Water Gates Installed - The contractor shall construct and install water gates

where required. Varying site conditions may result in changed design of water gates. This item will be measured by the LF. These gates shall be constructed by CCA pressure treated lumber. A typical water gate is shown in sketch attachment.

9.3 (ELIN 175) Removal of Field Fence - The contractor shall remove and dispose of all existing fence and posts, level ground back to original grade, and seed and mulch repaired areas. These existing materials shall become property of the Contractor and may be removed from center or disposed of on Center at a site designated by the Contracting Officer. This line item will be performed by the linear Foot of measure referred to in technical section 32 31 00.00 10.

10. BASIS OF UNIT PRICES – FENCING CHAIN LINK (ELIN 176-182)

10.1 (ELIN 176-178) Chain-Link Fencing - The contractor shall provide Class 1 zinc-coated steel wire with minimum coating weight of 1.2 ounces of zinc per square foot of coated surface. Fabric shall be fabricated of 9-gauge wire woven in 2-inch mesh. Fabric shall be twisted and barbed on the top selvage and knuckled on the bottom selvage. Height of fabric shall be 6, 7 or 8 feet. Line posts, end posts, and pull posts shall be Class 1, zinc-coated steel pipe, Grade A. Top rails and braces shall be Group IA, zinc-coated steel pipe, size NPS 1-1/4. Barbed wire shall be 2 strands, 12-1/2-gauge wire, zinc-coated, Class 3 in accordance with ASTM A 121. Barbed wire shall be four-point barbed type steel wire. Barbed wire support arms shall be the single arm type and of the design required for the post furnished. Tie wire for attaching fabric to rails, braces, and posts shall be 9-gauge steel wire and match the coating of the fence fabric. Tie wires for attaching fabric to tension wires shall be 16-gauge stainless steel. The tie wires shall be a double loop and 6.5 inches in length. Install fence on prepared surface to the line and grade indicated. Install fence in accordance with fence manufacturer's written installation instructions Provide line posts spaced equidistantly apart, not exceeding 10 feet on center. Provide gateposts spaced as necessary for size of gate openings. Do not exceed 500 feet on straight runs between braced posts. Provide corner or pull posts, with bracing in both directions, for changes in direction of 15 degrees or more, or for abrupt changes in grade. Set posts plumb and in alignment. Allow concrete to cure a minimum of 72 hours before performing other work on posts. All portions of posts set in rock shall be grouted. Portions of posts not set in rock shall be set in concrete from the rock to ground level. Concrete and grout shall be thoroughly consolidated around each post, shall be free of voids and finished to form a dome. Braces and truss rods shall be installed as indicated and in conformance with the standard practice for the fence furnished. Horizontal (compression) braces and diagonal truss (tension) rods shall be installed. Diagonal braces shall form an angle of approximately 40 to 50 degrees with the horizontal. No bracing is required on fences 6 feet high or less if a top rail is installed. Top and bottom rails or tension wires (or combination of the two) shall be installed at the top and bottom of the fence fabric to prevent the fence fabric from being pulled out. If rails are installed, rails shall be installed before installing chain-link fabric. Pass top rail through intermediate post caps. Provide expansion coupling spaced as indicated. If tension wires are installed, tension wires shall be attached to the terminal posts of each stretch of fence. Top tension wire shall be installed within the top 4 inches of the installed fabric. Bottom tension wire shall be installed within

the bottom 6 inches of the installed fabric. Tension wire shall be pulled taut and shall be free of sag. Chain link fabric shall be installed on the exterior side of the posts. Fabric shall be attached to terminal posts with stretcher bars and tension bands. Bands shall be spaced at approximately 15-inch intervals. The fabric shall be installed and pulled taut to provide a smooth and uniform appearance free from sag, without permanently distorting the fabric diamond or reducing the fabric height. Fabric shall be fastened to line posts at approximately 15-inch intervals and fastened to all rails and tension wires at approximately 24-inch intervals. Fabric shall be cut by untwisting the removing pickets. Splicing shall be accomplished by weaving a single picket into the ends of the rolls to be joined. The bottom of the installed fabric shall be 2 inches maximum above the ground. After the fabric installation is complete, the fabric shall be exercised by applying a 50 pound push-pull force at the center of the fabric between posts; the use of a 30 pound pull at the center of the panel shall cause fabric deflection of not more than 2-1/2 inches when pulling fabric from the post side of the fence; every second fence panel shall meet this requirement; all failed panels shall be re-secured and re-tested at the Contractor's expense. Barbed wire supporting arms shall accommodate a top rail and three strands of barbed wire. Install supporting arms as recommended by manufacturer. In addition to manufacturer's standard connections, permanently secure supporting arms to posts. Studs driven by low-velocity powder-actuated tools may be used with steel, wrought iron, ductile iron, or malleable iron. Do not use studs driven by powder-actuated tools with gray iron or other material that will fracture. Supporting arms shall be oriented towards the outside of the fence line. Install three strands of barbed wire on supporting arms above fence posts. Extend each end member of gate frames sufficiently above top member to carry three strands of barbed wire in horizontal alignment with barbed wire strands on the fence. Pull each strand taut and securely fasten each strand to each supporting arm or extended member. Secure wires in accordance with fence manufacturer's recommendations. Fences shall be grounded on each side of all gates, at each corner, at the closest approach to each building located within 50 feet of the fence, and where the fence alignment changes more than 15 degrees. Grounding locations shall not exceed 150 feet. Each gate panel shall be bonded with a flexible bond strap to its gatepost. Fences crossed by power lines of 600 volts or more shall be grounded at or near the point of crossing and at distances not exceeding 150 feet on each side of crossing. Ground conductor shall consist of No. 8 AWG solid copper wire. Grounding electrodes shall be ¾ inch by 10-foot long copper-clad steel rod. Electrodes shall be driven into the earth so that the top of the electrode is at least 6 inches below the grade. Where driving is impracticable, electrodes shall be buried a minimum of 12 inches deep and radially from the fence. The top of the electrode shall be not less than 2 feet or more than 8 feet from the fence. Ground conductor shall be clamped to the fence and electrodes with bronze grounding clamps to create electrical continuity between fence posts, fence fabric, and ground rods. After installation the total resistance of fence to ground shall not be greater than 25 ohms. This line items will be performed by the linear Foot of measure referred to in technical section 32 31 00.00 10.

10.2 (ELIN 179-180) Chain Link fence gates shall be a Type I, single swing. Shape and size of gate frame shall be rectangular, 6 feet high by 12 or 15 feet wide. Framing and bracing members shall be round zinc-coated steel. Each end member of gate frames shall be extended sufficiently above the top member to carry three strands of barbed wire in

horizontal alignment with barbed wire strands on the fence. Gate fabric shall be as specified for fencing fabric. Attach gate fabric to gate in accordance with manufacturer's standards, except that welding will not be permitted. Arrange padlocking latches to be accessible from both sides of gate, regardless of latching arrangement. Stops shall be provided for holding the gates in the open position. Gates shall be installed at the locations shown. Hinged gates shall be mounted to swing through 90 degrees from closed to open. Latches, stops, and keepers shall be installed as required. Hinge pins, and hardware shall be welded or otherwise secured to prevent removal. This line item will be measured per Each as referenced in technical section 32 31 00.00 10.

10.3 (ELIN 181) Removal of Chain Link Fence - The contractor shall remove and dispose of all existing fence and posts, level ground back to original grade, and seed and mulch repaired areas. These existing materials shall become property of the Contractor and may be removed from center or disposed of on Center at a site designated by the Contracting Officer. This line item will be performed by the linear Foot of measure referred to in technical section 32 31 00.00 10.

10.4 (ELIN 182) Vertical Pivot Gate each vertical pivot gate shall be constructed of aluminum members and aluminum linked mesh screening. The gate shall be constructed with seven (7) foot linked mesh screen and one (1) foot of three (3) strand barbed wire for a total height of eight (8) feet. Gate length shall be twenty-five (25) feet. Bottom of gate shall have reversing edge protection. Operator shall be electrical-hydraulic driven. One (1) 30Amp 110 volt A.C. circuit available to power the gate operator. System shall have a self contained heating system for cold weather operation. A manual bypass system that allows the barrier to be opened or closed by hand in the event of a power failure is required. All related material recommended by the gate manufacturer to accomplish the installation of the vertical pivot gate. This line items will be by each of measure refer to technical section 32 31 00.00 10.

11. BASIS OF UNIT PRICES – STONE ROAD/LOT MAINTENANCE (ELIN 183-188)

11.1 (ELIN 183-184) Stone Road and Lot Maintenance includes provision of necessary labor, supervision, materials, and equipment for grading, scarifying, excavating, compacting, addition of crushed stone, use of a maintainer, and rolling of: stone roads, jeep trails, perimeter trails, magazine drives and stone storage lots. The work includes grading, scarifying, excavating, compacting, maintaining, and rolling of any entire or portion of stone roads or lots at Crane Division, (NSA Crane), Crane, IN. The Center has approximately 255 miles of regular stone roads, which are 12 to 18 feet wide and are designated with an "H" or "HR" prefix. The Center has approximately 29 miles of jeep trail roads or perimeter trail roads, which are 10 to 12 feet wide and are designated with a "JT" or "PT". Magazine drives are reflected in the quantities given for the type of road from which the drive originates. The width of the roads that are designated for work shall be extended at intersections, pull-offs, and drives so as to include the entire existing road surface. The Center also has approximately 37 acres of stone lots or miscellaneous stone areas. This work includes grading of all stone surfaces, plus the scarification of pothole areas, washed areas, lightly oiled areas, and soft-yielding spots with motor patrol grader type equipment. The first pass

of the patrol grader type equipment shall pull stone in from the outside edges of all listed roads, magazine drives, entrances, turnarounds, and pull-off strips. The middle of the roadway shall then be graded. This is a minimum total of three passes of the patrol grader through any given point. Magazine drives, entrances, turnarounds, and pull-off strips shall be graded before main road is completed. All grading procedures shall result in positive drainage of surface waters into the ditches. Soft subgrade, which results in road base failure, shall be excavated when directed by the Delivery Order. The drives into the magazines, including all stone surfaces inside the retaining wall area, turnarounds, and pull-off strips shall be included. Magazine drives shall transition into other stoned areas (roads, etc.) smoothly without mounds or humps of gravel. Drives in front of the magazine walls shall be graded so that drain holes of the magazines or retaining walls are completely unobstructed and open and positive drainage away from the holes is provided. Also, the magazine drive within the retaining wall area shall drain both ways (if open) or out through the open end (if closed on an end). Immediately following the patrol grading requirements, all roads, and magazine drives, entrances, turnarounds, and pull-off strips shall be smoothed with maintainer-type equipment. Maintaining shall occur within 4 hours of meeting the patrol grading requirements. The maintainer shall be equipped with three blades set to cut from left to right and right to left and level left to right. Blades shall be manually adjusted to cut at various depths. The maintainer shall have four wheels and shall be hydraulically controlled from pull tractor. The maintainer shall be equipped with a side rail on each side for alignment of the road edge. The maintainer shall make one pass on each side of the roadways followed by one pass through the middle. This is a total of three passes through a given point. The roadway shall be left with a 1-1/2 inch crown on 10 to 12 feet wide roads, 2 inches on all other roads with a width over 12 feet. Magazine drives, entrances, turnaround, and pull-off strips shall be maintained and finished before main road is completed. At railroad crossings, clear away all stone that covers the rails and clear stone out of the wheel flange grooves. Gravel fill shall be held to 1 inch to 1-1/4 inch below the top of the rail, between the rails, at all road crossing. The stone shall be level with the track on the outside of the rails at all road crossings.

11.2 (ELIN 185-188) This work includes the addition of crushed stone, No. 53, No, 73, No. 2, or No. 8 as ordered, to be placed as directed. Crushed stone material shall meet Indiana Department of Highways Standard specifications for Type O, Class A or B, Size as ordered. The Contractor shall provide written verification of compliance if requested by the ROIC. Crushed stone material that is delivered to the work site, or is stockpiled on Center for use at the work site, will be subject to Government inspection and acceptance. Any stone designated as "of questionable quality" by the inspecting representative shall not be used as part of the work performance until Contractor provides written verification of compliance. Delivery tickets for crushed stone delivered and used as specified under this contract shall be submitted to the Contracting Officer or his designated representative. Tickets shall be signed and submitted with Contractor's Daily Report to the Inspector. New aggregate shall be spread from trucks by the tailgate method and shall be graded with patrol type grader in compacted depth gradations of 2 inches maximum. A lift shall be spread on each side with a final lift in the center of all roads specified except for jeep trails where two passes will be sufficient. The newly added stone shall be graded smooth. Excessive deviations in the

surface shall be corrected by removing and/or adding material. After placement, the maintainer shall make on pass on each side of the roadways, followed by one pass through the middle. This is a total of three passes through a given point. After grading, maintaining, and application of any additional stone, a minimum of one pass shall be made over the entire road surface by a minimum 10-ton roller. Rolling shall occur within 24 hours of meeting the grading and maintaining requirements. Pneumatic type rollers are not acceptable. Grass and weeds shall be picked up and removed from roadways and disposed of as directed. Grass debris and weeds shall not be disposed of in the side ditches. Excavation of soft subgrade material, including mud fouled aggregate, shall be in accordance with Section 203 of the IDOT Standard Specification. The work shall include the excavation, hauling, and disposal of the material, and the compaction of the top 6 inches of the material remaining. The excavation shall be finished to a reasonably smooth and uniform surface. Disposal, including hauling, of material, shall be designated on the Delivery Order, and will be located on Center. No unsightly piling of material along roads or edges of stone lots will be permitted unless the area selected is designated a fill site. All pronounced depressions left in the excavated area shall be filled with suitable, well-compacted, aggregate material. Crushed stone aggregate shall be provided in place to the depths indicated on the Delivery Order. Stone shall be placed in 3 inch lifts and compacted to 95% maximum density. Final lift shall match in grade to the existing roadway surface. Maintaining operations shall then be applied over the area, which has been repaired. The Contractor shall repair any damaged property caused by the execution of the work, such as road signs. Unit of measure is per ton.

12. BASIS OF UNIT PRICES – SIGNS (ELIN 189-240)

12.1 (ELIN 189-240)

The work includes the provision of all labor, supplies, materials, equipment, transportation, facilities, utilities, supervision, and management, unless otherwise specified, required for the maintenance, repair and replacement of highway signs, marque signs, base information signs, specialty signs and related work. All traffic regulatory and MUTCD designated signs shall be manufactured in accordance with Federal and Indiana State regulations. All MUTCD designated signs shall be installed with a permanent non corrosive tag on the backside of each sign. The tag shall be pressure sensitive or punch out type of tag that will allow a permanent record of the date of installation to be made. When each sign is installed the tag shall be permanently marked or punched to clearly indicate the month and year when the sign was installed. The tag shall contain words so that the message of the tag is clearly understood. For example the tag can state “This sign was erected on Jan 2014”, or other such permanent message that conveys the same message.

New MUTCD signs shall be made from sheet aluminum in accordance with ASTM B 209, alloy 5052-H338 or alloy 6061-T6, with a minimum thickness of .080". Reference Indiana Department of Highways Standard Specification. The contractor shall provide the Government with the reflectorized sheeting manufacturer's written ten (10) year field performance warranty for the high intensity reflectorized sheeting. Reference specification section 10 41 01. Unit of measure is Each.

13. BASIS OF UNIT PRICES – SCALE CERTIFICATION (ELIN 241)

13.1 (ELIN 241)

This line item is for the weight test and certification of the highway truck scales located at NSA Crane near the Crane Gate. This line item is for weight test and certification only if material or labor is needed to repair the scales it shall be paid under the material and labor line items.
Unit of measure is Each.

14. BASIS OF UNIT PRICES –Storm Water Notice of intent Permit(ELIN 242)

14.1 (ELIN 242) Rule 5 requires the development of a Construction Plan. An integral part of the Construction Plan includes a Storm Water Pollution Prevention Plan. The Storm Water Pollution Prevention Plan addresses several issues. First, the plan outlines how erosion and sedimentation will be controlled on the project site to minimize the discharge of sediment off-site or to a water of the state. Second the plan addresses other pollutants that may be associated with construction activity. This can include disposal of building materials, management of fueling operations, etc. Finally, the plan should also address pollutants that will be associated with the post construction land use.

The Construction Plan requirements can be found in 327 IAC 15-5-6.5 [PDF] (Scroll to Page 10) of the Rule. The following information is an outline of items that are required to be contained in a Construction Plan that is submitted pursuant to 327 IAC 15-5. The items within this document have been divided into three distinct categories, including:

1. Basic Plan Elements,
2. Active Construction Component, and
3. Post Construction Component.

Each item is identified with a letter and number that can be directly related back to the review sheet that is utilized by staff reviewing a set of Construction Plans that have been submitted for 327 IAC 15-5. Each item also contains information that explains the expectation for each plan element and the level to which it should be described or represented within the plans.

This bid item is for the contractor to submit the entire plan and all fees to complete the NOI. Unit of measure is Each.

15. BASIS OF UNIT PRICES – LABOR, MATERIAL, EQUIPMENT, AND BOND (ELIN 243-245)

15.1 (ELIN 243) Labor hours for installation of material shall be for the labor in conjunction with work that is not covered in the Exhibit Line Items. The Contractor shall provide labor as necessary for the maintenance, repair, and replacement for items not specifically listed within the above exhibit line items. The contractor in the proposal that is provided to the Government, which identifies the repairs to be made, the material and equipment required,

and the amount of labor necessary to perform the installation of the material shall identify this labor. The labor hour unit price shall include all direct and indirect costs to perform an hour of labor except material. Cost such as profit, field and office overhead, job estimating, job preparation, licenses, permits, insurance, furnishing submittals, and all other direct and indirect cost associated with performance are all included as part of labor hours unit prices. Labor hour quantities proposed by the contractor that accomplish repair jobs are subject to approval of the Contracting Officer or his/her designated representative. No work under this bid item shall be performed until proper authorization from the Government as been received.

15.2 (ELIN 244) Unit price for material and equipment that is not specifically listed within other exhibit line items. The amount listed in the exhibit is for proposal evaluation purposes only and does not necessarily indicate any quantity of material/equipment required by the Government. The contractor shall provide such materials and or equipment for repairs and maintenance as required by the government for the maintenance, and repair. The contractor on an invoice cost basis (this includes all cost outlined on the invoice) shall provide a cost estimate for materials and equipment purchased for incorporation in the contract-related repair. Contractor shall provide suppliers invoices for the invoice cost.

15.3 (ELIN 245) Bonds for Payment and Performance Bonds shall be the amount the contractor will charge for furnishing a Performance Bond and a Payment Bond each per $25,000.00 worth of work. Unit of measurement is for a bond amount based upon $25,000.00 of work ordered.

- - - END OF SECTION - - -

PROPOSAL INFORMATION
Section 00100 - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS

1.0 GENERAL INFORMAITON

NAICS Code: *237310 –Highway, Street, and Bridge Construction (Size Standard: $33.5 million)*
FSC Code: Z2LB

This procurement is unrestricted.

Proposals are due no later than 2:00 p.m. (EST) on Tuesday August 11, 2015.
Proposals shall be submitted to the following address:

NAVFAC Midlant PWD Crane – Acquisition Department
Attn: Annette Taylor (Code PRC22)
300 Highway 361
Building 2516, NSA
Crane, IN 47522-5082

2.0. REQUIRED DATA

a. All offerors are required to register in The System for Award management (SAM), which is a Federal Government, owned and operated FREE web site that consolidates the capabilities in CCR/FedRdg, ORCA, and EPLS. All contractors are required to be registered on the SAM website.

The website address is: https://www.sam.gov

Note: Registration on SAM is FREE. Beware of websites charging for registration.

b. In addition, all offerors are required to complete and submit Annual Representations and Certifications via the Online Representations and Certifications Applications (ORCA) in accordance with FAR 52.204-8.

c. All offeror's are required to complete and submit VETS-100 Federal Contractor Report on Veterans' Employment in accordance with Public Law 107-288 and FAR 52.222-37. The website address is: http://vets100.cudenver.edu

3.0 PRE-PROPOSAL CONFERENCE/SITE VISIT –

A Formal site visit will not be held. If you wish to visit the side, please contact Chris Stahl @ *christopher.stahl@navy.mil*

4.0 NOTIFICATIONS AND DEBRIEFINGS

Notification of unsuccessful offerors shall be accomplished after award and in accordance with FAR 15.503. Debriefing of unsuccessful offerors shall be in accordance with FAR 15.505 and 15.506.

5.0 DISPOSITION OF PROPOSALS

After award, any excess copies of the proposal will not be returned to the offeror, but shall be destroyed by the Contracting Officer. No certificate of destruction will be issued.

6.0 Completion Time: The completion time will be specified in each task order RFP and will apply to each task order issued on this contract.

7.0 QUESTIONS

ALL QUESTIONS MUST BE SUBMITTED IN WRITING. The offeror may submit written questions via e-mail or fax to the address below specifying the section and paragraph of the RFP for which clarification is desired. Questions received after August 03, 2015 are not guaranteed a response. Inquires should be addressed to:

NAVFAC Midlant PWD Crane – Acquisition Department
Attn: Annette Taylor (Code PRC22)

300 Highway 361
Building 2516, NSA
Crane, IN 47522-5082

Phone: (812) 854-2673
E-Mail: annette.taylor@navy.mil

8.0 PROPOSALS

Offerors are required to submit both technical and price proposals. For this solicitation, the Low Price Technically Acceptable process is selected as appropriate for this acquisition because the best value is expected to result from selection of the technically acceptable proposal with the lowest evaluated price.

An overall non-price factors rating must be at least "ACCEPTABLE" in order to be eligible for award. An
"UNACCEPTABLE" rating in any factor results in the overall non-price factors proposal being rated "UNACCEPTABLE" unless corrected through discussions. An overall non-price factors rating of "UNACCEPTABLE" makes a proposal ineligible for award.

The technical proposal and the price proposal shall be submitted in separate volumes. The technical proposal shall not contain any cost/pricing information.

PROPOSAL FACTORS & EVALUATION

Proposals consist of price and technical information. Contractors shall submit an original and two (2) copies of the technical proposal and an original price proposal. No additional copies of the price proposal are required.

(a) The Government reserves the right to eliminate from consideration for award any or all offers at any time prior to award of the contract; to negotiate with offerors in the competitive range; and to award the contract to the offeror submitting the lowest priced, technically acceptable offer.

As stated in the solicitation, the Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. In addition, if the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals."

(b) Options. There will be two (2), one year option periods on this contract. The base period of this contract will have a period of performance of 365 days from date of award.

The term of the contract shall not exceed 36 months or the total value of the contract shall not exceed $10.0 million, whichever comes first.

(c) A written notice of award or acceptance of an offer, mailed or otherwise furnished to the successful offeror within the time for acceptance specified in the offer, shall result in a binding contract without further action by either party. Before the offer's specified expiration time, the Government may accept an offer (or part of an offer), whether or not there are negotiations after its receipt, unless a written notice of withdrawal is received before award.

EVALUATION FACTORS FOR AWARD – NON COST PRICE FACTORS:

1. The solicitation requires the evaluation of price and the following non-cost/price factors.
   FACTOR 1 – EXPERIENCE
   FACTOR 2 – PAST PERFORMANCE
   FACTOR 3 – MANAGEMENT ABILITY
   FACTOR 4 – SAFETY
   FACTOR 5 – SMALL BUSINESS UTILIZATION
   SUBFACTOR 5.A. – PAST PERFORMANCE IN UTILIZATION OF SMALL BUSINESS CONCERNS
   SUBFACTOR 5.B. – SMALL BUSINESS PARTICIPATION

2. ***The solicitation requires the evaluation of price and the following non-price factors.***

(a) PRICE:

(1) Solicitation Submittal Requirements: Offerors shall submit an original only of the price proposal. In addition, the offerors shall submit a completed electronic copy of the exhibit lie items for the base period and both option periods. The basis of price proposal shall be the exhibit line items (ELINS) for each of the contract periods.

- Offerors shall complete and submit the SF1442, SFl442 Continuation Page, and Exhibit Line Items for the entire project. (Exhibits A, B, and C)

- The offeror shall provide a Bid Guarantee, as required by NFAS 5252.228-9302.

- In order to show the offeror's ability to obtain adequate financial resources to support this project, the offeror shall submit a letter from a bank or other financial institution stating their available line of credit and that their accounts are in good standing.

- The offeror shall demonstrate the capability to bond individual projects valued up to $600,000.00 as well as the capability to bond up to $3,000,000.00 of projects within a 12-month time period. The offeror shall provide a letter from their bonding company that describes the contractors bonding capability.

- Representations and certifications shall be completed on-line in accordance with FAR 52.204-8.

- Offerors shall indicate on the proposal that prices are valid for not less than ninety (90) days.

(2) Basis of Evaluation: The Government will evaluate price based on the total

price. Total price consists of the basic requirements and all option items (the total price of Exhibits A, B, and C). The Government intends to evaluate all options and has included the provision FAR 52.217-5, Evaluation of Options (JUL 1990) in 00100 of the solicitation. In accordance with FAR 52.217-5, evaluation of options will not obligate the Government to exercise the option(s). Analysis will be performed by one or more of the following techniques to ensure a fair and reasonable price:

(i) Comparison of proposed prices received in response to the RFP.
(ii) Comparison of proposed prices with the IGCE.
(iii) Comparison of proposed prices with available historical information.
(iv) Comparison of market survey results.

(b) NON-COST/PRICE FACTORS:

FACTOR 1- EXPERIENCE

(1) Solicitation Submittal Requirements:

Submit a maximum of five (5) relevant construction projects that best demonstrate your experience on projects similar in size, scope, and complexity to the scope of work included within the RFP.

A relevant project is one that involves any or all of the following types of work: excavation and fill, asphalt repairs/replacement, highway striping, guardrail repair/replacement, concrete work, culvert replacement, fence repair/replacement, erosion control, stone road and lot maintenance, sidewalk repair/replacement, and highway sign maintenance repair/replacement. A relevant project has an approximate contract cost between $100,000 and $1,500,000.

Projects submitted shall be completed within the past three (3) years of the date of issuance of this RFP.

A project is defined as a construction project performed under a single task order or contract. For multiple award and indefinite delivery/indefinite quantity type contracts, the contract as a whole should not be submitted as a project; rather offerors should submit the work performed under a task order as a project.

The following data shall be provided for each submitted project: name and location of the project, date the project was awarded, award amount, final price, date the project was completed, indicate if the offeror performed work as a prime contractor, subcontractor, or joint venture, and a description of the project.

For all submitted projects, the description of the project shall clearly describe the scope of work performed and the relevancy to the project requirements of this RFP (i.e.: unique features, square footage, construction methods

The Offeror may utilize experience of a subcontractor that will perform major or critical aspects of the requirement to demonstrate construction experience under this evaluation factor.

The Offer must provide a letter of commitment and an explanation of the meaningful involvement that the subcontractor will have in performance of this contract.

If the Offeror is a Joint Venture (JV), relevant project experience should be submitted for projects completed by the Joint Venture entity. If the Joint Venture does not have shared experience, projects shall be submitted for each Joint Venture partner. If no shared project experience is demonstrated, proposals that fail to submit projects for each partner may be rated lower. Offerors are still limited to a total of five (5) projects combined.

(2) Basis of Evaluation: The basis of evaluation will include the Offeror 's experience or Offeror's team experience, where allowed, in performing relevant construction projects as defined in the solicitation submittal requirements. The assessment of the Offeror's relevant experience will be used as a mean s of evaluating the relative capability of the Offeror to successfully meet the requirements of the RFP.

FACTOR 2 – PAST PERFORMANCE:

(1) Solicitation Submittal Requirements:

If a completed CPARS evaluation is available, it shall be submitted with the proposal for each project included in Factor 1 for Experience. AN OFFEROR SHALL NOT SUBMIT A PPQ WHEN A COMPLETED CPARS IS AVAILABLE. If there is not a completed CPARS evaluation then submit Past Performance Questionnaires (PPQ) (Attachment B) for each project included in Factor 1 for Experience. The Offeror should provide completed PPQs in the proposal. Offerors shall not incorporate by reference into their proposal PPQs previously submitted for other RFPs. However, this does not preclude the Government from utilizing previously submitted PPQ information in the past performance evaluation. If the Offeror is unable to obtain a completed PPQ from a client for a project(s) before proposal closing date, the Offeror shall complete and submit with the proposal the first page of the PPQ, which will provide contract and client information for the respective project(s). The Government may make reasonable attempts to contact the client noted for that project(s) to obtain the PPQ information. However, Offerors should follow-up with clients/references to help ensure timely submittal of questionnaires. If the client requests, questionnaires may be submitted directly to the Government’s point of contact, Annette Taylor, annette.taylor@navy.mil

Offerors may provide any information on problems encountered and the corrective actions taken on projects submitted under Factor 1 – Experience. Offerors may also address any adverse past performance issues. Explanations shall not exceed two (2) double-sided pages (or four (4) single-sided pages) in total.

The Government reserves the right to contact references for verification or additional information. The Government's inability to contact any of the Offeror's references or the references unwillingness to provide the information requested may affect the Government's evaluation of this factor. Performance award or additional information submitted will not be considered.

(2) Basis of Evaluation: This evaluation focuses on how well the Offeror performed on the relevant projects submitted under Factor 1 – Experience and past performance on other projects currently documented in known sources. More emphasis will be placed on more relevant projects. In addition to the above, the Government reserves the right to obtain information for use in the evaluation of past performance from any and all sources including sources outside of the Government. Other sources may include, but are not limited to, past performance information retrieved through the Past Performance Information Retrieval System (PPIRS) using all CAGE/DUNS numbers of Contractors who are part of a partnership or joint venture identified in the Offeror's proposal, inquiries of owner representative(s), Federal Awardee Performance and Integrity Information System (FAPIIS), Electronic Subcontract Reporting System (eSRS), and any other known sources not provided by the Offeror. While the Government may elect to consider data from other sources, the burden of providing detailed, current, accurate and complete past performance information rests with the Offeror.

The Government will consider the currency and relevance of the information, the source of the information, context of the data, and general trends in the Contractor's performance. This evaluation is separate and distinct from the Contracting Officer's responsibility determination. The assessment of the Offeror's past performance will be used as a means of evaluating the Offeror's probability to successfully meet the requirements of the RFP.

In the case of an offeror without a record of relevant past performance or for whom information on past performance is not available or so sparse that no meaningful past performance rating can be reasonably assigned, the offeror may not be evaluated favorably or unfavorably on past performance (see FAR 15.305(a)(2)(iv)). Therefore, the offeror shall be determined to have unknown past performance. In the context of acceptability/unacceptability "unknown" shall be considered "acceptable."

FACTOR 3 – MANAGEMENT ABILITY

(1) Solicitation Submittal Requirements: The offeror shall demonstrate an in-depth understanding of the contract requirements. Evaluation will focus on the contractor's ability in managing and executing a project of similar size and scope within a similar work environment. Factors to be considered include, project supervision, coordination of

subcontractors, quality control, INDOT qualifications, ability to respond to unknown/unforeseen conditions, and an effective scheduling approach that includes flexibility in meeting the customer's fluctuating schedule and provide a detailed contingency work plan.

- Demonstrate ability to coordinate and supervise work requirements as well as subcontractors at a single location and at multiple locations simultaneously,
- Describe quality control organization and quality control procedures that adequately assure high quality performance
- Provide documentation demonstrating that the asphalt producer is certified with INDOT
- Provide documentation demonstrating that the contractor or committed subcontractor is on the INDOT prequalified bidders list under all the following work types: B(A), C(A), C(B), E(E), E(F), E(H), E(I), E(J), E(K), E(T), 0085.
- Demonstrate ability to respond to unknown/unforeseen conditions
- Demonstrate ability to complete the project within an acceptable schedule
- Describe your scheduling approach. Scheduling approach should take into account all foreseeable factors that will affect the completion of the project including but not limited to identification and monitoring of submittals, equipment/material purchases/delivery and the actual work activities. Also scheduling approach should take into account flexibility in meeting the customer's fluctuating schedule and providing a detailed contingency work plan. For example: the restrictions associated with Government and storage operations and working in restricted areas. .

(2) Basis of Evaluation: Evaluation will focus on the offeror's ability to accomplish the work including management of subcontractors and work at multiple sites simultaneously. The offeror's quality control organization and procedures are more than adequate to assure high quality performance. The proposal clearly details a plan responding to unforeseen/unknown conditions. The asphalt producer and contractor and/or subcontractor meet INDOT qualifications for performing work in the State of Indiana. Scheduling approach and the factors considered in scheduling include identifying and monitoring submittals, equipment/material purchases/delivery and the actual work activities as well as the ability to complete the project within an acceptable schedule. The offeror's scheduling program is flexible to meet the customer's fluctuating schedule and includes a detailed contingency work plan.

FACTOR 4 – SAFETY

(1) Solicitation Submittal Requirements: The Offeror shall submit the following information: (For a partnership or joint venture, the following submittal requirements are required for each contractor who is part of the partnership or joint venture; however, only one safety narrative is required. EMR and DART Rates shall not be submitted for subcontractors.)

(i) Experience Modification Rate (EMR): For the three previous complete calendar years (2012, 2013, and 2014), submit your EMR (which compares your company's annual losses in insurance claims against its policy premiums over a three year period). If you have no EMR, affirmatively state so, and explain why. Any extenuating circumstances that affected the EMR and upward or downward trends should be addressed as part of this element. EMR information shall be submitted on insurance carrier letterhead.

(ii) OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate: For the three previous complete calendar years, submit your OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate, as defined by the U.S. Department of Labor, Occupational Safety and Health Administration. If you cannot submit an OSHA DART Rate, affirmatively state so, and explain why. Any extenuating circumstances that affected the OSHA DART Rate data and upward or downward trends should be addressed as part of this element.

(iii) Technical Approach for Safety: Describe the plan that the Offeror will implement to evaluate safety performance of potential subcontractors, as a part of the selection process for all levels of subcontractors. Also, describe any innovative methods that the Offeror will employ to ensure and monitor safe work practices at all subcontractor levels. The Safety Narrative shall be limited to two pages.

(2) Basis of Evaluation: The Government is seeking to determine that the Offeror has consistently demonstrated a commitment to safety and that the Offeror plans to properly manage and implement safety procedures for itself and its subcontractors. The Government will evaluate the Offeror's overall safety record, the Offeror's plan to select and monitor subcontractors, any and innovative safety methods that the Offeror plans to implement for this procurement. The Government's sources of information for evaluating safety may include, but are not limited to, OSHA, NAVFAC's Facility Accident and Incident Reporting (FAIR) database, and other related databases. While the Government may elect to consider data from other sources, the burden of providing detailed, current, accurate and complete safety information regarding these submittal requirements rests with the Offeror.

The evaluation will collectively consider the following:

- Experience Modification Rate (EMR)
- OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate
- Offeror Technical Approach to Safety
- Other sources of information available to the Government

(i) Experience Modification Rate (EMR): The Government will evaluate the EMR to determine if the Offeror has demonstrated a history of safe work practices taking into account any upward or downward trends and extenuating circumstances that impact the rating.

(ii) OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate: The Government will evaluate the OSHA DART Rate to determine if the Offeror has

demonstrated a history of safe work practices taking into account any upward or downward trends and extenuating circumstances that impact the rates.

(iii) Technical Approach to Safety: The Government will evaluate the narrative to determine the degree to which subcontractor safety performance will be considered in the selection of all levels of subcontractors on the upcoming project. The Government will also evaluate the narrative to determine the degree to which innovations are being proposed that may enhance safety on this procurement.

FACTOR 5 - SMALL BUSINESS UTILIZATION

Definitions: "SB" as used herein, is intended to include Small Business concerns, Small Disadvantaged Business concerns (SDB), Women-Owned Small Business concerns (WOSB), Historically Underutilized Business Zone Small Business concerns (HUBZone), Veteran-Owned Small Business concerns (VOSB), and Service-Disabled Veteran-Owned Small Business concerns (SDVOSB). All small business programs are self-certifying programs with the exception of HUBZone certifications, see HUBZone SB Certifications below. Small Business Program requirements and definitions may be found in the Federal Acquisition Regulations (FAR), Part 19.

HUBZone SB Certifications: Offerors are reminded that HUBZone SB concerns must obtain formal certification from the Small Business Administration (SBA) if they expect to receive the evaluation benefits associated with the HUBZone SB programs either as a prime or subcontractor(s). For more information on the HUBZone SB certification requirements and available benefits, contact your local SBA representative. Certified HUBZone SB firms are listed on the Central Contractor Registration (CCR) website at www.sba.gov. It is the responsibility of the prime contractor to periodically check the CCR as certifications are subject to change.

SUBFACTOR 5.A – PAST PERFORMANCE IN UTILIZATION OF SMALL BUSINESS CONCERNS

(i) Solicitation Submittal Requirements: Proposals that do not include responses addressing ALL elements of the requirements stated below (a. through d.) must include an explanation why that element is not addressed.

a. Provide performance evaluation ratings (i.e., SF1420, DD2626, or equivalent) obtained on the implementation of small business subcontracting plans for all of the offeror's projects referenced under Factor 2 Past Performance. Recently completed project evaluations are desired, however, in the absence of recently completed project evaluations, interim ratings for projects that are 80% complete may be considered. If more than five evaluation ratings are provided, only the first five will be considered.

In addition, the Government may consider past performance information on other projects as made available to the Government from other sources (such as the Construction Contractor Appraisal Support Systems (CCASS)), Architect-Engineer Contract Administration Support System (ACASS) and Contractor Performance Assessment Reporting System (CPARS)).

b. Provide small business subcontracting history. Large businesses with Federal prime contracting experience shall provide final or current Subcontracting Report for Individual Contracts (SF294) or Individual Subcontracting Reports (ISR's) on prime (only) contracts submitted under Factor 2 Past Performance. If Factor 2 submitted contracts are not prime contracts, submit SF294s or ISRs for contracts of similar scope performed as the prime contractor. If goals were not met on any submitted contracts, an explanation for each unmet goal is required. Large Businesses with no documented SF294/ISR history shall submit a subcontracting history on Attachment C, Small Business Past Performance. If more than five (5) reports are provided, only the first 5 reports will be considered

c. Small Business proposers shall provide a subcontracting history on Attachment C), Small Business Past Performance.

d. If an Offeror is utilizing past performance information of affiliates/subsidiaries/parent/LLC/LTD member companies (name is not exactly as stated on the solicitation), the proposal shall clearly demonstrate that the affiliates/subsidiaries/parent/LLC/LTD member companies will have meaningful participation of all members in the management of the subcontracting program/plan by identifying the personnel or resources from the member companies that will be dedicated to managing the plan, and an organization chart which demonstrates the reporting chain within the membership.

If the Offeror is a Joint Venture, Partnership LLC or other entity consisting of more than one entity, provide past performance information, elements a. through d., for each individual business entity(ies) that will be responsible for managing the subcontracting program/plan.

Proposals including information on any of the following additional elements may be rated higher, based on the evaluated extent to which the information addresses the basis of evaluation in paragraph (ii):

a. Provide information on national-level, and industry-issued awards that offerors received for outstanding support to SB concerns within the past five (5) years. Include purpose, issuer, and date of award(s). National and industry-issued awards received beyond five (5) years will not be considered.

b. Provide information on previous, existing, planned or pending mentor-protégé agreements (MPA) under any Federal Government, or other, program held within the

last five years. Information should include, at a minimum, the members, objectives, period of performance, and major accomplishments during the MPA.

c. Provide information on past use of Community Rehabilitation Program (CRP) organizations certified under the AbilityOne Program by SourceAmerica, or the National Industry for the Blind (NIB). Information should include the contract type, type of work performed, period of performance, and number of employed severely handicapped persons.

(ii) Basis of Evaluation:

The extent to which the proposal demonstrates the proposer's level of past performance in utilizing Small Business (SB) concerns, AbilityOne, Mentor-Protégé Agreements, and other socio-economic programs, as defined in FAR Parts 26.1 and 26.2, in subcontracting, and in meeting established Small Business subcontracting goals.

SUBFACTOR 5.B – SMALL BUSINESS PARTICIPATION

(i) Solicitation Submittal Requirements:

Identify in terms of dollar value and percentage of the total acquisition, the extent of work you will perform as the prime contractor. If submitting an offer as a Joint-Venture, identify the percentage of work each member will be responsible for and indicate the size status of each member, e.g., LB, SB, SDB, WOSB, HUBZone SB, etc.

If you are a Large Business, submit a Small Business Subcontracting Plan for this project in the format provided in Attachment D for this factor, to include all information required in the attachment. If you are a Small Business, submit a subcontracting participation breakdown in the format provided in Attachment E for this factor. All proposers: To demonstrate commitment in using small business concerns, the Small Business Subcontracting Plan or subcontracting participation breakdown may list all subcontractors by name. If the proposed Small Business Subcontracting goals do not meet the minimum NAVFAC Small Business Subcontracting Targets, include a detailed explanation describing the actions taken to arrive at that determination, along with an explanation for the goals that actually were proposed. For proposals submitted on design-build solicitations, the proposer must identify its designer/design team in its Subcontracting Plan or Small Business Participation Breakdown.

Firm commitments to subcontract to multiple companies: The Offeror may provide a demonstration of commitments in planned subcontracts by listing multiple names of companies that will be used to support specific small business category (i.e., SB, SDB, WOSB, HUBZone SB, VOSB and SDVOSB).

(ii) Basis of Evaluation:

The following will be evaluated on all proposals:

i. The extent to which the proposal demonstrates maximum practicable participation of SBs in terms of the total value of the acquisition, including options.

ii. The extent to which the proposal demonstrates a commitment to use SB concerns that are specifically identified in the proposal, including but not limited to use of mentor protégé programs.

iii. The extent to which the proposal demonstrates SB participation in a variety of industries expected during the performance of work.

iv. The realism of the proposal to meet the proposed goals.

The following will be evaluated on proposals submitted by Large Business firms:

a. The extent to which the proposal provides Small Business Subcontracting goals that meet or exceed the minimum NAVFAC Small Business Subcontracting Targets, and utilization of AbilityOne CRP organizations. Proposals that provide goals exceeding the NAVFAC Subcontracting Targets may be rated higher. The proposed goals and NAVFAC Subcontracting Targets are expressed as a percentage of total subcontracted values. The minimum NAVFAC Subcontracting Targets are as follows:

	FY 2015	FY2016	FY2017
SB	**46%**	**46%**	**46%**
SDB	**24%**	**24%**	**24%**
WOSB	**7%**	**7%**	**7%**
HUBZone	**9%**	**9%**	**9%**
SDVOSB	**4%**	**4%**	**4%**

b. The extent to which the proposer's Small Business Subcontracting Plan establishes reasonable efforts demonstrating the subcontracting targets can be met during the performance of the contract:

A copy of the blank forms to be used for offeror submission of Small Business Utilization are included as follows:

Attachment C – Past Performance Questionnaire
Attachment D – Small Business Past Performance
Attachment E – Small Business Subcontracting Plan.
Attachment F – Small Business Offeror Small Business Participation Breakdown

ATTACHMENT C

1. The NAVFAC Form PPQ shall be utilized for all evaluations that require a Past Performance Questionnaire (PPQ).

2. "Solicitation Submittal Requirements: IF A COMPLETED CPARS EVALUATION IS AVAILABLE, IT SHALL BE SUBMITTED WITH THE PROPOSAL. IF THERE IS NOT A COMPLETED CPARS EVALUATION, the Past Performance Questionnaire (PPQ) included in the solicitation is provided for the offeror or its team members to submit to the client for each project the offeror includes in its proposal for Factor 1, Experience. AN OFFEROR SHALL NOT SUBMIT A PPQ WHEN A COMPLETED CPARS IS AVAILABLE.

IF A CPARS EVALUATION IS NOT AVAILABLE, ensure correct phone numbers and email addresses are provided for the client point of contact. Completed PPQs should be submitted with your proposal. If the offeror is unable to obtain a completed PPQ from a client for a project(s) before proposal closing date, the offeror should complete and submit with the proposal the first page of the PPQ (Attachment C), which will provide contract and client information for the respective project(s). Offerors should follow-up with clients/references to ensure timely submittal of questionnaires. If the client requests, questionnaires may be submitted directly to the Government's point of contact, Annette Taylor, via email at annette.taylor@navy.mil prior to proposal closing date. Offerors shall not incorporate by reference into their proposal PPQs or CPARS previously submitted for other RFPs. However, this does not preclude the Government from utilizing previously submitted PPQ information in the past performance evaluation."

ATTACHMENT C

NAVFAC PAST PERFORMANCE QUESTIONNAIRE (Form PPQ)

CONTRACT INFORMATION (Contractor to complete Blocks 1-4)

1. Contractor Information:

Firm Name:

Address:

Phone Number:

Point of Contact: Contact Phone Number:

2. Work Performed as: ☐ Prime Contractor ☐ Sub Contractor ☐ Joint Venture ☐ Other (Explain)

Percent of project work performed:

If subcontractor, who was prime (Name/Phone #):

3. Contract Information

Contract Number:

Delivery/Task Order Number (if applicable):

Title:

Location:

Award Date (mm/dd/yy):

Contract Completion Date (mm/dd/yy):

Actual Completion Date (mm/dd/yy):

Explain Differences:

Original Contract Price (Award Amount): Final Contract Price (*to include all modifications, if applicable*): Explain Differences:
4. Project Description: Complexity of Work ☐ High ☐ Med ☐ Routine How is this project relevant to project of submission? (*Please provide details such as similar equipment, requirements, conditions, etc.*)
CLIENT INFORMATION (Client to complete Blocks 5-8)
5. Client Information Name: Title: Phone Number: Email Address:
6. Describe the client's role in the project:
7. Date Questionnaire was completed:
8. Client's Signature:

NOTE: NAVFAC REQUESTS THAT THE CLIENT COMPLETES THIS QUESTIONNAIRE AND SUBMITS DIRECTLY BACK TO THE OFFEROR. THE OFFEROR WILL SUBMIT THE COMPLETED QUESTIONNAIRE TO NAVFAC WITH THEIR PROPOSAL, AND MAY DUPLICATE THIS QUESTIONNAIRE FOR FUTURE SUBMISSION ON NAVFAC SOLICITATIONS. CLIENTS ARE HIGHLY ENCOURAGED TO SUBMIT QUESTIONNAIRES DIRECTLY TO THE OFFEROR. HOWEVER, QUESTIONNAIRES MAY BE SUBMITTED DIRECTLY TO NAVFAC. PLEASE CONTACT THE OFFEROR FOR NAVFAC POC INFORMATION. THE GOVERNMENT RESERVES THE RIGHT TO VERIFY ANY AND ALL INFORMATION ON THIS FORM.

ADJECTIVE RATINGS AND DEFINITIONS TO BE USED TO BEST REFLECT

YOUR EVALUATION OF THE CONTRACTOR'S PERFORMANCE

RATING	DEFINITION	NOTE
(E) Exceptional	Performance meets contractual requirements and exceeds many to the Government/Owner's benefit. The contractual performance of the element or sub-element being assessed was accomplished with few minor problems for which corrective actions taken by the contractor was highly effective.	An Exceptional rating is appropriate when the Contractor successfully performed multiple significant events that were of benefit to the Government/Owner. A singular benefit, however, could be of such magnitude that it alone constitutes an Exceptional rating. Also, there should have been NO significant weaknesses identified.
(VG) Very Good	Performance meets contractual requirements and exceeds some to the Government's/Owner's benefit. The contractual performance of the element or sub-element being assessed was accomplished with some minor problems for which corrective actions taken by the contractor were effective.	A Very Good rating is appropriate when the Contractor successfully performed a significant event that was a benefit to the Government/Owner. There should have been no significant weaknesses identified.

(S) Satisfactory	Performance meets minimum contractual requirements. The contractual performance of the element or sub-element contains some minor problems for which corrective actions taken by the contractor appear or were satisfactory.	A Satisfactory rating is appropriate when there were only minor problems, or major problems that the contractor recovered from without impact to the contract. There should have been NO significant weaknesses identified. Per DOD policy, a fundamental principle of assigning ratings is that contractors will not be assessed a rating lower than Satisfactory solely for not performing beyond the requirements of the contract.
(M) Marginal	Performance does not meet some contractual requirements. The contractual performance of the element or sub-element being assessed reflects a serious problem for which the contractor has not yet identified corrective actions. The contractor's proposed actions appear only marginally effective or were not fully implemented.	A Marginal is appropriate when a significant event occurred that the contractor had trouble overcoming which impacted the Government/Owner.
(U) Unsatisfactory	Performance does not meet most contractual requirements and recovery is not likely in a timely manner. The contractual performance of the element or sub-element contains serious problem(s) for which the contractor's corrective actions appear or were ineffective.	An Unsatisfactory rating is appropriate when multiple significant events occurred that the contractor had trouble overcoming and which impacted the Government/Owner. A singular problem, however, could be of such serious magnitude that it alone constitutes an unsatisfactory rating.
(N) Not Applicable	No information or did not apply to your contract	Rating will be neither positive nor negative.

Contractor Information (Firm Name): _____
Client Information (Name): _____

TO BE COMPLETED BY CLIENT

PLEASE CIRCLE THE ADJECTIVE RATING WHICH BEST REFLECTS YOUR EVALUATION OF THE CONTRACTOR'S PERFORMANCE.

1. QUALITY:	
a) Quality of technical data/report preparation efforts	E VG S M U N
b) Ability to meet quality standards specified for technical performance	E VG S M U N
c) Timeliness/effectiveness of contract problem resolution without extensive customer guidance	E VG S M U N
d) Adequacy/effectiveness of quality control program and adherence to contract quality assurance requirements (without adverse effect on performance)	E VG S M U N
2. SCHEDULE/TIMELINESS OF PERFORMANCE:	
a) Compliance with contract delivery/completion schedules including any significant intermediate milestones. *(If liquidated damages were assessed or the schedule was not met, please address below)*	E VG S M U N
b) Rate the contractor's use of available resources to accomplish tasks identified in the contract	E VG S M U N
3. CUSTOMER SATISFACTION:	
a) To what extent were the end users satisfied with the project?	E VG S M U N
b) Contractor was reasonable and cooperative in dealing with your staff (including the ability to successfully resolve disagreements/disputes; responsiveness to administrative reports, businesslike and communication)	E VG S M U N
c) To what extent was the contractor cooperative, businesslike, and concerned with the interests of the customer?	E VG S M U N
d) Overall customer satisfaction	E VG S M U N
4. MANAGEMENT/ PERSONNEL/LABOR	
a) Effectiveness of on-site management, including management of	E VG S M U N

subcontractors, suppliers, materials, and/or labor force?						
b) Ability to hire, apply, and retain a qualified workforce to this effort	E	VG	S	M	U	N
c) Government Property Control	E	VG	S	M	U	N
d) Knowledge/expertise demonstrated by contractor personnel	E	VG	S	M	U	N
e) Utilization of Small Business concerns	E	VG	S	M	U	N
f) Ability to simultaneously manage multiple projects with multiple disciplines	E	VG	S	M	U	N
g) Ability to assimilate and incorporate changes in requirements and/or priority, including planning, execution and response to Government changes	E	VG	S	M	U	N
h) Effectiveness of overall management (including ability to effectively lead, manage and control the program)	E	VG	S	M	U	N
5. COST/FINANCIAL MANAGEMENT						
a) Ability to meet the terms and conditions within the contractually agreed price(s)?	E	VG	S	M	U	N

Contractor Information (Firm Name): _____

Client Information (Name): _____

b) Contractor proposed innovative alternative methods/processes that reduced cost, improved maintainability or other factors that benefited the client	E	VG	S	M	U	N
c) If this is/was a Government cost type contract, please rate the Contractor's timeliness and accuracy in submitting monthly invoices with appropriate back-up documentation, monthly status reports/budget variance reports, compliance with established budgets and avoidance of significant and/or unexplained variances (under runs or overruns)	E	VG	S	M	U	N
d) Is the Contractor's accounting system adequate for management and tracking of costs? *If no, please explain in Remarks section.*		Yes			No	
e) If this is/was a Government contract, has/was this contract been partially or completely terminated for default or convenience or are there any pending terminations? *Indicate if show cause or cure notices were issued, or any default action in comment section below.*		Yes			No	
f) Have there been any indications that the contractor has had any financial problems? *If yes, please explain below.*		Yes			No	

6. SAFETY/SECURITY						
a) To what extent was the contractor able to maintain an environment of safety, adhere to its approved safety plan, and respond to safety issues? (Includes: following the users rules, regulations, and requirements regarding housekeeping, safety, correction of noted deficiencies, etc.)	E	VG	S	M	U	N
b) Contractor complied with all security requirements for the project and personnel security requirements.	E	VG	S	M	U	N
7. GENERAL						
a) Ability to successfully respond to emergency and/or surge situations (including notifying COR, PM or Contracting Officer in a timely manner regarding urgent contractual issues).	E	VG	S	M	U	N
b) Compliance with contractual terms/provisions *(explain if specific issues)*	E	VG	S	M	U	N
c) Would you hire or work with this firm again? *(If no, please explain below)*		Yes			No	
d) In summary, provide an overall rating for the work performed by this contractor.	E	VG	S	M	U	N

Please provide responses to the questions above (*if applicable*) and/or additional remarks. Furthermore, please provide a brief narrative addressing specific strengths, weaknesses, deficiencies, or other comments which may assist our office in evaluating performance risk *(please attach additional pages if necessary)***:**

ATTACHMENT D

SMALL BUSINESS PAST PERFORMANCE

Small Business offerors, newly established Large Business offerors, or Large Business Offerors with no prior SF294/ISR history shall complete this form. Large Business Offerors with a SF294 or ISR history shall submit SF294s or ISRs in lieu of completing this form.

(a) SUBCONTRACTING ACHIEVEMENT – Include actual dollar values subcontracted for each of the categories listed. Include the percentage goal only if a goal was established.

(1) Contract Number/Title:			
	ACTUAL		**GOAL** (if applicable)
Completion Date: **Total Contract Value**: $			
Total Subcontracted Value: $	Whole Dollars	Percent	Percent
(a) Small Business Concerns (Including SDB, WOSB, HBCU/MI, HUBZone, VOSB, and SDVOSB) (Dollar amount and percent of line c.) Small Business Concerns (Non-Federal Certifications Examples: MBE (Minority Business Enterprise), DBE (Disadvantaged Business Enterprise), DVBE (Disabled Veteran Business Enterprise), SB (Small Business), WBE (Women's Business Enterprise).			
(b) Large Business Concerns (Dollar amount and percent of line c.)			
(c) Total (sum of lines a & b above)			
(d) Small Disadvantaged Business Concerns (Dollar amount and percent of line c.) Including MBE & DBE			
(e) Women-Owned Small Business Concerns (Dollar amount and percent of line c.) Including WBE			

(f) HUBZone Small Business Concerns (Dollar amount and percent of line c.)			
(g) Veteran-Owned Small Business Concerns (Dollar amount and percent of line c.)			
(h) Service Disabled Veteran-Owned Small Business Concerns (Dollar amount and percent of line c.) Including DVBE			

Name of customer reference for this project: _____

Phone Number: _____ FAX Number: _____

Email address: _____

(2) Contract Number/Title:			
	ACTUAL		**GOAL** (if applicable)
Completion Date: Contract Dollar Value: $			
Total Subcontracted Value: $	Whole Dollars	Percent	Percent
(b) Small Business Concerns (Including SDB, WOSB, HBCU/MI, HUBZone, VOSB, and SDVOSB) (Dollar amount and percent of line c.) Small Business Concerns (Non-Federal Certifications Examples: MBE (Minority Business Enterprise), DBE (Disadvantaged Business Enterprise), DVBE (Disabled Veteran Business Enterprise), SB (Small Business), WBE (Women's Business Enterprise).			
(b) Large Business Concerns (Dollar amount and percent of line c.)			
(c) Total (sum of lines a & b above)			
(d) Small Disadvantaged Business Concerns (Dollar amount and percent of line c.) Including MBE & DBE			

(e) Women-Owned Small Business Concerns (Dollar amount and percent of line c.) Including WBE			
(f) HUBZone Small Business Concerns (Dollar amount and percent of line c.)			
(g) Veteran-Owned Small Business Concerns (Dollar amount and percent of line c.)			
(h) Service Disabled Veteran-Owned Small Business Concerns (Dollar amount and percent of line c.) Including DVBE			

Name of customer reference for this project: _____

Phone Number: _____ FAX Number: _____

Email address: _____

(3) Contract Number/Title:			
	ACTUAL		**GOAL** (if applicable)
Completion Date: Contract Dollar Value: $			
Total Subcontracted Value: $	Whole Dollars	Percent	Percent
(c) Small Business Concerns (Including SDB, WOSB, HBCU/MI, HUBZone, VOSB, and SDVOSB) (Dollar amount and percent of line c.) Small Business Concerns (Non-Federal Certifications Examples: MBE (Minority Business Enterprise), DBE (Disadvantaged Business Enterprise), DVBE (Disabled Veteran Business Enterprise), SB (Small Business), WBE (Women's Business Enterprise).			
(b) Large Business Concerns (Dollar amount and percent of line c.)			
(c) Total (sum of lines a & b above)			

(d) Small Disadvantaged Business Concerns (Dollar amount and percent of line c.) Including MBE & DBE			
(e) Women-Owned Small Business Concerns (Dollar amount and percent of line c.) Including WBE			
(f) HUBZone Small Business Concerns (Dollar amount and percent of line c.)			
(g) Veteran-Owned Small Business Concerns (Dollar amount and percent of line c.)			
(h) Service Disabled Veteran-Owned Small Business Concerns (Dollar amount and percent of line c.) Including DVBE			

Name of customer reference for this project: _____

Phone Number: _____ FAX Number: _____

Email address: _____

Attachment E

SMALL BUSINESS SUBCONTRACTING PLAN

*This template has been designed to be consistent with FAR 19.704, Subcontracting Plan Requirements and FAR clause 52.219-9, Small Business Subcontracting Plan ("Subcontracting Plan"). Other formats of a small business subcontracting plan may be acceptable. However, failure to include the essential information as exemplified in this template may be cause for either a delay in acceptance or the rejection of a bid or offer where the clause is applicable.

(TO BE SUBMITTED BY LARGE BUSINESSES)

_____

(CONTRACTOR'S NAME)

_____

(ADDRESS)

_____

(CONTRACTOR'S CORPORATE ADDRESS)
[If same as address above, please so indicate].
(**FOR SBA REPORTING PURPOSES IN CERTAIN CIRCUMSTANCES; REQUIRED BY FAR 19.705-6)
Solicitation N40085-15-R-7903
HORIZONTAL CONSTRUCTION SERVICES
NAVAL SUPPORT ACTIVITY CRANE, IN

_____

(Date Prepared)

Type of Report (Individual, Commercial, Master)

PLAN SUBMITTED BY:

Signature: _____ Date: _____
Printed Name: _____
Title: _____

REVIEWED:

_____ _____
Small Business Specialist Date

REVIEWED:

_____ _____
Small Business Administration Date
Procurement Center Representative

ACCEPTED:

_____ _____
Procuring Contracting Officer Date

Attachment E Cont'd

SUBCONTRACTING PLAN

The following, together with any attachments, is submitted as a Subcontracting Plan to satisfy the requirements of Federal Acquisition Regulations (FAR) 19.704. The following goals are established for the Base Period and/or all Bid Items including all option periods. This contract ☐ does ☐ does not contain option periods. Use Attachment (1) for showing the breakdown of the base year and option periods. Percentages may be rounded to nearest tenth of a percent.

1. a. Total Contract Value $_____
(including options)

b. Total Subcontracted $_____ _____% of 1.a
(inclusive of all planned subcontracting to all businesses, regardless of size)

c. Total Prime-performed $_____ _____% of 1.a

2. The following dollars and percentage goals are applicable to the contract cited above. (See FAR 19.704(a)(1) and (2))

a. Large Business (LB) $_____ _____% of 1.b

This number represents total planned subcontracting dollars under this contract that will go to subcontractors who are large business concerns.

b. Small Business (SB) $_____ _____% of 1.b

This number represents total planned subcontracting dollars under this contract that will go to subcontractors who are small business concerns**; include contracts awarded under the AbilityOne Program (formerly Javits Wagner O'Day Act Contracts (JWOD)) to SourceAmerica (formerly NISH) and NIB; and awards to Alaskan Native Corporations (ANCs) and Indian Tribes as prescribed in FAR 19.703(c) & FAR 52.219-9.

(**includes all small businesses, including Small, Small Disadvantaged Business (SDB), Women-Owned Small Business (WOSB), Historically Underutilized Business Zone (HUBZone), Veteran-Owned Small Business (VOSB), Service-Disabled Veteran-Owned Small Business (SDVOSB) concerns, and Historically Black Colleges, Universities and Minority Institutions (HBCU/MI))

(Include 2.c, 2.d, 2.e, 2.f, 2.g, 2.h, 2.i, 2.j, and 2.k below).

Attach supporting rationale for goals less than _____%.

Notes:

(1) Lines 1.b + 1.c=100% of Line 1.a

(2) Lines 2.a + 2.b = 100% of Line 1.b

(3) Lines 2.c, 2.d, 2.e, 2.f, 2.g, 2.h, 2.i, 2.j, and 2.k are calculated against Line 1.b, the total value of overall subcontracting dollars.

(4) Subcontracts to companies that qualify in multiple categories of SB must be reported under each category. For example: if you are planning to subcontract $100,000 to company ABC, a woman-owned small disadvantaged business that is also a certified HUBZone, you will report $100,000 on line 2.b (SB), 2.c (HUBZone), 2.d (WOSB) and 2.e (SDB).

(5) The sum of 2.c through 2.k does not automatically equate to the value of 2.b.

(6) Designated HUBZone Small Businesses must be certified by the Small Business Administration (SBA).

c. HUBZone SB $_____ _____% of 1.b

This number represents total planned subcontracting dollars under this contract that will go to subcontractors who are qualified HUBZone small business concerns certified by SBA. Attach supporting rationale for goals less than _____%. (Included in 2.b, above, as a subset.)

d. Woman-Owned SB $_____ _____% of 1.b

This number represents total planned subcontracting dollars under this contract that will go to subcontractors who are WOSB. Attach supporting rationale for goals less than _____%. (Included in 2.b, above, as a subset.)

e. Small Disadvantaged Business $_____ _____% of 1.b

This number represents total planned subcontracting dollars under this contract that will go to subcontractors who are small business concerns owned and controlled by Socially and Economically Disadvantaged individuals (include in this category the planned subcontracting dollars to HBCU/MI shown in 2.h below, and the planned subcontracting dollars to ANCs and Indian Tribes shown in 2.j below). Attach supporting rationale for goals less than _____%. (Included in 2.b, above, as a subset.)

f. Veteran-Owned SB $_____ _____% of 1.b

This number represents total planned subcontracting dollars under this contract that will go to subcontractors who are small business concerns owned and controlled by VOSB (include in this category the

planned subcontracting dollars to SDVOSB shown in 2.g below). Attach supporting rationale for goals less than _____%. (Included in 2.b, above, as a subset.)

g. Service-Disabled Veteran-Owned SB $_____ _____% of 1.b

This number represents total planned subcontracting dollars under this contract that will go to subcontractors who are small business concerns owned and controlled by SDVOSB. Attach supporting rationale for goals less than _____%. (Included in 2.b and 2.f, above, as a subset.)

h. Historically Black Colleges & Universities/Minority Institutions $_____ _____% of 1.b.

This number represents total planned subcontracting dollars under this contract that will go to HBCU/MI as identified in FAR 26. (Included in 2.b and 2.e, above, as a subset.)

i. AbilityOne (Formerly JWOD) $_____ _____% of l.b.

This number represents total planned subcontracting dollars under this contract that will go to AbilityOne participating Nonprofit Agencies (sometimes referred to community rehabilitation programs, work centers, industries, or rehabilitation facilities). Per DFARS 219.703, subcontracts awarded to qualified non-profit agencies for the blind or severely disabled may be counted toward the small business subcontracting goal. (Included in 2.b, above, as a subset.)

j. Alaskan Native Corporations & Indian Tribes $_____ _____% of l.b.

This number represents total planned subcontracting dollars under this contract that will go to ANCs and Indian Tribes that are not SDBs where you are either subcontracting directly to the ANC or Indian Tribe or where you have been designated to receive their SDB credit. (See FAR 19.703 & FAR 52.219-9) (Included in 2.b and 2.e, above, as a subset.)

k. Alaskan Native Corporations & Indian Tribes $_____ _____% of l.b.

This number represents total planned subcontracting dollars under this contract that will go to ANCs and Indian Tribes that are not small businesses where you are either subcontracting directly to the ANC or Indian Tribe or where you have been designated to receive their SB credit. (See FAR 19.703 & FAR 52.219-9) (Included in 2.b, above, as a subset.)

3. The following principal products and/or services will be subcontracted under this contract. Additional sheets may be added as required. (See FAR 19.704(a)(3)

a. Products/services planned for subcontracting to LB concerns:

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

b. Products/services planned to be subcontracted to SB concerns:

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

c. Products/services planned to be subcontracted to HUBZone concerns:

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

d. Products/services planned to be subcontracted to WOSB concerns:

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

e. Products/services planned for subcontracting to SDB concerns:

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

f. Products/services planned for subcontracting to VOSB concerns:

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

g. Products/services planned for subcontracting to SDVOSB concerns:

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

h. Products/services planned for subcontracting to HBCU/MIs:

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

i. Products/services planned for subcontracting to AbilityOne organizations (formerly JWOD):

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

j. Planned products/services for subcontracting to ANCs and Indian Tribes that are not SDBs. (See 2.j above for explanation):

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

k. Planned products/services for subcontracting to ANCs and Indian Tribes that are not SBs. (See 2.k above for explanation.)

_____

_____

Or list firm commitments below:

Name of Firm	Products or Services
_____	_____
_____	_____

(ATTACH ADDITIONAL PAGES IF ADDITIONAL SPACE IS REQUIRED)

4. The following method was used to develop the above subcontracting goals. Include a statement explaining how the products and services to be subcontracted were established, how the areas to be subcontracted to SB, SDB, WOSB, HUBZone, VOSB, SDVOSB concerns, HBCU/MIs, AbilityOne program participants, ANCs and Indian Tribes were determined, and how their capabilities were determined. (See FAR 19.704(a)(4))

_____

_____

_____

5. Source lists utilized in making the determinations in paragraph 4, above are as follows: (See FAR 19.704(a)(5))

   _____

   _____

   _____

6. Indirect and overhead costs ☐ have ☐ have not been included in the goals specified in 1. and 2. above. If "have" is checked, explain the method used in determining the proportionate share of indirect and overhead costs to be allocated as subcontracts to SB, SDB, WOSB, HUBZone SB, VOSB, SDVOSB concerns, HBCU/MI, AbilityOne program participants, ANCs, and Indian Tribes, and the products and services planned: (See FAR 19.704(a)(6))

   _____

   _____

   _____

7. The following employee will administer the subcontracting program: (See FAR 19.704(a)(7))

   NAME: _____
   ADDRESS: _____
   TELEPHONE NO.:_____ FAX NO.: _____
   EMAIL: _____
   TITLE: _____

   This individual's specific duties, as they relate to the firm's subcontracting plan, are general overall responsibility for this company's Small Business Program. This person should have knowledge of the federal small business programs and be knowledgeable about federal procurement practices. If the prime decides to change the person in this position, they must notify the Contracting Officer and the Deputy for Small Business. The administrator is responsible for the development, preparation and execution of this subcontracting plan, and for monitoring performance relative to contractual subcontracting requirements contained in this plan, including, but not limited to:

   a. Developing and maintaining bidders lists of SB, SDB, WOSB, HUBZone SB, VOSB, SDVOSB concerns, AbilityOne program participants, HBCU/MIs, ANCs, and Indian Tribes (hereafter referred to as the small business community) from all possible sources.

   b. Ensuring that procurement packages are structured to permit the small business community to participate to the maximum extent possible.

c. Assuring inclusion of the small business community in all solicitations for products or services, which they are capable of providing.

d. Reviewing solicitations to remove statements, clauses, etc., which may tend to restrict or prohibit the small business community participation.

e. Ensuring periodic rotation of potential subcontractors on bidders lists.

f. Ensuring that the bid proposal review board documents its reasons for not selecting low bids submitted by the small business community.

g. Ensuring the establishment and maintenance of records of solicitations and subcontract award activity.

h. Attending or arranging for attendance of company counselors at Business Opportunity Workshops, Minority Business Enterprise Seminars, Trade Fairs, etc.

i. Conducting or arranging for the motivational training for purchasing personnel pursuant to the intent of P.L. 95-507.

j. Monitoring attainment of proposed goals.

k. Preparing and submitting required periodic subcontracting reports.

l. Coordinating contractor's activities during the conducting of compliance reviews by Federal agencies.

m. Coordinating the conduct of contractor's activities involving its small business subcontracting program.

n. Additions to (or deletions from) the duties specified above are as follows:

_____

_____

8. The following efforts will be taken to assure that the small business community will have an equitable opportunity to compete for subcontracts. (See FAR 19.704(a)(8))

a. Outreach efforts will be made by identifying:

- Contacts with minority and small business trade associations.

- Contacts with business development organizations.

- Attendance at small and minority business procurement conference and trade fairs.

b. Sources will be requested from the System for Award Management (SAM) website available at https://www.sam.gov/ on the Internet.
Automated data base sources to be used, other than SAM, will be as follows.

_____

_____

c. The following internal efforts will be made to guide and encourage buyers:

(i) Workshops, seminars and training programs will be conducted.

(ii) Activities will be monitored to evaluate compliance with this subcontracting plan.

(iii) Arrange interviews with the small business community.

d. Describe how your small business data base, source lists, guides, and other data will be maintained and utilized by buyers in soliciting subcontracts; e.g., rotation of firms in the data base, keeping data base current and useful, etc.

_____

_____

e. Additions to (or deletions from) the above listed efforts are as follows:

_____

_____

_____

9. The offeror (contractor) agrees that the FAR clause 52.219-8 entitled "Utilization of Small Business Concerns " will be included in all subcontracts which offer further subcontracting opportunities, and all subcontractors, except SB concerns, who receive subcontracts in excess of $650,000 ($1,500,000 for Construction) will be required to adopt and comply with subcontracting plan similar to this one. Such plans will be reviewed by comparing them with the provisions of P.L. 95-507 and assuring that all minimum requirements of an acceptable subcontracting plan have been satisfied. The acceptability of percentage goals shall be determined on a case-by-case basis depending on the supplies/services involved, the availability of potential small and small disadvantaged subcontractors, and prior experience. Once approved and implemented, plans will be monitored through the submission of periodic reports, and/or, as time and availability of funds permit, periodic visits to review subcontracting program progress. (See FAR 19.704(a)(9))

10. The offeror (contractor) agrees to submit such periodic reports and cooperate in any studies or surveys as may be required by the contracting agency or the Small Business Administration in order to determine the extent of compliance by the offeror (contractor) with the subcontracting plan and with FAR clause 52.219-8. (See FAR 19.704(a)(10)(i) and (ii))

11. The offeror (contractor) agrees to: (See FAR 19.704(a)(10)(iii)-(vi))

a. Submit the Individual Subcontract Report (ISR) and the Summary Subcontract Report (SSR) using the Electronic Subcontracting Reporting System (eSRS) at http://www.esrs.gov, following the instructions in the eSRS and FAR Clause 52.219-9;

1st reporting period – Oct 1 through March 31	Submit NLT 30 April
2nd reporting period – Oct 1 through September 30	Submit NLT 30 October

A separate "Final" ISR is required at contract completion.

Upon award of the contract, the identity of the individual(s) responsible for acknowledging receipt or rejecting the ISR and the SSR will be provided to the awardee.

b. Ensure that its large business subcontractors with subcontracting plans agree to submit the ISR and/or the the SSR using the eSRS;

c. Provide its prime contract number and its DUNS number, and the e-mail address of the Government or Contractor official responsible for acknowledging or rejecting the reports, to all first tier large business subcontractors with subcontracting plans so they can enter this information into the eSRS when submitting their reports; and

d. Require that each large business subcontractor with a subcontracting plan provide the prime contract number and its own DUNS number, and the e-mail address of the Government or Contractor official responsibe for acknowledging or rejecting the reports, to its large business subcontractors with subcontracting plans.

e. Ensure that the identified Contracting Officer and Small Business Specialist assigned to the contract are included on the eSRS email notification distribution upon submission of each report.

Note 1: If contract value is $25,000 or more and the solicitation includes FAR Clause 52.204-10, Reporting Executive Compensation and First-Tier Subcontract Awards, ensure additional reporting requirements are met in eSRS in accordance with this clause.

12. The offeror (contractor) agrees to maintain at least the following types of records to document compliance with this subcontracting plan: (See FAR 19.704(a)(11))

a. Source lists, guides, and other data identifying small business, HUBZone small business, women-owned small business, small disadvantaged business, veteran owned small business and service disabled veteran owned small business.

b. Organizations contacted to locate small business, HUBZone small business, women-owned small business, small disadvantaged business, veteran owned small business and service disabled veteran owned small business.

c. On a contract-by-contract basis, records on all subcontract solicitations over $150,000 and indicating for each solicitation;
   (i) whether small business, HUBZone small business, women-owned small business, small disadvantaged business, veteran owned small business and service disabled veteran owned small business were solicited, and if not, why not; and
   (ii) reason why the award was not made to a small business concern.
   (iii) written designations from ANCs or Indian Tribes, in accordance with FAR 19.703, if applicable.

d. Records to support other outreach efforts, e.g., contacts with small business trade associations, business development organizations, and attendance at small business procurement conferences and trade fairs, and frequency of accessing SAM.

e. Maintain records of internal guidance and encouragement to buyers through:
   (i) Workshops, seminars, training; etc; and
   (ii) Monitoring performance to evaluate compliance with the program's requirement.

f. On a contract-by-contract basis, records to support award data submitted by the contractor to the Government including the name, address, and business size of each subcontractor.

*****END OF PLAN*****

The original copy of this plan is included in the file and made a material part of the contract.

Copy to:
Small Business Specialist
SBA PCR

Attachment E

	Base Period	Option Period 1	Option Period 2	Total Periods
1.a Total Contract	$ 3,333,333.34	$ 3,333,333.33	$ 3,333,333.33	$ 10,000,000.00
1.b Total Subcontracted	$ _____	$ _____	$ _____	$ _____
(% of Line 1.a)	% _____	% _____	% _____	% _____
1.c Total Prime	$ _____	$ _____	$ _____	$ _____
(% of Line 1.a)	% _____	% _____	% _____	% _____
2.a To LB	$ _____	$ _____	$ _____	$ _____
(% of Line 1.b)	% _____	% _____	% _____	% _____
2.b To SB	$ _____	$ _____	$ _____	$ _____
(% of Line 1.b)	% _____	% _____	% _____	% _____
2.c To HUBZone SB	$ _____	$ _____	$ _____	$ _____
(% of Line 1.b)	% _____	% _____	% _____	% _____
2.d To WOSB	$ _____	$ _____	$ _____	$ _____
(% of Line 1.b)	% _____	% _____	% _____	% _____
2.e To SDB	$ _____	$ _____	$ _____	$ _____
(% of Line 1.b)	% _____	% _____	% _____	% _____
2.f To VOSB	$ _____	$ _____	$ _____	$ _____
(% of Line 1.b)	% _____	% _____	% _____	% _____
2.g To SDVOSB	$ _____	$ _____	$ _____	$ _____
(% of Line 1.b)	% _____	% _____	% _____	% _____
2.h To HBCU/MI	$ _____	$ _____	$ _____	$ _____

(% of Line 1.b)	% _____	% _____	% _____	% _____
2.i To AbilityOne	$_____	$_____	$_____	$_____
(% of Line 1.b)	%_____	%_____	%_____	$_____
2.j To ANCs/Indian Tribes, Not SDBs	$_____	$_____	$_____	$_____
(% of Line 1.b)	%_____	%_____	%_____	%_____
2.k To ANCs/Indian Tribes, Not SBs	$_____	$_____	$_____	$_____
(% of Line 1.b)	%_____	%_____	%_____	%_____

ATTACHMENT F

PROPOSED SUBCONTRACTING PARTICIPATION BREAKDOWN
(TO BE SUBMITTED BY SMALL BUSINESSES)

_____
(CONTRACTOR'S NAME)

_____
(ADDRESS)

Solicitation N40085-15-R-7903
HORIZONTAL CONSTRUCTION SERVICES
NAVAL SUPPORT ACTIVITY CRANE, IN

_____
(Date Prepared)

SUBCONTRACTING BREAKDOWN – (Base Year and/or All Bid Items excluding Options)

1. Estimated $ value of all planned subcontracting $_____
2. Estimated $ value of all work to be performed by offeror's workforce $_____
3. Total $ value of the proposal (sum of 1 and 2) $_____
4. Subcontracts for products and services to be awarded under this project.

   a. Large Business: (LB)

NAME OF COMPANY	TYPE OF SERVICES	$ VALUE OF SUBCONTRACT

TOTAL: $_____

   b. Small Business (SB)

NAME OF COMPANY	TYPE OF SERVICES	$ VALUE OF SUBCONTRACT

TOTAL: $_____

(1) SMALL DISADVANTAGED BUSINESSES: (SDB)

NAME OF COMPANY	TYPE OF SERVICES	$ VALUE OF SUBCONTRACT

TOTAL: $_____

(2) WOMEN-OWNED SMALL BUSINESSES: (WOSB)

NAME OF COMPANY	TYPE OF SERVICES	$ VALUE OF SUBCONTRACT

TOTAL: $_____

(3) HISTORICALLY UNDERUTILIZED BUSINESS ZONE (HUBZone) BUSINESS:

NAME OF COMPANY	TYPE OF SERVICES	$ VALUE OF SUBCONTRACT

TOTAL: $_____

(4) VETERAN OWNED SMALL BUSINESS: (VOSB)

NAME OF COMPANY	TYPE OF SERVICES	$ VALUE OF SUBCONTRACT

TOTAL: $_____

(5) SERVICE-DISABLED VETERAN OWNED SMALL BUSINESS: (SDVOSB)

NAME OF COMPANY	TYPE OF SERVICES	$ VALUE OF SUBCONTRACT

TOTAL: $_____

(6) HISTORICALLY BLACK COLLEGES AND UNIVERSITIES & MINORITY INSTITUTIONS: (HBCU/MI)

NAME OF C, U, OR MI	TYPE OF SERVICES	$ VALUE OF SUBCONTRACT

TOTAL: $_____

(7) ABILITYONE PROGRAM (FORMERLY JWOD) - NISH

NAME OF COMPANY	TYPE OF SERVICES	$ VALUE OF SUBCONTRACT

TOTAL: $_____

NOTES:

1. The sum of lines 4.a and 4.b must equal line 1.

2. Lines 4.b. (1) through 4.b (7) identify various categories of small businesses under the main small business (SB) group. Subcontracts to companies that qualify in multiple categories must be reported under each category. For example: if you are planning to subcontract $100,000 to ABC, a woman-owned small disadvantaged business that is also a certified HUBZone small business, you will report $100,000 on line 4.b SB, line 4.b (1) SDB, line 4.b (2) WOSB and line 4.b.(3) HUBZone SB.

Line Item		Base	Option 1	Option 2	TOTAL
DOLLARS					
Total dollar value of this contract.		$	$	$	$ 10,000,000.00
Total Subcontracted		$	$	$	$
Large Business		$	$	$	$
Small Business		$	$	$	$
	SDB	$	$	$	$
	WOSB	$	$	$	$
	HUBZone SB	$	$	$	$
	VOSB	$	$	$	$
	SDVOSB				
	HBCU/MI	$	$	$	$
	ABILITYONE - NISH	$	$	$	$
PERCENTAGES					
*Large Business		%	%	%	%
*Small Business		%	%	%	%
	*SDB	%	%	%	%
	*WOSB	%	%	%	%

*HUBZone SB		%		%		%	%
*VOSB		%		%		%	%
*SDVOSB							
*HBCU/MI		%		%		%	%
*ABILITYONE-NISH		%		%		%	%

*% of total dollars subcontracted

	EXHIBIT A					
	EXHIBIT LINE ITEMS					
	BASE PERIOD					
	HORIZONTAL CONSTURCTION SERVICES N40083-15-D-7903					
EXHIBIT LINE ITEM NUMBER	LINE ITEM DESCRIPTION	REF. NUMBER	QTY	UNIT ISSUE	UNIT PRICE	EXTENDED AMOUNT
	Excavation & Fill					
A001	Clear and grub (6" to 12" Dia.)	31 11 00	0.5	AC	$0.00	$0.00
A002	Clear and grub (over 12")	31 11 00	0.5	AC	$0.00	$0.00
A003	Scalping	31 00 00	1000	SYD	$0.00	$0.00
A004	Excavation	31 00 00	1200	CYD	$0.00	$0.00
A005	Ditching	31 00 00	1200	CYD	$0.00	$0.00
A006	Fill Grading	31 00 00	2000	SYD	$0.00	$0.00
A007	Finish Grading	31 00 00	2000	SYD	$0.00	$0.00
A008	Lime rock, Grading	31 00 00	2000	SYD	$0.00	$0.00
A009	Delivered Fill	31 00 00	250	TN	$0.00	$0.00
A010	Delivered Top Soil	31 00 00	250	TN	$0.00	$0.00
A011	Compaction 6" Lifts soil	31 00 00	400	SYD	$0.00	$0.00
A012	Geotextile Filter Fabric	31 00 00	100	SYD	$0.00	$0.00
A013	Geogrid fabric (Tensar bx1200-60)	31 00 00	100	SYD	$0.00	$0.00
	Erosion					
A014	Net Straw Matting In Place	31 00 00	1000	SF	$0.00	$0.00
A015	Silt Fence	31 00 00	500	LF	$0.00	$0.00
A016	Straw Bales	31 00 00	200	EA	$0.00	$0.00
A017	Mulching	31 00 00	10000	SYD	$0.00	$0.00
A018	Seeding	31 00 00	10000	SYD	$0.00	$0.00
A019	Hydroseed; mulch, seed and fertilize	31 00 00	10000	SYD	$0.00	$0.00
A020	Lime	31 00 00	44	TN	$0.00	$0.00
	Asphalt Repairs 0 sy-700 Syd per location					
A021	Surface Milling	32 01 16.17	1200	SYD	$0.00	$0.00
A022	Removal Bituminous Materials	32 12 16	75	CYD	$0.00	$0.00
A023	Removal Stone Materials	32 12 16	250	CYD	$0.00	$0.00
A024	Provide Tack Coat	32 12 16	6000	SYD	$0.00	$0.00
A025	Hot Mix Asphalt Base Course 25 mm	32 12 16	600	TN	$0.00	$0.00
A026	Hot Mix Asphalt Binder 12.5 mm	32 12 16	100	TN	$0.00	$0.00
A027	Hot Mix Asphalt Binder 19.5 mm	32 12 16	100	TN	$0.00	$0.00
A028	Hot Mix Asphalt Surface 9.5mm	32 12 16	600	TN	$0.00	$0.00

	Asphalt Repairs Over 700 Syd per location					
A029	Surface Milling	32 01 16.17	1000	SYD	$0.00	$0.00
A030	Removal Bituminous Materials	32 12 16	200	CYD	$0.00	$0.00
A031	Removal Stone Materials	32 12 16	500	CYD	$0.00	$0.00
A032	Provide Tack Coat	32 12 16	48900	SYD	$0.00	$0.00
A033	Hot Mix Asphalt Base Course 25 mm	32 12 16	600	TN	$0.00	$0.00
A034	Hot Mix Asphalt Binder 12.5 mm	32 12 16	1900	TN	$0.00	$0.00
A035	Hot Mix Asphalt Binder 19.5 mm	32 12 16	1900	TN	$0.00	$0.00
A036	Hot Mix Asphalt Surface 9.5mm	32 12 16	2000	TN	$0.00	$0.00
A037	Chip & Seal type 1	32 12 16	225	SYD	$0.00	$0.00
A038	Chip & Seal type 2	32 12 16	225	SYD	$0.00	$0.00
A039	Chip & Seal type 3	32 12 16	225	SYD	$0.00	$0.00
A040	Chip & Seal type 4	32 12 16	225	SYD	$0.00	$0.00
A041	Chip & Seal type 5	32 12 16	225	SYD	$0.00	$0.00
A042	Chip & Seal type 6	32 12 16	225	SYD	$0.00	$0.00
A043	Asphalt Scarification and Profile Preparation	32 01 16.17	63,360	SY	$0.00	$0.00
A044	Crack Sealing	32 01 17.16	2800	LB	$0.00	$0.00
A045	Seal Coating	32 01 17.16	900	SYD	$0.00	$0.00
A046	Crushed Stone #53	32 11 23	1000	TN	$0.00	$0.00
A047	Crushed Stone #2	32 11 23	250	TN	$0.00	$0.00
A048	Crushed Stone #8	32 11 23	100	TN	$0.00	$0.00
A049	Crushed Stone #11	32 11 23	100	TN	$0.00	$0.00
A050	No. 24 Washed Sand	32 11 23	200	TN	$0.00	$0.00
A051	Rip Rap	32 11 23	100	TN	$0.00	$0.00
A052	Snowplowable Raised Pavemnt Marker	32 17 23.00	90	EA	$0.00	$0.00
A053	Provide Temp. Pavement Markings	32 17 23.00	1000	LF	$0.00	$0.00
A054	Provide Concrete Riser Rings 2" Man hole	00101 Bid Sch	4	EA	$0.00	$0.00
A055	Provide Concrete Riser Rings 4" Man hole	00101 Bid Sch	4	EA	$0.00	$0.00
A056	Adjust Manhole	00101 Bid Sch	4	EA	$0.00	$0.00
A057	Adjust Valve Boxes	00101 Bid Sch	6	EA	$0.00	$0.00
	Thermoplastic					
A058	Dashed Lines	32 17 23.00	1500	LF	$0.00	$0.00
A059	Double Solid	32 17 23.00	10500	LF	$0.00	$0.00
A060	Single Solid Line	32 17 23.00	20500	LF	$0.00	$0.00
A061	Handicap	32 17 23.00	5	LF	$0.00	$0.00
A062	Transverse Markings X-Walks W/diagonal Lines	32 17 23.00	700	LF	$0.00	$0.00
A063	Stop Bars 24"	32 17 23.00	700	LF	$0.00	$0.00
A064	Turn Arrows	32 17 23.00	5	EA	$0.00	$0.00
A065	Straight Arrows	32 17 23.00	5	EA	$0.00	$0.00
A066	Combo. Arrows	32 17 23.00	5	EA	$0.00	$0.00
A067	Parking Lines	32 17 23.00	5	LF	$0.00	$0.00
A068	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
A069	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
A070	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
A071	Removal	32 17 23.00	700	SF	$0.00	$0.00
A072	Lay out	32 17 23.00	18	MH	$0.00	$0.00

	Paint					
A073	Dashed Lines	32 17 23.00	1500	LF	$0.00	$0.00
A074	Double Solid	32 17 23.00	10500	LF	$0.00	$0.00
A075	Single Solid Line	32 17 23.00	20500	LF	$0.00	$0.00
A076	Handicap	32 17 23.00	5	EA	$0.00	$0.00
A077	Transverse Markings X-Walks W/diagonal Lines	32 17 23.00	700	LF	$0.00	$0.00
A078	Stop Bars 24"	32 17 23.00	700	LF	$0.00	$0.00
A079	Turn Arrows	32 17 23.00	5	EA	$0.00	$0.00
A080	Straight Arrows	32 17 23.00	5	EA	$0.00	$0.00
A081	Combo. Arrows	32 17 23.00	5	EA	$0.00	$0.00
A082	Parking Lines	32 17 23.00	5	LF	$0.00	$0.00
A083	Curbing	32 17 23.00	5	LF	$0.00	$0.00
A084	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
A085	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
A086	6"Letters on Curbing	32 17 23.00	8	EA	$0.00	$0.00
A087	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
A088	Removal	32 17 23.00	700	SF	$0.00	$0.00
A089	Lay out	32 17 23.00	18	MH	$0.00	$0.00
	Re-Paint					
A090	Dashed Lines	32 17 23.00	1500	LF	$0.00	$0.00
A091	Double Solid	32 17 23.00	10500	LF	$0.00	$0.00
A092	Single Solid Line	32 17 23.00	20500	LF	$0.00	$0.00
A093	Handicap	32 17 23.00	5	EA	$0.00	$0.00
A094	Transverse Markings X-Walks W/diagonal Lines	32 17 23.00	700	LF	$0.00	$0.00
A095	Stop Bars 24"	32 17 23.00	700	LF	$0.00	$0.00
A096	Turn Arrows	32 17 23.00	5	EA	$0.00	$0.00
A097	Straight Arrows	32 17 23.00	5	EA	$0.00	$0.00
A098	Combo. Arrows	32 17 23.00	5	EA	$0.00	$0.00
A099	Parking Lines	32 17 23.00	5	LF	$0.00	$0.00
A100	Curbing	32 17 23.00	5	LF	$0.00	$0.00
A101	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
A102	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
A103	6"Letters on Curbing	32 17 23.00	8	EA	$0.00	$0.00
A104	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
	Epoxy Paint					
A105	Dashed Lines	32 17 23.00	1000	LF	$0.00	$0.00
A106	Double Solid	32 17 23.00	5280	LF	$0.00	$0.00
A107	Single Solid Line	32 17 23.00	10560	LF	$0.00	$0.00
A108	Handicap	32 17 23.00	1	EA	$0.00	$0.00
A109	Transverse Markings Cross Walks W/diagonal Lines	32 17 23.00	100	LF	$0.00	$0.00
A110	Stop Bars 24"	32 17 23.00	50	LF	$0.00	$0.00
A111	Turn Arrows	32 17 23.00	2	EA	$0.00	$0.00
A112	Straight Arrows	32 17 23.00	2	EA	$0.00	$0.00
A113	Combo. Arrows	32 17 23.00	2	EA	$0.00	$0.00
A114	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
A115	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
A116	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
A117	Removal	32 17 23.00	10	SF	$0.00	$0.00
A118	Lay out	32 17 23.00	10	MH	$0.00	$0.00

	Concrete					
A119	Flowable Fill #197	03 30 00	27	CYD	$0.00	$0.00
A120	Remove Reinforced Concrete (up to12")	03 30 00	300	CYD	$0.00	$0.00
A121	Sidewalk 4ft wide, 4" thick	32 16 23	3600	SF	$0.00	$0.00
A122	Sidewalk 5ft wide, 4" thick	32 16 23	3600	SF	$0.00	$0.00
A123	Concrete Standard (non-reinforced)	03 30 00	70	CYD	$0.00	$0.00
A124	Concrete (4" to 8") Steel Reinforced	03 30 00	70	CYD	$0.00	$0.00
A125	Concrete (8" to 12") Steel Reinforced	03 30 00	70	CYD	$0.00	$0.00
A126	Reinforcing Steel (CWT = per 100#)	03 30 00	3	CWT	$0.00	$0.00
A127	Concrete 18" roll curb & gutter up to 50 lf per location	03 30 00	25	LF	$0.00	$0.00
A128	Concrete 18" roll curb & gutter over 50' lf	03 30 00	75	LF	$0.00	$0.00
A129	Concrete 24" roll curb & gutter up to 50' lf per location	03 30 00	25	LF	$0.00	$0.00
A130	Concrete 24" roll curb & gutter over 50' lf per location	03 30 00	75	LF	$0.00	$0.00
A131	Curb & gutter-face type, 18" up to 50' lf	03 30 00	50	LF	$0.00	$0.00
A132	Curb & gutter-face type, 18" over 50' lf per location	03 30 00	100	LF	$0.00	$0.00
A133	Curb & gutter-face type, 24" up to 50' lf per location	03 30 00	25	LF	$0.00	$0.00
A134	Curb & gutter-face type, 24" over 50' lf per location	03 30 00	51	LF	$0.00	$0.00
A135	face type curb 6"x18"	03 30 00	200	LF	$0.00	$0.00
	Culverts and Liners					
A136	Concrete Head wall	03300	12	CYD	$0.00	$0.00
A137	Rip Rap Ends	00101 Bid Sch	100	TN	$0.00	$0.00
A138	B-Barrow for Structural Backfill	00101 Bid Sch	100	TN	$0.00	$0.00
A139	Grout	00101 Bid Sch	27	CYD	$0.00	$0.00
A140	Soil Excavation over 5 foot in depth	31 00 00	100	CYD	$0.00	$0.00
A141	12" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
A142	15" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
A143	18" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
A144	24"Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
A145	30" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
A146	36" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
A147	42" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
A148	48" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
A149	60" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
A150	10.75" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A151	12.75" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A152	14" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A153	16" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A154	18" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A155	20" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A156	22" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A157	30"Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A158	28" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A159	32" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A160	34" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A161	36" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
A162	Trenching 6"	31 00 00	150	LF	$0.00	$0.00
A163	Trenching 8"	31 00 00	150	LF	$0.00	$0.00
A164	HDPE drainage pipe (subdrain) 4" diameter	31 00 00	150	LF	$0.00	$0.00
A165	HDPE drainage pipe (subdrain) 6" diameter	31 00 00	150	LF	$0.00	$0.00
A166	12" Stripdrain	31 00 00	150	LF	$0.00	$0.00

	Guardrail					
A167	Removal	00101 Bid Sch	600	LF	$0.00	$0.00
A168	Galvanized steel guardrail	00101 Bid Sch	600	LF	$0.00	$0.00
A169	Galvanized flared terminal type B	00101 Bid Sch	5	EA	$0.00	$0.00
A170	ET 2000 Plus 37'6"	00101 Bid Sch	1	EA	$0.00	$0.00
A171	Galvanized post	00101 Bid Sch	100	EA	$0.00	$0.00
A172	Pipe Bollards 6" concrete Filled	00101 Bid Sch	5	EA	$0.00	$0.00
	Fencing Perimeter					
A173	47"Field Fence W/Barb Wire Installed	32 31 00.00 10	5280	LF	$0.00	$0.00
A174	Water Gate Installed	32 31 00.00 10	10	LF	$0.00	$0.00
A175	Removal Field Fence	32 31 00.00 10	5280	LF	$0.00	$0.00
	Fencing Chain Link					
A176	6' Chain Link Fence W/Barb Wire Installed	32 31 00.00 10	5280	LF	$0.00	$0.00
A177	7' Chain Link Fence W/Barb Wire Installed	32 31 00.00 10	5280	LF	$0.00	$0.00
A178	8" Chain Link Fence W/Barb Wire Installed	32 31 00.00 10	10000	LF	$0.00	$0.00
A179	12' Chain Link Fence Gates	32 31 00.00 10	4	EA	$0.00	$0.00
A180	15' Chain Link Fence Gates	32 31 00.00 10	4	EA	$0.00	$0.00
A181	Removal Chain Link Fence	32 31 00.00 10	220	LF	$0.00	$0.00
A182	25' Hydraulic vertical pivot gate	32 31 00.00 10	1	EA	$0.00	$0.00
	Stone Road / Lot Maint					
A183	Stone Road Maintenance	32 11 23	1	Mile	$0.00	$0.00
A184	Stone Lot Maintenance	32 11 23	1777	SY	$0.00	$0.00
A185	Add Stone to Roads or Lots # 53 stone	32 11 23	22	TN	$0.00	$0.00
A186	Add Stone to Roads or Lots # 73 stone	32 11 23	22	TN	$0.00	$0.00
A187	Add Stone to Roads or Lots # 8 stone	32 11 23	22	TN	$0.00	$0.00
A188	Add Stone to Roads or Lots # 2 stone	32 11 23	10	TN	$0.00	$0.00

	SIGNS					
A189	YIELD R1-2 30" x 30"	10 14 01	2	Each	0.00	$0.00
A191	PEDESTRIAN CROSSING W11A-2 30" X 30"	10 14 01	2	Each	0.00	$0.00
A192	SPEED LIMIT (##) R2-1 24" X 30"	10 14 01	2	Each	0.00	$0.00
A193	NO PASSING W14-3 40" X 30 "	10 14 01	2	Each	0.00	$0.00
A194	DO NOT ENTER R5-1 30" X 30"	10 14 01	2	Each	0.00	$0.00
A195	STOP R1-1 30" X 30"	10 14 01	2	Each	0.00	$0.00
A196	STOP R1-1 24" X 24"	10 14 01	2	Each	0.00	$0.00
A197	REDUCED SPEED AHEAD ## R2-5B 24" x 30"	10 14 01	2	Each	0.00	$0.00
A198	LOW CLEARANCE W12-2 30" X 30"	10 14 01	2	Each	0.00	$0.00
A199	NO PARKING ANY TIME R7-100 18" X 24"	10 14 01	2	Each	0.00	$0.00
A200	RESERVED PARKING FOR HANDICAP R7-8 18" X 24"	10 14 01	2	Each	0.00	$0.00
A201	RESERVED PARKING FOR HANDICAP R7-128 12" X 18"	10 14 01	2	Each	0.00	$0.00
A202	CURVE W1-2L 30" X 30"	10 14 01	2	Each	0.00	$0.00
A203	CURVE W1-2R	10 14 01	2	Each	0.00	$0.00
A204	ADVISORY SPEED W13-1 24" X 24"	10 14 01	2	Each	0.00	$0.00
A205	STOP AHEAD W3-1A 30" X 30"	10 14 01	2	Each	0.00	$0.00
A206	SOFT SHOULDER W8-4 30" X 30"	10 14 01	2	Each	0.00	$0.00
A207	DEER CROSSING W11-3 30" X 30"	10 14 01	2	Each	0.00	$0.00
A208	RAILROAD CROSSING W10-1 36" IN DIAMETER	10 14 01	2	Each	0.00	$0.00
A209	RAILROAD CROSSING R15-1 48" X 9"	10 14 01	2	Each	0.00	$0.00
A210	TRACK COUNT ## R15-2 27" X 18"	10 14 01	2	Each	0.00	$0.00
A211	ADVANCED RR WARNING W10-2 30" X 30"	10 14 01	2	Each	0.00	$0.00
A212	ADVANCED RR WARNING W10-3 30" X 30"	10 14 01	2	Each	0.00	$0.00
A213	EXEMPT R15-3 24" X 12"	10 14 01	2	Each	0.00	$0.00
A214	NO PARKING BETWEEN SIGNS R7-112R 12" 'X 18"	10 14 01	2	Each	0.00	$0.00
A215	NO PARKING BETWEEN SIGNS R7-112L 12" 'X 18"	10 14 01	2	Each	0.00	$0.00
A216	NO PARKING BETWEEN SIGNS R8-3 12" X 18"	10 14 01	2	Each	0.00	$0.00
A217	CHEVRON ALIGNMENT W1-8 18" X 24"	10 14 01	2	Each	0.00	$0.00
A218	OBJECT MARKER H1-R 12" X 36"	10 14 01	2	Each	0.00	$0.00
A219	OBJECT MARKER N4 18" X 18"	10 14 01	2	Each	0.00	$0.00
A220	OBJECT MARKER H1-L 12" X 36"	10 14 01	2	Each	0.00	$0.00
A221	ROAD CLOSED W20-3 36" X 36"	10 14 01	2	Each	0.00	$0.00
A222	NEW STEEL FLANGED CHANNEL POST 8 FOOT POST	10 14 01	2	Each	0.00	$0.00
A223	NEW STEEL FLANGED CHANNEL POST 10 FOOT POST	10 14 01	2	Each	0.00	$0.00
A224	NEW STEEL FLANGED CHANNEL POST 12 FOOT POST	10 14 01	2	Each	0.00	$0.00
A225	NEW STEEL FLANGED CHANNEL POST 14 FOOT POST	10 14 01	2	Each	0.00	$0.00
A226	NEW SQUARE STEEL POST 8 FOOT POST	10 14 01	2	Each	0.00	$0.00
A227	NEW SQUARE STEEL POST 10 FOOT POST	10 14 01	2	Each	0.00	$0.00
A228	NEW SQUARE STEEL POST 12 FOOT POST	10 14 01	2	Each	0.00	$0.00
A229	AMBER CLORED PLASTIC BUTTON DELINEATORS	10 14 01	2	Each	0.00	$0.00
A230	RED CLORED PLASTIC BUTTON DELINEATORS	10 14 01	2	Each	0.00	$0.00

A231	WHITE CLORED PLASTIC BUTTON DELINEATORS	10 14 01	2	Each	0.00	$0.00
A232	MAIN HIGHWAY NUMBER SIGN 24" X 24"	10 14 01	2	Each	0.00	$0.00
A233	NEW SPECIAL SIGN 24" X 24"	10 14 01	2	Each	0.00	$0.00
A234	WHISTLE POST SIGN INCUDING POST	10 14 01	2	Each	0.00	$0.00
A235	RE-PLUMB/RE-SET SIGN POST	10 14 01	2	Each	0.00	$0.00
A236	SECONDARY HIGHWAY NUMBER SIGN 21" X 18"	10 14 01	2	Each	0.00	$0.00
A237	White on Green Information Signs 84" x 15"	10 14 01	2	Each	0.00	$0.00
A238	White on Green Building Number Signs 36" x 18"	10 14 01	10	Each	0.00	$0.00
A239	Restricted Area Signs 18" x 12"	10 14 01	10	Each	0.00	$0.00
A240	SIGN AND POST REMOVAL	10 14 01	40	Each	0.00	$0.00
A241	Highway scales weight test certification	00101 Bid Sch	4	Each	0.00	$0.00
					0.00	
A242	IDEM Storm Water Notice of intent Permit	01 27 53	4	Each	0.00	$0.00
A243	Labor for Installation of Material	00101 Bid Sch	20	HR	$0.00	$0.00
A244	Unit price for material and equipment that is not specifically listed within other exhibit line items.	00101 Bid Sch	20,000	LS	0%	$0.00
	For example if the percent mark up is 10% then $5,000.00 x 1.10 = $5,					
A245	Bond Cost for Payment and Performance Bonds in $25,000.00 increments	00101 Bid Sch	50	EA	$0.00	$0.00
					TOTAL	$0.00

	EXHIBIT B					
	EXHIBIT LINE ITEMS					
	OPTION PERIOD ONE					
	HORIZONTAL CONSTURCTION SERVICES N40083-15-D-7903					
EXHIBIT LINE	LINE ITEM	REF.		UNIT	UNIT	EXTENDED
ITEM NUMBER	DESCRIPTION	NUMBER	QTY	ISSUE	PRICE	AMOUNT
	Excavation & Fill					
B001	Clear and grub (6" to 12" Dia.)	31 11 00	0.5	AC	$0.00	$0.00
B002	Clear and grub (over 12")	31 11 00	0.5	AC	$0.00	$0.00
B003	Scalping	31 00 00	1000	SYD	$0.00	$0.00
B004	Excavation	31 00 00	1200	CYD	$0.00	$0.00
B005	Ditching	31 00 00	1200	CYD	$0.00	$0.00
B006	Fill Grading	31 00 00	2000	SYD	$0.00	$0.00
B007	Finish Grading	31 00 00	2000	SYD	$0.00	$0.00
B008	Lime rock, Grading	31 00 00	2000	SYD	$0.00	$0.00
B009	Delivered Fill	31 00 00	250	TN	$0.00	$0.00
B010	Delivered Top Soil	31 00 00	250	TN	$0.00	$0.00
B011	Compaction 6" Lifts soil	31 00 00	400	SYD	$0.00	$0.00
B012	Geotextile Filter Fabric	31 00 00	100	SYD	$0.00	$0.00
B013	Geogrid fabric (Tensar bx1200-60)	31 00 00	100	SYD	$0.00	$0.00
	Erosion					
B014	Net Straw Matting In Place	31 00 00	1000	SF	$0.00	$0.00
B015	Silt Fence	31 00 00	500	LF	$0.00	$0.00
B016	Straw Bales	31 00 00	200	EA	$0.00	$0.00
B017	Mulching	31 00 00	10000	SYD	$0.00	$0.00
B018	Seeding	31 00 00	10000	SYD	$0.00	$0.00
B019	Hydroseed; mulch, seed and fertilize	31 00 00	10000	SYD	$0.00	$0.00
B020	Lime	31 00 00	44	TN	$0.00	$0.00
	Asphalt Repairs 0 sy-700 Syd per location					
B021	Surface Milling	32 01 16.17	1200	SYD	$0.00	$0.00
B022	Removal Bituminous Materials	32 12 16	75	CYD	$0.00	$0.00
B023	Removal Stone Materials	32 12 16	250	CYD	$0.00	$0.00
B024	Provide Tack Coat	32 12 16	6000	SYD	$0.00	$0.00
B025	Hot Mix Asphalt Base Course 25 mm	32 12 16	600	TN	$0.00	$0.00
B026	Hot Mix Asphalt Binder 12.5 mm	32 12 16	100	TN	$0.00	$0.00
B027	Hot Mix Asphalt Binder 19.5 mm	32 12 16	100	TN	$0.00	$0.00
B028	Hot Mix Asphalt Surface 9.5mm	32 12 16	600	TN	$0.00	$0.00

	Asphalt Repairs Over 700 Syd per location					
B029	Surface Milling	32 01 16.17	1000	SYD	$0.00	$0.00
B030	Removal Bituminous Materials	32 12 16	200	CYD	$0.00	$0.00
B031	Removal Stone Materials	32 12 16	500	CYD	$0.00	$0.00
B032	Provide Tack Coat	32 12 16	48900	SYD	$0.00	$0.00
B033	Hot Mix Asphalt Base Course 25 mm	32 12 16	600	TN	$0.00	$0.00
B034	Hot Mix Asphalt Binder 12.5 mm	32 12 16	1900	TN	$0.00	$0.00
B035	Hot Mix Asphalt Binder 19.5 mm	32 12 16	1900	TN	$0.00	$0.00
B036	Hot Mix Asphalt Surface 9.5mm	32 12 16	2000	TN	$0.00	$0.00
B037	Chip & Seal type 1	32 12 16	225	SYD	$0.00	$0.00
B038	Chip & Seal type 2	32 12 16	225	SYD	$0.00	$0.00
B039	Chip & Seal type 3	32 12 16	225	SYD	$0.00	$0.00
B040	Chip & Seal type 4	32 12 16	225	SYD	$0.00	$0.00
B041	Chip & Seal type 5	32 12 16	225	SYD	$0.00	$0.00
B042	Chip & Seal type 6	32 12 16	225	SYD	$0.00	$0.00
B043	Asphalt Scarification and Profile Preparation	32 01 16.17	63,360	SY	$0.00	$0.00
B044	Crack Sealing	32 01 17.16	2800	LB	$0.00	$0.00
B045	Seal Coating	32 01 17.16	900	SYD	$0.00	$0.00
B046	Crushed Stone #53	32 11 23	1000	TN	$0.00	$0.00
B047	Crushed Stone #2	32 11 23	250	TN	$0.00	$0.00
B048	Crushed Stone #8	32 11 23	100	TN	$0.00	$0.00
B049	Crushed Stone #11	32 11 23	100	TN	$0.00	$0.00
B050	No. 24 Washed Sand	32 11 23	200	TN	$0.00	$0.00
B051	Rip Rap	32 11 23	100	TN	$0.00	$0.00
B052	Snowplowable Raised Pavemnt Marker	32 17 23.00	90	EA	$0.00	$0.00
B053	Provide Temp. Pavement Markings	32 17 23.00	1000	LF	$0.00	$0.00
B054	Provide Concrete Riser Rings 2" Man hole	00101 Bid Sch	4	EA	$0.00	$0.00
B055	Provide Concrete Riser Rings 4" Man hole	00101 Bid Sch	4	EA	$0.00	$0.00
B056	Adjust Manhole	00101 Bid Sch	4	EA	$0.00	$0.00
B057	Adjust Valve Boxes	00101 Bid Sch	6	EA	$0.00	$0.00
	Thermoplastic					
B058	Dashed Lines	32 17 23.00	1500	LF	$0.00	$0.00
B059	Double Solid	32 17 23.00	10500	LF	$0.00	$0.00
B060	Single Solid Line	32 17 23.00	20500	LF	$0.00	$0.00
B061	Handicap	32 17 23.00	5	LF	$0.00	$0.00
B062	Transverse Markings X-Walks W/diagonal Lines	32 17 23.00	700	LF	$0.00	$0.00
B063	Stop Bars 24"	32 17 23.00	700	LF	$0.00	$0.00
B064	Turn Arrows	32 17 23.00	5	EA	$0.00	$0.00
B065	Straight Arrows	32 17 23.00	5	EA	$0.00	$0.00
B066	Combo. Arrows	32 17 23.00	5	EA	$0.00	$0.00
B067	Parking Lines	32 17 23.00	5	LF	$0.00	$0.00
B068	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
B069	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
B070	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
B071	Removal	32 17 23.00	700	SF	$0.00	$0.00
B072	Lay out	32 17 23.00	18	MH	$0.00	$0.00

	Paint					
B073	Dashed Lines	32 17 23.00	1500	LF	$0.00	$0.00
B074	Double Solid	32 17 23.00	10500	LF	$0.00	$0.00
B075	Single Solid Line	32 17 23.00	20500	LF	$0.00	$0.00
B076	Handicap	32 17 23.00	5	EA	$0.00	$0.00
B077	Transverse Markings X-Walks W/diagonal Lines	32 17 23.00	700	LF	$0.00	$0.00
B078	Stop Bars 24"	32 17 23.00	700	LF	$0.00	$0.00
B079	Turn Arrows	32 17 23.00	5	EA	$0.00	$0.00
B080	Straight Arrows	32 17 23.00	5	EA	$0.00	$0.00
B081	Combo. Arrows	32 17 23.00	5	EA	$0.00	$0.00
B082	Parking Lines	32 17 23.00	5	LF	$0.00	$0.00
B083	Curbing	32 17 23.00	5	LF	$0.00	$0.00
B084	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
B085	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
B086	6"Letters on Curbing	32 17 23.00	8	EA	$0.00	$0.00
B087	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
B088	Removal	32 17 23.00	700	SF	$0.00	$0.00
B089	Lay out	32 17 23.00	18	MH	$0.00	$0.00
	Re-Paint					
B090	Dashed Lines	32 17 23.00	1500	LF	$0.00	$0.00
B091	Double Solid	32 17 23.00	10500	LF	$0.00	$0.00
B092	Single Solid Line	32 17 23.00	20500	LF	$0.00	$0.00
B093	Handicap	32 17 23.00	5	EA	$0.00	$0.00
B094	Transverse Markings X-Walks W/diagonal Lines	32 17 23.00	700	LF	$0.00	$0.00
B095	Stop Bars 24"	32 17 23.00	700	LF	$0.00	$0.00
B096	Turn Arrows	32 17 23.00	5	EA	$0.00	$0.00
B097	Straight Arrows	32 17 23.00	5	EA	$0.00	$0.00
B098	Combo. Arrows	32 17 23.00	5	EA	$0.00	$0.00
B099	Parking Lines	32 17 23.00	5	LF	$0.00	$0.00
B100	Curbing	32 17 23.00	5	LF	$0.00	$0.00
B101	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
B102	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
B103	6"Letters on Curbing	32 17 23.00	8	EA	$0.00	$0.00
B104	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
	Epoxy Paint					
B105	Dashed Lines	32 17 23.00	1000	LF	$0.00	$0.00
B106	Double Solid	32 17 23.00	5280	LF	$0.00	$0.00
B107	Single Solid Line	32 17 23.00	10560	LF	$0.00	$0.00
B108	Handicap	32 17 23.00	1	EA	$0.00	$0.00
B109	Transverse Markings Cross Walks W/diagonal Lines	32 17 23.00	100	LF	$0.00	$0.00
B110	Stop Bars 24"	32 17 23.00	50	LF	$0.00	$0.00
B111	Turn Arrows	32 17 23.00	2	EA	$0.00	$0.00
B112	Straight Arrows	32 17 23.00	2	EA	$0.00	$0.00
B113	Combo. Arrows	32 17 23.00	2	EA	$0.00	$0.00
B114	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
B115	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
B116	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
B117	Removal	32 17 23.00	10	SF	$0.00	$0.00
B118	Lay out	32 17 23.00	10	MH	$0.00	$0.00

	Concrete					
B119	Flowable Fill #197	03 30 00	27	CYD	$0.00	$0.00
B120	Remove Reinforced Concrete (up to12")	03 30 00	300	CYD	$0.00	$0.00
B121	Sidewalk 4ft wide, 4" thick	32 16 23	3600	SF	$0.00	$0.00
B122	Sidewalk 5ft wide, 4" thick	32 16 23	3600	SF	$0.00	$0.00
B123	Concrete Standard (non-reinforced)	03 30 00	70	CYD	$0.00	$0.00
B124	Concrete (4" to 8") Steel Reinforced	03 30 00	70	CYD	$0.00	$0.00
B125	Concrete (8" to 12") Steel Reinforced	03 30 00	70	CYD	$0.00	$0.00
B126	Reinforcing Steel (CWT = per 100#)	03 30 00	3	CWT	$0.00	$0.00
B127	Concrete 18" roll curb & gutter up to 50 lf per location	03 30 00	25	LF	$0.00	$0.00
B128	Concrete 18" roll curb & gutter over 50' lf	03 30 00	75	LF	$0.00	$0.00
B129	Concrete 24" roll curb & gutter up to 50' lf per location	03 30 00	25	LF	$0.00	$0.00
B130	Concrete 24" roll curb & gutter over 50' lf per location	03 30 00	75	LF	$0.00	$0.00
B131	Curb & gutter-face type, 18" up to 50' lf	03 30 00	50	LF	$0.00	$0.00
B132	Curb & gutter-face type, 18" over 50' lf per location	03 30 00	100	LF	$0.00	$0.00
B133	Curb & gutter-face type, 24" up to 50' lf per location	03 30 00	25	LF	$0.00	$0.00
B134	Curb & gutter-face type, 24" over 50' lf per location	03 30 00	51	LF	$0.00	$0.00
B135	face type curb 6"x18"	03 30 00	200	LF	$0.00	$0.00
	Culverts and Liners					
B136	Concrete Head wall	03300	12	CYD	$0.00	$0.00
B137	Rip Rap Ends	00101 Bid Sch	100	TN	$0.00	$0.00
B138	B-Barrow for Structural Backfill	00101 Bid Sch	100	TN	$0.00	$0.00
B139	Grout	00101 Bid Sch	27	CYD	$0.00	$0.00
B140	Soil Excavation over 5 foot in depth	31 00 00	100	CYD	$0.00	$0.00
B141	12" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
B142	15" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
B143	18" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
B144	24"Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
B145	30" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
B146	36" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
B147	42" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
B148	48" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
B149	60" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
B150	10.75" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B151	12.75" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B152	14" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B153	16" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B154	18" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B155	20" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B156	22" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B157	30"Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B158	28" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B159	32" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B160	34" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B161	36" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
B162	Trenching 6"	31 00 00	150	LF	$0.00	$0.00
B163	Trenching 8"	31 00 00	150	LF	$0.00	$0.00
B164	HDPE drainage pipe (subdrain) 4" diameter	31 00 00	150	LF	$0.00	$0.00
B165	HDPE drainage pipe (subdrain) 6" diameter	31 00 00	150	LF	$0.00	$0.00
B166	12" Stripdrain	31 00 00	150	LF	$0.00	$0.00

	Guardrail					
B167	Removal	00101 Bid Sch	600	LF	$0.00	$0.00
B168	Galvanized steel guardrail	00101 Bid Sch	600	LF	$0.00	$0.00
B169	Galvanized flared terminal type B	00101 Bid Sch	5	EA	$0.00	$0.00
B170	ET 2000 Plus 37'6"	00101 Bid Sch	1	EA	$0.00	$0.00
B171	Galvanized post	00101 Bid Sch	100	EA	$0.00	$0.00
B172	Pipe Bollards 6" concrete Filled	00101 Bid Sch	5	EA	$0.00	$0.00
	Fencing Perimeter					
B173	47"Field Fence W/Barb Wire Installed	32 31 00.00 10	5280	LF	$0.00	$0.00
B174	Water Gate Installed	32 31 00.00 10	10	LF	$0.00	$0.00
B175	Removal Field Fence	32 31 00.00 10	5280	LF	$0.00	$0.00
	Fencing Chain Link					
B176	6' Chain Link Fence W/Barb Wire Installed	32 31 00.00 10	5280	LF	$0.00	$0.00
B177	7' Chain Link Fence W/Barb Wire Installed	32 31 00.00 10	5280	LF	$0.00	$0.00
B178	8" Chain Link Fence W/Barb Wire Installed	32 31 00.00 10	10000	LF	$0.00	$0.00
B179	12' Chain Link Fence Gates	32 31 00.00 10	4	EA	$0.00	$0.00
B180	15' Chain Link Fence Gates	32 31 00.00 10	4	EA	$0.00	$0.00
B181	Removal Chain Link Fence	32 31 00.00 10	220	LF	$0.00	$0.00
B182	25' Hydraulic vertical pivot gate	32 31 00.00 10	1	EA	$0.00	$0.00
	Stone Road / Lot Maint					
B183	Stone Road Maintenance	32 11 23	1	Mile	$0.00	$0.00
B184	Stone Lot Maintenance	32 11 23	1777	SY	$0.00	$0.00
B185	Add Stone to Roads or Lots # 53 stone	32 11 23	22	TN	$0.00	$0.00
B186	Add Stone to Roads or Lots # 73 stone	32 11 23	22	TN	$0.00	$0.00
B187	Add Stone to Roads or Lots # 8 stone	32 11 23	22	TN	$0.00	$0.00
B188	Add Stone to Roads or Lots # 2 stone	32 11 23	10	TN	$0.00	$0.00

	SIGNS					
B189	YIELD R1-2 30" x 30"	10 14 01	2	Each	0.00	$0.00
B191	PEDESTRIAN CROSSING W11A-2 30" X 30"	10 14 01	2	Each	0.00	$0.00
B192	SPEED LIMIT (##) R2-1 24" X 30"	10 14 01	2	Each	0.00	$0.00
B193	NO PASSING W14-3 40" X 30 "	10 14 01	2	Each	0.00	$0.00
B194	DO NOT ENTER R5-1 30" X 30"	10 14 01	2	Each	0.00	$0.00
B195	STOP R1-1 30" X 30"	10 14 01	2	Each	0.00	$0.00
B196	STOP R1-1 24" X 24"	10 14 01	2	Each	0.00	$0.00
B197	REDUCED SPEED AHEAD ## R2-5B 24" x 30"	10 14 01	2	Each	0.00	$0.00
B198	LOW CLEARANCE W12-2 30" X 30"	10 14 01	2	Each	0.00	$0.00
B199	NO PARKING ANY TIME R7-100 18" X 24"	10 14 01	2	Each	0.00	$0.00
B200	RESERVED PARKING FOR HANDICAP R7-8 18" X 24"	10 14 01	2	Each	0.00	$0.00
B201	RESERVED PARKING FOR HANDICAP R7-128 12" X 18"	10 14 01	2	Each	0.00	$0.00
B202	CURVE W1-2L 30" X 30"	10 14 01	2	Each	0.00	$0.00
B203	CURVE W1-2R	10 14 01	2	Each	0.00	$0.00
B204	ADVISORY SPEED W13-1 24" X 24"	10 14 01	2	Each	0.00	$0.00
B205	STOP AHEAD W3-1A 30" X 30"	10 14 01	2	Each	0.00	$0.00
B206	SOFT SHOULDER W8-4 30" X 30"	10 14 01	2	Each	0.00	$0.00
B207	DEER CROSSING W11-3 30" X 30"	10 14 01	2	Each	0.00	$0.00
B208	RAILROAD CROSSING W10-1 36" IN DIAMETER	10 14 01	2	Each	0.00	$0.00
B209	RAILROAD CROSSING R15-1 48" X 9"	10 14 01	2	Each	0.00	$0.00
B210	TRACK COUNT ## R15-2 27" X 18"	10 14 01	2	Each	0.00	$0.00
B211	ADVANCED RR WARNING W10-2 30" X 30"	10 14 01	2	Each	0.00	$0.00
B212	ADVANCED RR WARNING W10-3 30" X 30"	10 14 01	2	Each	0.00	$0.00
B213	EXEMPT R15-3 24" X 12"	10 14 01	2	Each	0.00	$0.00
B214	NO PARKING BETWEEN SIGNS R7-112R 12" 'X 18"	10 14 01	2	Each	0.00	$0.00
B215	NO PARKING BETWEEN SIGNS R7-112L 12" 'X 18"	10 14 01	2	Each	0.00	$0.00
B216	NO PARKING BETWEEN SIGNS R8-3 12" X 18"	10 14 01	2	Each	0.00	$0.00
B217	CHEVRON ALIGNMENT W1-8 18" X 24"	10 14 01	2	Each	0.00	$0.00
B218	OBJECT MARKER H1-R 12" X 36"	10 14 01	2	Each	0.00	$0.00
B219	OBJECT MARKER N4 18" X 18"	10 14 01	2	Each	0.00	$0.00
B220	OBJECT MARKER H1-L 12" X 36"	10 14 01	2	Each	0.00	$0.00
B221	ROAD CLOSED W20-3 36" X 36"	10 14 01	2	Each	0.00	$0.00
B222	NEW STEEL FLANGED CHANNEL POST 8 FOOT POST	10 14 01	2	Each	0.00	$0.00
B223	NEW STEEL FLANGED CHANNEL POST 10 FOOT POST	10 14 01	2	Each	0.00	$0.00
B224	NEW STEEL FLANGED CHANNEL POST 12 FOOT POST	10 14 01	2	Each	0.00	$0.00
B225	NEW STEEL FLANGED CHANNEL POST 14 FOOT POST	10 14 01	2	Each	0.00	$0.00
B226	NEW SQUARE STEEL POST 8 FOOT POST	10 14 01	2	Each	0.00	$0.00
B227	NEW SQUARE STEEL POST 10 FOOT POST	10 14 01	2	Each	0.00	$0.00
B228	NEW SQUARE STEEL POST 12 FOOT POST	10 14 01	2	Each	0.00	$0.00
B229	AMBER CLORED PLASTIC BUTTON DELINEATORS	10 14 01	2	Each	0.00	$0.00
B230	RED CLORED PLASTIC BUTTON DELINEATORS	10 14 01	2	Each	0.00	$0.00

B231	WHITE CLORED PLASTIC BUTTON DELINEATORS	10 14 01	2	Each	0.00	$0.00
B232	MAIN HIGHWAY NUMBER SIGN 24" X 24"	10 14 01	2	Each	0.00	$0.00
B233	NEW SPECIAL SIGN 24" X 24"	10 14 01	2	Each	0.00	$0.00
B234	WHISTLE POST SIGN INCUDING POST	10 14 01	2	Each	0.00	$0.00
B235	RE-PLUMB/RE-SET SIGN POST	10 14 01	2	Each	0.00	$0.00
B236	SECONDARY HIGHWAY NUMBER SIGN 21" X 18"	10 14 01	2	Each	0.00	$0.00
B237	White on Green Information Signs 84" x 15"	10 14 01	2	Each	0.00	$0.00
B238	White on Green Building Number Signs 36" x 18"	10 14 01	10	Each	0.00	$0.00
B239	Restricted Area Signs 18" x 12"	10 14 01	10	Each	0.00	$0.00
B240	SIGN AND POST REMOVAL	10 14 01	40	Each	0.00	$0.00
B241	Highway scales weight test certification	00101 Bid Sch	4	Each	0.00	$0.00
B242	IDEM Storm Water Notice of intent Permit	01 27 53	4	Each	0.00	$0.00
B243	Labor for Installation of Material	00101 Bid Sch	20	HR	$0.00	$0.00
B244	Unit price for material and equipment that is not specifically listed within other exhibit line items.	00101 Bid Sch	20,000	LS	0%	$0.00
	For example if the percent mark up is 10% then $5,000.00 x 1.10 = $5,500					
B245	Bond Cost for Payment and Performance Bonds in $25,000.00 increments	00101 Bid Sch	50	EA	$0.00	$0.00
					TOTAL	$0.00

	EXHIBIT C					
	EXHIBIT LINE ITEMS					
	OPTION PERIOD TWO					
	HORIZONTAL CONSTURCTION SERVICES N40083-15-D-7903					
EXHIBIT LINE ITEM NUMBER	LINE ITEM DESCRIPTION	REF. NUMBER	QTY	UNIT ISSUE	UNIT PRICE	EXTENDED AMOUNT
	Excavation & Fill					
C001	Clear and grub (6" to 12" Dia.)	31 11 00	0.5	AC	$0.00	$0.00
C002	Clear and grub (over 12")	31 11 00	0.5	AC	$0.00	$0.00
C003	Scalping	31 00 00	1000	SYD	$0.00	$0.00
C004	Excavation	31 00 00	1200	CYD	$0.00	$0.00
C005	Ditching	31 00 00	1200	CYD	$0.00	$0.00
C006	Fill Grading	31 00 00	2000	SYD	$0.00	$0.00
C007	Finish Grading	31 00 00	2000	SYD	$0.00	$0.00
C008	Lime rock, Grading	31 00 00	2000	SYD	$0.00	$0.00
C009	Delivered Fill	31 00 00	250	TN	$0.00	$0.00
C010	Delivered Top Soil	31 00 00	250	TN	$0.00	$0.00
C011	Compaction 6" Lifts soil	31 00 00	400	SYD	$0.00	$0.00
C012	Geotextile Filter Fabric	31 00 00	100	SYD	$0.00	$0.00
C013	Geogrid fabric (Tensar bx1200-60)	31 00 00	100	SYD	$0.00	$0.00
	Erosion					
C014	Net Straw Matting In Place	31 00 00	1000	SF	$0.00	$0.00
C015	Silt Fence	31 00 00	500	LF	$0.00	$0.00
C016	Straw Bales	31 00 00	200	EA	$0.00	$0.00
C017	Mulching	31 00 00	10000	SYD	$0.00	$0.00
C018	Seeding	31 00 00	10000	SYD	$0.00	$0.00
C019	Hydroseed; mulch, seed and fertilize	31 00 00	10000	SYD	$0.00	$0.00
C020	Lime	31 00 00	44	TN	$0.00	$0.00
	Asphalt Repairs 0 sy-700 Syd per location					
C021	Surface Milling	32 01 16.17	1200	SYD	$0.00	$0.00
C022	Removal Bituminous Materials	32 12 16	75	CYD	$0.00	$0.00
C023	Removal Stone Materials	32 12 16	250	CYD	$0.00	$0.00
C024	Provide Tack Coat	32 12 16	6000	SYD	$0.00	$0.00
C025	Hot Mix Asphalt Base Course 25 mm	32 12 16	600	TN	$0.00	$0.00
C026	Hot Mix Asphalt Binder 12.5 mm	32 12 16	100	TN	$0.00	$0.00
C027	Hot Mix Asphalt Binder 19.5 mm	32 12 16	100	TN	$0.00	$0.00
C028	Hot Mix Asphalt Surface 9.5mm	32 12 16	600	TN	$0.00	$0.00

	Asphalt Repairs Over 700 Syd per location					
C029	Surface Milling	32 01 16.17	1000	SYD	$0.00	$0.00
C030	Removal Bituminous Materials	32 12 16	200	CYD	$0.00	$0.00
C031	Removal Stone Materials	32 12 16	500	CYD	$0.00	$0.00
C032	Provide Tack Coat	32 12 16	48900	SYD	$0.00	$0.00
C033	Hot Mix Asphalt Base Course 25 mm	32 12 16	600	TN	$0.00	$0.00
C034	Hot Mix Asphalt Binder 12.5 mm	32 12 16	1900	TN	$0.00	$0.00
C035	Hot Mix Asphalt Binder 19.5 mm	32 12 16	1900	TN	$0.00	$0.00
C036	Hot Mix Asphalt Surface 9.5mm	32 12 16	2000	TN	$0.00	$0.00
C037	Chip & Seal type 1	32 12 16	225	SYD	$0.00	$0.00
C038	Chip & Seal type 2	32 12 16	225	SYD	$0.00	$0.00
C039	Chip & Seal type 3	32 12 16	225	SYD	$0.00	$0.00
C040	Chip & Seal type 4	32 12 16	225	SYD	$0.00	$0.00
C041	Chip & Seal type 5	32 12 16	225	SYD	$0.00	$0.00
C042	Chip & Seal type 6	32 12 16	225	SYD	$0.00	$0.00
C043	Asphalt Scarification and Profile Preparation	32 01 16.17	63,360	SY	$0.00	$0.00
C044	Crack Sealing	32 01 17.16	2800	LB	$0.00	$0.00
C045	Seal Coating	32 01 17.16	900	SYD	$0.00	$0.00
C046	Crushed Stone #53	32 11 23	1000	TN	$0.00	$0.00
C047	Crushed Stone #2	32 11 23	250	TN	$0.00	$0.00
C048	Crushed Stone #8	32 11 23	100	TN	$0.00	$0.00
C049	Crushed Stone #11	32 11 23	100	TN	$0.00	$0.00
C050	No. 24 Washed Sand	32 11 23	200	TN	$0.00	$0.00
C051	Rip Rap	32 11 23	100	TN	$0.00	$0.00
C052	Snowplowable Raised Pavemnt Marker	32 17 23.00	90	EA	$0.00	$0.00
C053	Provide Temp. Pavement Markings	32 17 23.00	1000	LF	$0.00	$0.00
C054	Provide Concrete Riser Rings 2" Man hole	00101 Bid Sch	4	EA	$0.00	$0.00
C055	Provide Concrete Riser Rings 4" Man hole	00101 Bid Sch	4	EA	$0.00	$0.00
C056	Adjust Manhole	00101 Bid Sch	4	EA	$0.00	$0.00
C057	Adjust Valve Boxes	00101 Bid Sch	6	EA	$0.00	$0.00
	Thermoplastic					
C058	Dashed Lines	32 17 23.00	1500	LF	$0.00	$0.00
C059	Double Solid	32 17 23.00	10500	LF	$0.00	$0.00
C060	Single Solid Line	32 17 23.00	20500	LF	$0.00	$0.00
C061	Handicap	32 17 23.00	5	LF	$0.00	$0.00
C062	Transverse Markings X-Walks W/diagonal Lines	32 17 23.00	700	LF	$0.00	$0.00
C063	Stop Bars 24"	32 17 23.00	700	LF	$0.00	$0.00
C064	Turn Arrows	32 17 23.00	5	EA	$0.00	$0.00
C065	Straight Arrows	32 17 23.00	5	EA	$0.00	$0.00
C066	Combo. Arrows	32 17 23.00	5	EA	$0.00	$0.00
C067	Parking Lines	32 17 23.00	5	LF	$0.00	$0.00
C068	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
C069	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
C070	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
C071	Removal	32 17 23.00	700	SF	$0.00	$0.00
C072	Lay out	32 17 23.00	18	MH	$0.00	$0.00

	Paint					
C073	Dashed Lines	32 17 23.00	1500	LF	$0.00	$0.00
C074	Double Solid	32 17 23.00	10500	LF	$0.00	$0.00
C075	Single Solid Line	32 17 23.00	20500	LF	$0.00	$0.00
C076	Handicap	32 17 23.00	5	EA	$0.00	$0.00
C077	Transverse Markings X-Walks W/diagonal Lines	32 17 23.00	700	LF	$0.00	$0.00
C078	Stop Bars 24"	32 17 23.00	700	LF	$0.00	$0.00
C079	Turn Arrows	32 17 23.00	5	EA	$0.00	$0.00
C080	Straight Arrows	32 17 23.00	5	EA	$0.00	$0.00
C081	Combo. Arrows	32 17 23.00	5	EA	$0.00	$0.00
C082	Parking Lines	32 17 23.00	5	LF	$0.00	$0.00
C083	Curbing	32 17 23.00	5	LF	$0.00	$0.00
C084	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
C085	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
C086	6"Letters on Curbing	32 17 23.00	8	EA	$0.00	$0.00
C087	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
C088	Removal	32 17 23.00	700	SF	$0.00	$0.00
C089	Lay out	32 17 23.00	18	MH	$0.00	$0.00
	Re-Paint					
C090	Dashed Lines	32 17 23.00	1500	LF	$0.00	$0.00
C091	Double Solid	32 17 23.00	10500	LF	$0.00	$0.00
C092	Single Solid Line	32 17 23.00	20500	LF	$0.00	$0.00
C093	Handicap	32 17 23.00	5	EA	$0.00	$0.00
C094	Transverse Markings X-Walks W/diagonal Lines	32 17 23.00	700	LF	$0.00	$0.00
C095	Stop Bars 24"	32 17 23.00	700	LF	$0.00	$0.00
C096	Turn Arrows	32 17 23.00	5	EA	$0.00	$0.00
C097	Straight Arrows	32 17 23.00	5	EA	$0.00	$0.00
C098	Combo. Arrows	32 17 23.00	5	EA	$0.00	$0.00
C099	Parking Lines	32 17 23.00	5	LF	$0.00	$0.00
C100	Curbing	32 17 23.00	5	LF	$0.00	$0.00
C101	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
C102	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
C103	6"Letters on Curbing	32 17 23.00	8	EA	$0.00	$0.00
C104	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
	Epoxy Paint					
C105	Dashed Lines	32 17 23.00	1000	LF	$0.00	$0.00
C106	Double Solid	32 17 23.00	5280	LF	$0.00	$0.00
C107	Single Solid Line	32 17 23.00	10560	LF	$0.00	$0.00
C108	Handicap	32 17 23.00	1	EA	$0.00	$0.00
C109	Transverse Markings Cross Walks W/diagonal Lines	32 17 23.00	100	LF	$0.00	$0.00
C110	Stop Bars 24"	32 17 23.00	50	LF	$0.00	$0.00
C111	Turn Arrows	32 17 23.00	2	EA	$0.00	$0.00
C112	Straight Arrows	32 17 23.00	2	EA	$0.00	$0.00
C113	Combo. Arrows	32 17 23.00	2	EA	$0.00	$0.00
C114	2' Letters	32 17 23.00	8	EA	$0.00	$0.00
C115	8' Letters	32 17 23.00	8	EA	$0.00	$0.00
C116	RR Crossings	32 17 23.00	8	EA	$0.00	$0.00
C117	Removal	32 17 23.00	10	SF	$0.00	$0.00
C118	Lay out	32 17 23.00	10	MH	$0.00	$0.00

	Concrete					
C119	Flowable Fill #197	03 30 00	27	CYD	$0.00	$0.00
C120	Remove Reinforced Concrete (up to12")	03 30 00	300	CYD	$0.00	$0.00
C121	Sidewalk 4ft wide, 4" thick	32 16 23	3600	SF	$0.00	$0.00
C122	Sidewalk 5ft wide, 4" thick	32 16 23	3600	SF	$0.00	$0.00
C123	Concrete Standard (non-reinforced)	03 30 00	70	CYD	$0.00	$0.00
C124	Concrete (4" to 8") Steel Reinforced	03 30 00	70	CYD	$0.00	$0.00
C125	Concrete (8" to 12") Steel Reinforced	03 30 00	70	CYD	$0.00	$0.00
C126	Reinforcing Steel (CWT = per 100#)	03 30 00	3	CWT	$0.00	$0.00
C127	Concrete 18" roll curb & gutter up to 50 lf per location	03 30 00	25	LF	$0.00	$0.00
C128	Concrete 18" roll curb & gutter over 50' lf	03 30 00	75	LF	$0.00	$0.00
C129	Concrete 24" roll curb & gutter up to 50' lf per location	03 30 00	25	LF	$0.00	$0.00
C130	Concrete 24" roll curb & gutter over 50' lf per location	03 30 00	75	LF	$0.00	$0.00
C131	Curb & gutter-face type, 18" up to 50' lf	03 30 00	50	LF	$0.00	$0.00
C132	Curb & gutter-face type, 18" over 50' lf per location	03 30 00	100	LF	$0.00	$0.00
C133	Curb & gutter-face type, 24" up to 50' lf per location	03 30 00	25	LF	$0.00	$0.00
C134	Curb & gutter-face type, 24" over 50' lf per location	03 30 00	51	LF	$0.00	$0.00
C135	face type curb 6"x18"	03 30 00	200	LF	$0.00	$0.00
	Culverts and Liners					
C136	Concrete Head wall	03300	12	CYD	$0.00	$0.00
C137	Rip Rap Ends	00101 Bid Sch	100	TN	$0.00	$0.00
C138	B-Barrow for Structural Backfill	00101 Bid Sch	100	TN	$0.00	$0.00
C139	Grout	00101 Bid Sch	27	CYD	$0.00	$0.00
C140	Soil Excavation over 5 foot in depth	31 00 00	100	CYD	$0.00	$0.00
C141	12" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
C142	15" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
C143	18" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
C144	24"Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
C145	30" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
C146	36" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
C147	42" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
C148	48" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
C149	60" Polyethylene pipe W/smooth interior	31 00 00	20	LF	$0.00	$0.00
C150	10.75" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C151	12.75" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C152	14" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C153	16" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C154	18" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C155	20" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C156	22" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C157	30"Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C158	28" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C159	32" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C160	34" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C161	36" Snap-Tite Liner	31 00 00	22	LF	$0.00	$0.00
C162	Trenching 6"	31 00 00	150	LF	$0.00	$0.00
C163	Trenching 8"	31 00 00	150	LF	$0.00	$0.00
C164	HDPE drainage pipe (subdrain) 4" diameter	31 00 00	150	LF	$0.00	$0.00
C165	HDPE drainage pipe (subdrain) 6" diameter	31 00 00	150	LF	$0.00	$0.00
C166	12" Stripdrain	31 00 00	150	LF	$0.00	$0.00

	Guardrail					
C167	Removal	00101 Bid Sch	600	LF	$0.00	$0.00
C168	Galvanized steel guardrail	00101 Bid Sch	600	LF	$0.00	$0.00
C169	Galvanized flared terminal type B	00101 Bid Sch	5	EA	$0.00	$0.00
C170	ET 2000 Plus 37'6"	00101 Bid Sch	1	EA	$0.00	$0.00
C171	Galvanized post	00101 Bid Sch	100	EA	$0.00	$0.00
C172	Pipe Bollards 6" concrete Filled	00101 Bid Sch	5	EA	$0.00	$0.00
	Fencing Perimeter					
C173	47"Field Fence W/Barb Wire Installed	32 31 00.00 10	5280	LF	$0.00	$0.00
C174	Water Gate Installed	32 31 00.00 10	10	LF	$0.00	$0.00
C175	Removal Field Fence	32 31 00.00 10	5280	LF	$0.00	$0.00
	Fencing Chain Link					
C176	6' Chain Link Fence W/Barb Wire Installed	32 31 00.00 10	5280	LF	$0.00	$0.00
C177	7' Chain Link Fence W/Barb Wire Installed	32 31 00.00 10	5280	LF	$0.00	$0.00
C178	8" Chain Link Fence W/Barb Wire Installed	32 31 00.00 10	10000	LF	$0.00	$0.00
C179	12' Chain Link Fence Gates	32 31 00.00 10	4	EA	$0.00	$0.00
C180	15' Chain Link Fence Gates	32 31 00.00 10	4	EA	$0.00	$0.00
C181	Removal Chain Link Fence	32 31 00.00 10	220	LF	$0.00	$0.00
C182	25' Hydraulic vertical pivot gate	32 31 00.00 10	1	EA	$0.00	$0.00
	Stone Road / Lot Maint					
C183	Stone Road Maintenance	32 11 23	1	Mile	$0.00	$0.00
C184	Stone Lot Maintenance	32 11 23	1777	SY	$0.00	$0.00
C185	Add Stone to Roads or Lots # 53 stone	32 11 23	22	TN	$0.00	$0.00
C186	Add Stone to Roads or Lots # 73 stone	32 11 23	22	TN	$0.00	$0.00
C187	Add Stone to Roads or Lots # 8 stone	32 11 23	22	TN	$0.00	$0.00
C188	Add Stone to Roads or Lots # 2 stone	32 11 23	10	TN	$0.00	$0.00

	SIGNS					
C189	YIELD R1-2 30" x 30"	10 14 01	2	Each	0.00	$0.00
C191	PEDESTRIAN CROSSING W11A-2 30" X 30"	10 14 01	2	Each	0.00	$0.00
C192	SPEED LIMIT (##) R2-1 24" X 30"	10 14 01	2	Each	0.00	$0.00
C193	NO PASSING W14-3 40" X 30 "	10 14 01	2	Each	0.00	$0.00
C194	DO NOT ENTER R5-1 30" X 30"	10 14 01	2	Each	0.00	$0.00
C195	STOP R1-1 30" X 30"	10 14 01	2	Each	0.00	$0.00
C196	STOP R1-1 24" X 24"	10 14 01	2	Each	0.00	$0.00
C197	REDUCED SPEED AHEAD ## R2-5B 24" x 30"	10 14 01	2	Each	0.00	$0.00
C198	LOW CLEARANCE W12-2 30" X 30"	10 14 01	2	Each	0.00	$0.00
C199	NO PARKING ANY TIME R7-100 18" X 24"	10 14 01	2	Each	0.00	$0.00
C200	RESERVED PARKING FOR HANDICAP R7-8 18" X 24"	10 14 01	2	Each	0.00	$0.00
C201	RESERVED PARKING FOR HANDICAP R7-128 12" X 18"	10 14 01	2	Each	0.00	$0.00
C202	CURVE W1-2L 30" X 30"	10 14 01	2	Each	0.00	$0.00
C203	CURVE W1-2R	10 14 01	2	Each	0.00	$0.00
C204	ADVISORY SPEED W13-1 24" X 24"	10 14 01	2	Each	0.00	$0.00
C205	STOP AHEAD W3-1A 30" X 30"	10 14 01	2	Each	0.00	$0.00
C206	SOFT SHOULDER W8-4 30" X 30"	10 14 01	2	Each	0.00	$0.00
C207	DEER CROSSING W11-3 30" X 30"	10 14 01	2	Each	0.00	$0.00
C208	RAILROAD CROSSING W10-1 36" IN DIAMETER	10 14 01	2	Each	0.00	$0.00
C209	RAILROAD CROSSING R15-1 48" X 9"	10 14 01	2	Each	0.00	$0.00
C210	TRACK COUNT ## R15-2 27" X 18"	10 14 01	2	Each	0.00	$0.00
C211	ADVANCED RR WARNING W10-2 30" X 30"	10 14 01	2	Each	0.00	$0.00
C212	ADVANCED RR WARNING W10-3 30" X 30"	10 14 01	2	Each	0.00	$0.00
C213	EXEMPT R15-3 24" X 12"	10 14 01	2	Each	0.00	$0.00
C214	NO PARKING BETWEEN SIGNS R7-112R 12" 'X 18"	10 14 01	2	Each	0.00	$0.00
C215	NO PARKING BETWEEN SIGNS R7-112L 12" 'X 18"	10 14 01	2	Each	0.00	$0.00
C216	NO PARKING BETWEEN SIGNS R8-3 12" X 18"	10 14 01	2	Each	0.00	$0.00
C217	CHEVRON ALIGNMENT W1-8 18" X 24"	10 14 01	2	Each	0.00	$0.00
C218	OBJECT MARKER H1-R 12" X 36"	10 14 01	2	Each	0.00	$0.00
C219	OBJECT MARKER N4 18" X 18"	10 14 01	2	Each	0.00	$0.00
C220	OBJECT MARKER H1-L 12" X 36"	10 14 01	2	Each	0.00	$0.00
C221	ROAD CLOSED W20-3 36" X 36"	10 14 01	2	Each	0.00	$0.00
C222	NEW STEEL FLANGED CHANNEL POST 8 FOOT POST	10 14 01	2	Each	0.00	$0.00
C223	NEW STEEL FLANGED CHANNEL POST 10 FOOT POST	10 14 01	2	Each	0.00	$0.00
C224	NEW STEEL FLANGED CHANNEL POST 12 FOOT POST	10 14 01	2	Each	0.00	$0.00
C225	NEW STEEL FLANGED CHANNEL POST 14 FOOT POST	10 14 01	2	Each	0.00	$0.00
C226	NEW SQUARE STEEL POST 8 FOOT POST	10 14 01	2	Each	0.00	$0.00
C227	NEW SQUARE STEEL POST 10 FOOT POST	10 14 01	2	Each	0.00	$0.00
C228	NEW SQUARE STEEL POST 12 FOOT POST	10 14 01	2	Each	0.00	$0.00
C229	AMBER CLORED PLASTIC BUTTON DELINEATORS	10 14 01	2	Each	0.00	$0.00
C230	RED CLORED PLASTIC BUTTON DELINEATORS	10 14 01	2	Each	0.00	$0.00

C231	WHITE CLORED PLASTIC BUTTON DELINEATORS	10 14 01	2	Each	0.00	$0.00
C232	MAIN HIGHWAY NUMBER SIGN 24" X 24"	10 14 01	2	Each	0.00	$0.00
C233	NEW SPECIAL SIGN 24" X 24"	10 14 01	2	Each	0.00	$0.00
C234	WHISTLE POST SIGN INCUDING POST	10 14 01	2	Each	0.00	$0.00
C235	RE-PLUMB/RE-SET SIGN POST	10 14 01	2	Each	0.00	$0.00
C236	SECONDARY HIGHWAY NUMBER SIGN 21" X 18"	10 14 01	2	Each	0.00	$0.00
C237	White on Green Information Signs 84" x 15"	10 14 01	2	Each	0.00	$0.00
C238	White on Green Building Number Signs 36" x 18"	10 14 01	10	Each	0.00	$0.00
C239	Restricted Area Signs 18" x 12"	10 14 01	10	Each	0.00	$0.00
C240	SIGN AND POST REMOVAL	10 14 01	40	Each	0.00	$0.00
C241	Highway scales weight test certification	00101 Bid Sch	4	Each	0.00	$0.00
					0.00	
C242	IDEM Storm Water Notice of intent Permit	01 27 53	4	Each	0.00	$0.00
C243	Labor for Installation of Material	00101 Bid Sch	20	HR	$0.00	$0.00
C244	Unit price for material and equipment that is not specifically listed within other exhibit line items.	00101 Bid Sch	20,000	LS	0%	$0.00
	For example if the percent mark up is 10% then $5,000.00 x 1.10 = $5,50					
C245	Bond Cost for Payment and Performance Bonds in $25,000.00 increments	00101 Bid Sch	50	EA	$0.00	$0.00
					TOTAL	$0.00

Section 00100 - Bidding Schedule/Instructions to Bidders

CLAUSES INCORPORATED BY REFERENCE

52.211-1	Availability of Specifications Listed in the GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29	AUG 1998
52.211-2	Availability of Specifications, Standards, and Data Item Descriptions Listed in the Acquisition Streamlining and Standardization Information System (ASSIST)	APR 2014
52.211-3	Availability of Specifications Not Listed in the GSA Index of Federal Specifications, Standards, and Commercial Item Descriptions	JUN 1988
52.211-4	Availability for Examination of Specifications Not Listed in the GSA Index of Federal Specifications, Standards and Commercial Item Descriptions	JUN 1988
52.217-5	Evaluation Of Options	JUL 1990
52.252-3	Alterations in Solicitation	APR 1984

CLAUSES INCORPORATED BY FULL TEXT

52.211-14 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE, EMERGENCY PREPAREDNESS, AND ENERGY PROGRAM USE (APR 2008)

Any contract awarded as a result of this solicitation will be DO-C2 rated order certified for national defense, emergency preparedness, and energy program use under the Defense Priorities and Allocations System (DPAS) (15 CFR 700), and the Contractor will be required to follow all of the requirements of this regulation.

(End of provision)

52.215-1 INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (JAN 2004)

(a) Definitions. As used in this provision--

“Discussions” are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal.

“In writing or written” means any worded or numbered expression which can be read, reproduced, and later communicated, and includes electronically transmitted and stored information.

“Proposal modification” is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award.

“Proposal revision” is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations.

“Time”, if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.

(b) Amendments to solicitations. If this solicitation is amended, all terms and conditions that are not amended remain unchanged. Offerors shall acknowledge receipt of any amendment to this solicitation by the date and time specified in the amendment(s).

(c) Submission, modification, revision, and withdrawal of proposals. (1) Unless other methods (e.g., electronic commerce or facsimile) are permitted in the solicitation, proposals and modifications to proposals shall be submitted in paper media in sealed envelopes or packages (i) addressed to the office specified in the solicitation, and (ii) showing the time and date specified for receipt, the solicitation number, and the name and address of the offeror. Offerors using commercial carriers should ensure that the proposal is marked on the outermost wrapper with the information in paragraphs (c)(1)(i) and (c)(1)(ii) of this provision.

(2) The first page of the proposal must show--

(i) The solicitation number;

(ii) The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);

(iii) A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item;

(iv) Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and

(v) Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

(3) Submission, modification, or revision, of proposals.

(i) Offerors are responsible for submitting proposals, and any modifications, or revisions, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that proposal or revision is due.

(ii)(A) Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is “late” and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and--

(1) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or

(2) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or

(3) It is the only proposal received.

(B) However, a late modification of an otherwise successful proposal that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(iii) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(iv) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(v) Proposals may be withdrawn by written notice received at any time before award. Oral proposals in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision at 52.215-5, Facsimile Proposals. Proposals may be withdrawn in person by an offeror or an authorized representative, if the identity of the person requesting withdrawal is established and the person signs a receipt for the proposal before award.

(4) Unless otherwise specified in the solicitation, the offeror may propose to provide any item or combination of items.

(5) Offerors shall submit proposals in response to this solicitation in English, unless otherwise permitted by the solicitation, and in U.S. dollars, unless the provision at FAR 52.225-17, Evaluation of Foreign Currency Offers, is included in the solicitation.

(6) Offerors may submit modifications to their proposals at any time before the solicitation closing date and time, and may submit modifications in response to an amendment, or to correct a mistake at any time before award.

(7) Offerors may submit revised proposals only if requested or allowed by the Contracting Officer.

(8) Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

(d) Offer expiration date. Proposals in response to this solicitation will be valid for the number of days specified on the solicitation cover sheet (unless a different period is proposed by the offeror).

(e) Restriction on disclosure and use of data. Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall--

(1) Mark the title page with the following legend: This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of--or in connection with-- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]; and

(2) Mark each sheet of data it wishes to restrict with the following legend: Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

(f) Contract award. (1) The Government intends to award a contract or contracts resulting from this solicitation to the responsible offeror(s) whose proposal(s) represents the best value after evaluation in accordance with the factors and subfactors in the solicitation.

(2) The Government may reject any or all proposals if such action is in the Government's interest.

(3) The Government may waive informalities and minor irregularities in proposals received.

(4) The Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

(5) The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit cost or prices offered, unless the offeror specifies otherwise in the proposal.

(6) The Government reserves the right to make multiple awards if, after considering the additional administrative costs, it is in the Government's best interest to do so.

(7) Exchanges with offerors after receipt of a proposal do not constitute a rejection or counteroffer by the Government.

(8) The Government may determine that a proposal is unacceptable if the prices proposed are materially unbalanced between line items or subline items. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more contract line items is significantly overstated or understated as indicated by the application of cost or price analysis techniques. A proposal may be rejected if the Contracting Officer determines that the lack of balance poses an unacceptable risk to the Government.

(9) If a cost realism analysis is performed, cost realism may be considered by the source selection authority in evaluating performance or schedule risk.

(10) A written award or acceptance of proposal mailed or otherwise furnished to the successful offeror within the time specified in the proposal shall result in a binding contract without further action by either party.

(11) If a post-award debriefing is given to requesting offerors, the Government shall disclose the following information, if applicable:

(i) The agency's evaluation of the significant weak or deficient factors in the debriefed offeror's offer.

(ii) The overall evaluated cost or price and technical rating of the successful and the debriefed offeror and past performance information on the debriefed offeror.

(iii) The overall ranking of all offerors, when any ranking was developed by the agency during source selection.

(iv) A summary of the rationale for award.

(v) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.

(vi) Reasonable responses to relevant questions posed by the debriefed offeror as to whether source-selection procedures set forth in the solicitation, applicable regulations, and other applicable authorities were followed by the agency.

(End of provision)

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a IDIQ/Requirements type contract resulting from this solicitation.

(End of provision)

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
9.7% Martin County 3.1% Sullivan County	6.9%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

(1) Name, address, and telephone number of the subcontractor;

(2) Employer's identification number of the subcontractor;

(3) Estimated dollar amount of the subcontract;

(4) Estimated starting and completion dates of the subcontract; and

(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is State of Indian, Martin County, NSA Crane and State of Indiana, Sullivan County, Glendora Test Facility.

(End of provision)

52.233-2 SERVICE OF PROTEST (SEP 2006)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the Government Accountability Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from Commanding Officer, NAVFAC Atlantic, Norfolk, VA

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

(End of provision)

52.236-27 SITE VISIT (CONSTRUCTION) (FEB 1995)

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

(b) Site visits may be arranged during normal duty hours by contacting:
Name: Chris Stahl
Address: NAVFAC MIDLANT PWD Crane
Telephone: 812-854-4373, cell 812-295-6986

(End of provision)

52.236-28 PREPARATION OF PROPOSALS--CONSTRUCTION (OCT 1997)

(a) Proposals must be (1) submitted on the forms furnished by the Government or on copies of those forms, and (2) manually signed. The person signing a proposal must initial each erasure or change
appearing on any proposal form.

(b) The proposal form may require offerors to submit proposed prices for one or more items on various bases, including--

(1) Lump sum price;

(2) Alternate prices;

(3) Units of construction; or

(4) Any combination of paragraphs (b)(1) through (b)(3) of this provision.

(c) If the solicitation requires submission of a proposal on all items, failure to do so may result in the proposal being rejected without further consideration. If a proposal on all items is not required, offerors should insert the words “no proposal” in the space provided for any item on which no price is submitted.

(d) Alternate proposals will not be considered unless this solicitation authorizes their submission.

(End of provision)

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://farsite.hill.af.mil
https://www.acquisition.gov/comp/far/index.html

(End of provision)

252.232-7006 WIDE AREA WORKFLOW PAYMENT INSTRUCTIONS (MAY 2013)

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

Department of Defense Activity Address Code (DoDAAC) is a six position code that uniquely identifies a unit, activity, or organization.

Document type means the type of payment request or receiving report available for creation in Wide Area WorkFlow (WAWF).

Local processing office (LPO) is the office responsible for payment certification when payment certification is done external to the entitlement system.

(b) Electronic invoicing. The WAWF system is the method to electronically process vendor payment requests and receiving reports, as authorized by DFARS 252.232-7003, Electronic Submission of Payment Requests and Receiving Reports.

(c) WAWF access. To access WAWF, the Contractor shall--

(1) Have a designated electronic business point of contact in the System for Award Management at https://www.acquisition.gov; and

(2) Be registered to use WAWF at https://wawf.eb.mil/ following the step-by-step procedures for self-registration available at this Web site.

(d) WAWF training. The Contractor should follow the training instructions of the WAWF Web-Based Training Course and use the Practice Training Site before submitting payment requests through WAWF. Both can be accessed by selecting the “Web Based Training” link on the WAWF home page at https://wawf.eb.mil/.

(e) WAWF methods of document submission. Document submissions may be via Web entry, Electronic Data Interchange, or File Transfer Protocol.

(f) WAWF payment instructions. The Contractor must use the following information when submitting payment requests and receiving reports in WAWF for this contract/order:

(1) Document type. The Contractor shall use the following document type(s).

NAVY CONSTRUCTION/FACILITIES MANAGEMENT INVOICE

(Contracting Officer: Insert applicable document type(s). Note: If a “Combo” document type is identified but not supportable by the Contractor's business systems, an “Invoice” (stand-alone) and “Receiving Report” (stand-alone) document type may be used instead.)

(2) Inspection/acceptance location. The Contractor shall select the following inspection/acceptance location(s) in WAWF, as specified by the contracting officer.

N61154

(Contracting Officer: Insert inspection and acceptance locations or “Not applicable”.)

(3) Document routing. The Contractor shall use the information in the Routing Data Table below only to fill in applicable fields in WAWF when creating payment requests and receiving reports in the system.

Routing Data Table*

Field Name in WAWF	Data to be entered in WAWF
Pay Official DoDAAC	**N68732**
Issue By DoDAAC	**N40085**
Admin DoDAAC	**N40085**
Inspect By DoDAAC	**N61154**
Ship To Code	**NA**
Ship From Code	**NA**
Mark For Code	**NA**
Service Approver (DoDAAC)	**NA**
Service Acceptor (DoDAAC)	**N61154**
Accept at Other DoDAAC	**NA**
LPO DoDAAC	**N61154**
DCAA Auditor DoDAAC	**NA**
Other DoDAAC(s)	**NA**

(4) Payment request and supporting documentation. The Contractor shall ensure a payment request includes appropriate contract line item and subline item descriptions of the work performed or supplies delivered, unit

price/cost per unit, fee (if applicable), and all relevant back-up documentation, as defined in DFARS Appendix F, (e.g. timesheets) in support of each payment request.

(5) WAWF email notifications. The Contractor shall enter the email address identified below in the "Send Additional Email Notifications" field of WAWF once a document is submitted in the system.

christopher.stahl@navy.mil

(g) WAWF point of contact. (1) The Contractor may obtain clarification regarding invoicing in WAWF from the following contracting activity's WAWF point of contact.

annette.taylor@navy.mil

(2) For technical WAWF help, contact the WAWF helpdesk at 866-618-5988.

(End of clause)

5252.228-9300 INDIVIDUAL SURETY/SURETIES (JUN 1994)

As prescribed in FAR 28.203(a), individual sureties will be permitted. In order for the Contracting Officer to make a determination as to the acceptability of individuals proposed as sureties, as prescribed in FAR 28-203(b), all proposers who submit bonds which are executed by individual sureties are requested to furnish additional information in support of SF-28, Affidavit of Individual Surety, with the bonds. Pursuant to Instruction 3(b) of Standard Form 24, the Bond, Standard Form 25, the Performance Bond, and the Standard Form 25A, the Payment Bond, the Contracting Officer requests the following information:

(a) Equity Securities (Stock):

(1) State the place(s) of incorporation and address of the principal place of business for each issuing corporation listed.

(2) State whether the security issued was issued by public or private offering and give the place of registration of the security.

(3) State whether the security is presently, actively traded.

(b) Debt Securities (Bonds) and Certificates of Deposit:

(1) List the type of bonds held and their maturity dates.

(2) State the name, address, and telephone number of the issuing agency, firm or individual.

(3) State the complete address(es) where the bonds are held.

(4) State whether the bonds have been pledged as security or have otherwise been encumbered.

(c) Real Property Interests:

(1) Provide complete recording data for the conveyance of each parcel or interest listed to the individual proposed as surety.

(2) State whether the values listed are based upon personal evaluation or evaluation of an experienced real estate appraiser. If available, provide copies of written appraisals.

(3) State the method(s) of valuation upon which appraisal is based.

(4) Provide the assessed value of each property interest listed utilized by the appropriate tax assessor for purposes of property taxation.

(5) Provide the telephone number, including area code, for the tax assessor who performed the most recent tax assessment. (6) State whether each real property interest listed is currently under lien or in any way encumbered and the dollar amount of each such lien or encumbrance.

(d) Persons Proposed as Individual Sureties:

(1) A current list of all other bonds (bid, performance, and payment) on which the individual is a surety and bonds for which the individual is requesting to be a surety.

(2) A statement as to the percent of completion of projects for which the individual is bound on a performance bond.

This information is necessary to enable the Contracting Officer to evaluate the sufficiency of the surety's net worth in a timely manner. (End of provision)

5252.228-9302 BID GUARANTEE (JAN 1996)

To assure the execution of the contract and the performance and payment bonds, each bidder/offeror shall submit with its bid/offer a guarantee bond (Standard Form 24) executed by a surety company holding a certificate of authority from the Secretary of the Treasury as an acceptable surety, or other security as provided in FAR Clause 52.228-1, "Bid Guarantee". Security shall be in a penal sum equal to at least 20 percent of the largest amount for which award can be made under the bid submitted, but in no case to exceed $3,000,000. The bid guarantee bond shall be accompanied by a copy of the agent's authority to sign bonds for the surety company. (End of provision)

5252.228-9305 NOTICE OF BONDING REQUIREMENTS (DEC 2000) Alternate III

(a) Within __10__ days after receipt of award, the bidder/offeror to whom the award is made shall furnish the following bond(s) each with satisfactory security:

__X__ A Performance Bond (Standard Form 25). The performance bond shall be in a penal sum equal to 100% percent of the contract price.

__X__ A Payment Bond (Standard Form 25A). The payment bond shall be in a penal sum equal to 100% of the contract price.

(b) Any surety company holding a certificate of authority from the Secretary of Treasury as an acceptable Surety on Federal bonds will be accepted. Individual sureties will be permitted as prescribed in FAR 28.203 and FAC 5252.228-9300. Alternative types of security in lieu of furnishing sureties on performance and/or payment bonds will be permitted as prescribed in FAR 28.204, and will be held for at least one year after the completion of the contract. Additional bond security may be required as prescribed in FAR 52.228-2. Bonds shall be accompanied by a document authenticating the agent’s authority to sign bonds for the surety company.

(c) The contract time for purposes of fixing the completion date, default, and liquidated damages shall begin to run __0__ days from the date of award, regardless of when performance and payment bonds or deposits in lieu of surety are executed. (End of clause)

ALTERNATE III - As prescribed in 28.102-3-100(d), for requirements solicitations, substitute "contract price" in the basic provision with "the price payable for the estimated quantity".

Section 00600 - Representations & Certifications

CLAUSES INCORPORATED BY REFERENCE

52.203-3	Gratuities	APR 1984
52.223-4	Recovered Material Certification	MAY 2008

CLAUSES INCORPORATED BY FULL TEXT

52.204-8 ANNUAL REPRESENTATIONS AND CERTIFICATIONS (DEC 2014)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 237310 Highway, Stree, and Bridge Construction.

(2) The small business size standard is $36,500,000.00.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

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

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

( ) Paragraph (d) applies.

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

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

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

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

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

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

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

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

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

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

(B) Exceed the simplified acquisition threshold; and

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

(v) 52.209-2; Prohibition on Contracting with Inverted Domestic Corporations--Representation.

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

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

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

(ix) 52.219-1, Small Business Program Representations (Basic & Alternate I). This provision applies to solicitations when the contract will be performed in the United States or its outlying areas.

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

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

(x) 52.219-2, Equal Low Bids. This provision applies to solicitations when contracting by sealed bidding and the contract will be performed in the United States or its outlying areas.

(xi) 52.222-22, Previous Contracts and Compliance Reports. This provision applies to solicitations that include the clause at 52.222-26, Equal Opportunity.

(xii) 52.222-25, Affirmative Action Compliance. This provision applies to solicitations, other than those for construction, when the solicitation includes the clause at 52.222-26, Equal Opportunity.

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

(xiv) 52.223-1, Biobased Product Certification. This provision applies to solicitations that require the delivery or specify the use of USDA-designated items; or include the clause at 52.223-2, Affirmative Procurement of Biobased Products Under Service and Construction Contracts.

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

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

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

(A) If the acquisition value is less than $25,000, the basic provision applies.

(B) If the acquisition value is $25,000 or more but is less than $50,000, the provision with its Alternate I applies.

(C) If the acquisition value is $50,000 or more but is less than $79,507, the provision with its Alternate II applies.

(D) If the acquisition value is $79,507 or more but is less than $100,000, the provision with its Alternate III applies.

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

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

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

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

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

[Contracting Officer check as appropriate.]

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

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

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

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

X (v) 52.223-9, with its Alternate I, Estimate of Percentage of Recovered Material Content for EPA-Designated Products (Alternate I only).

(vi) 52.227-6, Royalty Information.

(A) Basic.

(B) Alternate I.

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

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

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

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

52.209-7 INFORMATION REGARDING RESPONSIBILITY MATTERS (JULY 2013)

(a) Definitions. As used in this provision--

Administrative proceeding means a non-judicial process that is adjudicatory in nature in order to make a determination of fault or liability (e.g., Securities and Exchange Commission Administrative Proceedings, Civilian Board of Contract Appeals Proceedings, and Armed Services Board of Contract Appeals Proceedings). This includes administrative proceedings at the Federal and State level but only in connection with performance of a Federal contract or grant. It does not include agency actions such as contract audits, site visits, corrective plans, or inspection of deliverables.

Federal contracts and grants with total value greater than $10,000,000 means--

(1) The total value of all current, active contracts and grants, including all priced options; and

(2) The total value of all current, active orders including all priced options under indefinite-delivery, indefinite-quantity, 8(a), or requirements contracts (including task and delivery and multiple-award Schedules).

Principal means an officer, director, owner, partner, or a person having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a division or business segment; and similar positions).

(b) The offeror ( ) has ( ) does not have current active Federal contracts and grants with total value greater than $10,000,000.

(c) If the offeror checked “has” in paragraph (b) of this provision, the offeror represents, by submission of this offer, that the information it has entered in the Federal Awardee Performance and Integrity Information System (FAPIIS) is current, accurate, and complete as of the date of submission of this offer with regard to the following information:

(1) Whether the offeror, and/or any of its principals, has or has not, within the last five years, in connection with the award to or performance by the offeror of a Federal contract or grant, been the subject of a proceeding, at the Federal or State level that resulted in any of the following dispositions:

(i) In a criminal proceeding, a conviction.

(ii) In a civil proceeding, a finding of fault and liability that results in the payment of a monetary fine, penalty, reimbursement, restitution, or damages of $5,000 or more.

(iii) In an administrative proceeding, a finding of fault and liability that results in--

(A) The payment of a monetary fine or penalty of $5,000 or more; or

(B) The payment of a reimbursement, restitution, or damages in excess of $100,000.

(iv) In a criminal, civil, or administrative proceeding, a disposition of the matter by consent or compromise with an acknowledgment of fault by the Contractor if the proceeding could have led to any of the outcomes specified in paragraphs (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this provision.

(2) If the offeror has been involved in the last five years in any of the occurrences listed in (c)(1) of this provision, whether the offeror has provided the requested information with regard to each occurrence.

(d) The offeror shall post the information in paragraphs (c)(1)(i) through (c)(1)(iv) of this provision in FAPIIS as required through maintaining an active registration in the System for Award Management database via https://www.acquisition.gov (see 52.204-7).

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)

The offeror represents that --

(a) ( ) It has, ( ) has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) ( ) It has, ( ) has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

52.222-38 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (SEP 2010)

By submission of its offer, the offeror represents that, if it is subject to the reporting requirements of 38 U.S.C. 4212(d) (i.e., if it has any contract containing Federal Acquisition Regulation clause 52.222-37, Employment Reports on Veterans), it has submitted the most recent VETS-100A Report required by that clause.

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

252.204-7007 ALTERNATE A, ANNUAL REPRESENTATIONS AND CERTIFICATIONS (JAN 2015)

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

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

(i) 252.209-7003, Reserve Officer Training Corps and Military Recruiting on Campus--Representation. Applies to all solicitations with institutions of higher education.

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

(iii) 252.222-7007, Representation Regarding Combating Trafficking in Persons, as prescribed in 222.1771. Applies to solicitations with a value expected to exceed the simplified acquisition threshold.

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

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

(vi) 252.225-7050, Disclosure of Ownership or Control by the Government of a Country that is a State Sponsor of Terrorism. Applies to all solicitations expected to result in contracts of $150,000 or more.

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

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

(ix) 252.247-7022, Representation of Extent of Transportation by Sea. Applies to all solicitations except those for direct purchase of ocean transportation services or those with an anticipated value at or below the simplified acquisition threshold.

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

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

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

____ (iii) 252.225-7020, Trade Agreements Certificate.

____ Use with Alternate I.

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

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

____ Use with Alternate I.

____ Use with Alternate II.

____ Use with Alternate III.

____ Use with Alternate IV.

____ Use with Alternate V.

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

FAR/DFARS Clause #	Title	Date	Change

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

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

252.247-7022 REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term supplies is defined in the

Transportation of Supplies by Sea clause of this solicitation.

(b) Representation. The Offeror represents that it:

____ (1) Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

____ (2) Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of provision)

Section 00700 - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	NOV 2013
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	MAY 2014
52.203-7	Anti-Kickback Procedures	MAY 2014
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	OCT 2010
52.203-13	Contractor Code of Business Ethics and Conduct	APR 2010
52.204-2 Alt II	Security Requirements (Aug 1996) - Alternate II	APR 1984
52.204-4	Printed or Copied Double-Sided on Postconsumer Fiber Content Paper	MAY 2011
52.204-9	Personal Identity Verification of Contractor Personnel	JAN 2011
52.204-15	Service Contract Reporting Requirements for Indefinite-Delivery Contracts	JAN 2014
52.209-2	Prohibition on Contracting with Inverted Domestic Corporations--Representation	DEC 2014
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	AUG 2013
52.209-10	Prohibition on Contracting With Inverted Domestic Corporations	DEC 2014
52.211-13	Time Extensions	SEP 2000
52.211-15	Defense Priority And Allocation Requirements	APR 2008
52.211-18	Variation in Estimated Quantity	APR 1984
52.215-2	Audit and Records--Negotiation	OCT 2010
52.219-4	Notice of Price Evaluation Preference for HUBZone Small Business Concerns	OCT 2014
52.219-8	Utilization of Small Business Concerns	OCT 2014
52.219-9	Small Business Subcontracting Plan	OCT 2014
52.219-16	Liquidated Damages-Subcontracting Plan	JAN 1999
52.222-1	Notice To The Government Of Labor Disputes	FEB 1997
52.222-3	Convict Labor	JUN 2003
52.222-4	Contract Work Hours and Safety Standards- Overtime Compensation	MAY 2014
52.222-5	Construction Wage Rate Requirements--Secondary Site of the Work	MAY 2014
52.222-6	Construction Wage Rate Requirements	MAY 2014
52.222-7	Withholding of Funds	MAY 2014
52.222-8	Payrolls and Basic Records	MAY 2014
52.222-9	Apprentices and Trainees	JUL 2005
52.222-10	Compliance with Copeland Act Requirements	FEB 1988
52.222-11	Subcontracts (Labor Standards)	MAY 2014
52.222-12	Contract Termination-Debarment	MAY 2014
52.222-13	Compliance With Construction Wage Rate Requirements and Related Regulations	MAY 2014
52.222-14	Disputes Concerning Labor Standards	FEB 1988
52.222-15	Certification of Eligibility	MAY 2014

52.222-21	Prohibition Of Segregated Facilities	APR 2015
52.222-26	Equal Opportunity	APR 2015
52.222-27	Affirmative Action Compliance Requirements for Construction	APR 2015
52.222-30	Construction Wage Rate Requirements--Price Adjustment (None or Separately Specified Method)	MAY 2014
52.222-35	Equal Opportunity for Veterans	JUL 2014
52.222-36	Equal Opportunity for Workers with Disabilities	JUL 2014
52.222-37	Employment Reports on Veterans	JUL 2014
52.222-40	Notification of Employee Rights Under the National Labor Relations Act	DEC 2010
52.222-50	Combating Trafficking in Persons	MAR 2015
52.222-99 (Dev)	Establishing a Minimum Wage for Contractors (Deviation 2014-O0017)	JUN 2014
52.223-2	Affirmative Procurement of Biobased Products Under Service and Construction Contracts	SEP 2013
52.223-2	Affirmative Procurement of Biobased Products Under Service and Construction Contracts	SEP 2013
52.223-3	Hazardous Material Identification And Material Safety Data	JAN 1997
52.223-5	Pollution Prevention and Right-to-Know Information	MAY 2011
52.223-6	Drug-Free Workplace	MAY 2001
52.223-11	Ozone-Depleting Substances	MAY 2001
52.223-17	Affirmative Procurement of EPA-Designated Items in Service and Construction Contracts	MAY 2008
52.223-18	Encouraging Contractor Policies To Ban Text Messaging While Driving	AUG 2011
52.225-11	Buy American--Construction Materials Under Trade Agreements	MAY 2014
52.225-12	Notice of Buy American Requirement - Construction Materials Under Trade Agreements	MAY 2014
52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.225-25	Prohibition on Contracting with Entities Engaging in Certain Activities or Transactions Relating to Iran-- Representation and Certifications.	DEC 2012
52.227-1	Authorization and Consent	DEC 2007
52.227-4	Patent Indemnity-Construction Contracts	DEC 2007
52.227-14	Rights in Data--General	MAY 2014
52.227-16	Additional Data Requirements	JUN 1987
52.228-5	Insurance - Work On A Government Installation	JAN 1997
52.228-11	Pledges Of Assets	JAN 2012
52.228-12	Prospective Subcontractor Requests for Bonds	MAY 2014
52.228-14	Irrevocable Letter of Credit	NOV 2014
52.229-3	Federal, State And Local Taxes	FEB 2013
52.232-5	Payments under Fixed-Price Construction Contracts	MAY 2014
52.232-17	Interest	MAY 2014
52.232-18	Availability Of Funds	APR 1984
52.232-23	Assignment Of Claims	MAY 2014
52.232-27	Prompt Payment for Construction Contracts	MAY 2014
52.232-33	Payment by Electronic Funds Transfer--System for Award Management	JUL 2013
52.232-37	Multiple Payment Arrangements	MAY 1999
52.233-1	Disputes	MAY 2014
52.233-3	Protest After Award	AUG 1996
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004

52.236-2	Differing Site Conditions	APR 1984
52.236-3	Site Investigation and Conditions Affecting the Work	APR 1984
52.236-4	Physical Data	APR 1984
52.236-5	Material and Workmanship	APR 1984
52.236-6	Superintendence by the Contractor	APR 1984
52.236-7	Permits and Responsibilities	NOV 1991
52.236-8	Other Contracts	APR 1984
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984
52.236-10	Operations and Storage Areas	APR 1984
52.236-11	Use and Possession Prior to Completion	APR 1984
52.236-12	Cleaning Up	APR 1984
52.236-13	Accident Prevention	NOV 1991
52.236-15	Schedules for Construction Contracts	APR 1984
52.236-17	Layout of Work	APR 1984
52.236-21	Specifications and Drawings for Construction	FEB 1997
52.242-13	Bankruptcy	JUL 1995
52.242-14	Suspension of Work	APR 1984
52.243-4	Changes	JUN 2007
52.244-6	Subcontracts for Commercial Items	APR 2015
52.246-12	Inspection of Construction	AUG 1996
52.246-21	Warranty of Construction	MAR 1994
52.248-3	Value Engineering-Construction	OCT 2010
52.249-2	Termination For Convenience Of The Government (Fixed-Price)	APR 2012
52.249-10	Default (Fixed-Price Construction)	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7000	Requirements Relating to Compensation of Former DoD Officials	SEP 2011
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2008
252.203-7002	Requirement to Inform Employees of Whistleblower Rights	SEP 2013
252.203-7003	Agency Office of the Inspector General	DEC 2012
252.203-7005	Representation Relating to Compensation of Former DoD Officials	NOV 2011
252.203-7998 (Dev)	Prohibition on Contracting with Entities that Require Certain Internal Confidentiality Agreements—Representation. (DEVIATION 2015-O0010)	FEB 2015
252.203-7999 (Dev)	Prohibition on Contracting with Entities that Require Certain Internal Confidentiality Agreements. (DEVIATION 2015-O0010)	FEB 2015
252.204-7000	Disclosure Of Information	AUG 2013
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7005	Oral Attestation of Security Responsibilities	NOV 2001
252.204-7012	Safeguarding of Unclassified Controlled Technical Information	NOV 2013
252.205-7000	Provision Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Country that is a State Sponsor of Terrorism	DEC 2014
252.219-7003	Small Business Subcontracting Plan (DOD Contracts)	OCT 2014
252.222-7006	Restrictions on the Use of Mandatory Arbitration Agreements	DEC 2010
252.223-7001	Hazard Warning Labels	DEC 1991

252.223-7006	Prohibition On Storage, Treatment, and Disposal of Toxic or Hazardous Materials	SEP 2014
252.223-7008	Prohibition of Hexavalent Chromium	JUN 2013
252.225-7012	Preference For Certain Domestic Commodities	FEB 2013
252.225-7030	Restriction On Acquisition Of Carbon, Alloy, And Armor Steel Plate	DEC 2006
252.225-7031	Secondary Arab Boycott Of Israel	JUN 2005
252.227-7013	Rights in Technical Data--Noncommercial Items	FEB 2014
252.227-7016	Rights in Bid or Proposal Information	JAN 2011
252.227-7025	Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends	MAY 2013
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7033	Rights in Shop Drawings	APR 1966
252.227-7037	Validation of Restrictive Markings on Technical Data	JUN 2013
252.231-7000	Supplemental Cost Principles	DEC 1991
252.232-7010	Levies on Contract Payments	DEC 2006
252.236-7000	Modification Proposals-Price Breakdown	DEC 1991
252.236-7001	Contract Drawings, and Specifications	AUG 2000
252.242-7004	Material Management And Accounting System	MAY 2011
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	DEC 2012
252.247-7023	Transportation of Supplies by Sea	APR 2014
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

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52.204-7 SYSTEM FOR AWARD MANAGEMENT (JULY 2013)

(a) Definitions. As used in this provision--

Data Universal Numbering System (DUNS) number means the 9-digit number assigned by Dun and Bradstreet, Inc. (D&B) to identify unique business entities.

Data Universal Numbering System +4 (DUNS+4) number means the DUNS number assigned by D&B plus a 4-character suffix that may be assigned by a business concern. (D&B has no affiliation with this 4-character suffix.) This 4-character suffix may be assigned at the discretion of the business concern to establish additional System for Award Management records for identifying alternative Electronic Funds Transfer (EFT) accounts (see the FAR at Subpart 32.11) for the same parent concern.

Registered in the System for Award Management SAM database means that--

(1) The offeror has entered all mandatory information, including the DUNS number or the DUNS+4 number, the Contractor and Government Entity (CAGE) code, as well as data required by the Federal Funding Accountability and Transparency Act of 2006 (see Subpart 4.14) into the SAM database;

(2) The offeror has completed the Core, Assertions, and Representations and Certifications, and Points of Contact sections of the registration in the SAM database;

(3) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service (IRS). The offeror will be required to

provide consent for TIN validation to the Government as a part of the SAM registration process; and

(4) The Government has marked the record ``Active".

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the SAM database prior to award, during performance, and through final payment of any contract, basic agreement, basic ordering agreement, or blanket purchasing agreement resulting from this solicitation.

(2) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation “DUNS” or “DUNS +4” followed by the DUNS or DUNS +4 number that identifies the offeror's name and address exactly as stated in the offer. The DUNS number will be used by the Contracting Officer to verify that the offeror is registered in the SAM database.

(c) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one.

(1) An offeror may obtain a DUNS number--

(i) Via the Internet at http://fedgov.dnb.com/webform or if the offeror does not have internet access, it may call Dun and Bradstreet at 1-866-705-5711 if located within the United States; or

(ii) If located outside the United States, by contacting the local Dun and Bradstreet office. The offeror should indicate that it is an offeror for a U.S. Government contract when contacting the local Dun and Bradstreet office.

(2) The offeror should be prepared to provide the following information:

(i) Company legal business.

(ii) Tradestyle, doing business, or other name by which your entity is commonly recognized.

(iii) Company Physical Street Address, City, State, and Zip Code.

(iv) Company Mailing Address, City, State and Zip Code (if separate from physical).

(v) Company Telephone Number.

(vi) Date the company was started.

(vii) Number of employees at your location.

(viii) Chief executive officer/key manager.

(ix) Line of business (industry).

(x) Company Headquarters name and address (reporting relationship within your entity).

(d) If the Offeror does not become registered in the SAM database in the time prescribed by the Contracting Officer, the Contracting Officer will proceed to award to the next otherwise successful registered Offeror.

(e) Processing time, which normally takes 48 hours, should be taken into consideration when registering. Offerors who are not registered should consider applying for registration immediately upon receipt of this solicitation.

(f) Offerors may obtain information on registration at https://www.acquisition.gov.

(End of clause)

52.204-10 REPORTING EXECUTIVE COMPENSATION AND FIRST-TIER SUBCONTRACT AWARDS (JULY 2013)

(a) Definitions. As used in this clause:

Executive means officers, managing partners, or any other employees in management positions.

First-tier subcontract means a subcontract awarded directly by the Contractor for the purpose of acquiring supplies or services (including construction) for performance of a prime contract. It does not include the Contractor's supplier agreements with vendors, such as long-term arrangements for materials or supplies that benefit multiple contracts and/or the costs of which are normally applied to a Contractor's general and administrative expenses or indirect costs.

Month of award means the month in which a contract is signed by the Contracting Officer or the month in which a first-tier subcontract is signed by the Contractor.

Total compensation means the cash and noncash dollar value earned by the executive during the Contractor's preceding fiscal year and includes the following (for more information see 17 CFR 229.402(c)(2)):

(1) Salary and bonus.

(2) Awards of stock, stock options, and stock appreciation rights. Use the dollar amount recognized for financial statement reporting purposes with respect to the fiscal year in accordance with the Financial Accounting Standards Board's Accounting Standards Codification (FASB ASC) 718, Compensation-Stock Compensation.

(3) Earnings for services under non-equity incentive plans. This does not include group life, health, hospitalization or medical reimbursement plans that do not discriminate in favor of executives, and are available generally to all salaried employees.

(4) Change in pension value. This is the change in present value of defined benefit and actuarial pension plans.

(5) Above-market earnings on deferred compensation which is not tax-qualified.

(6) Other compensation, if the aggregate value of all such other compensation (e.g., severance, termination payments, value of life insurance paid on behalf of the employee, perquisites or property) for the executive exceeds $10,000.

(b) Section 2(d)(2) of the Federal Funding Accountability and Transparency Act of 2006 (Pub. L. 109-282), as amended by section 6202 of the Government Funding Transparency Act of 2008 (Pub. L. 110-252), requires the Contractor to report information on subcontract awards. The law requires all reported information be made public, therefore, the Contractor is responsible for notifying its subcontractors that the required information will be made public.

(c) Nothing in this clause requires the disclosure of classified information.

(d)(1) Executive compensation of the prime contractor. As a part of its annual registration requirement in the System for Award Management (SAM) database (FAR provision 52.204-7), the Contractor shall report the names and total compensation of each of the five most highly

compensated executives for its preceding completed fiscal year, if—

(i) In the Contractor's preceding fiscal year, the Contractor received—

(A) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants), cooperative agreements, and other forms of Federal financial assistance; and

(B) $25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants), cooperative agreements, and other forms of Federal financial assistance; and

(ii) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at http://www.sec.gov/answers/execomp.htm.).

(2) First-tier subcontract information. Unless otherwise directed by the contracting officer, or as provided in paragraph (g) of this clause, by the end of the month following the month of award of a first-tier subcontract with a value of $25,000 or more, the Contractor shall report the following information at http://www.fsrs.gov for that first-tier subcontract. (The Contractor shall follow the instructions at http://www.fsrs.gov to report the data.)

(i) Unique identifier (DUNS Number) for the subcontractor receiving the award and for the subcontractor's parent company, if the subcontractor has a parent company.

(ii) Name of the subcontractor.

(iii) Amount of the subcontract award.

(iv) Date of the subcontract award.

(v) A description of the products or services (including construction) being provided under the subcontract, including the overall purpose and expected outcomes or results of the subcontract.

(vi) Subcontract number (the subcontract number assigned by the Contractor).

(vii) Subcontractor's physical address including street address, city, state, and country. Also include the nine-digit zip code and congressional district.

(viii) Subcontractor's primary performance location including street address, city, state, and country. Also include the nine-digit zip code and congressional district.

(ix) The prime contract number, and order number if applicable.

(x) Awarding agency name and code.

(xi) Funding agency name and code.

(xii) Government contracting office code.

(xiii) Treasury account symbol (TAS) as reported in FPDS.

(xiv) The applicable North American Industry Classification System code (NAICS).

(3) Executive compensation of the first-tier subcontractor.
Unless otherwise directed by the Contracting Officer, by the end of the month following the month of award of a first-tier subcontract with a value of $25,000 or more, and annually thereafter (calculated from the prime contract award date), the Contractor shall report the names and total compensation of each of the five most highly compensated executives for that first-tier subcontractor for the first-tier subcontractor's preceding completed fiscal year at http://www.fsrs.gov, if—

(i) In the subcontractor's preceding fiscal year, the subcontractor received—

(A) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants), cooperative agreements, and other forms of Federal financial assistance; and

(B) $25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants), cooperative agreements, and other forms of Federal financial assistance; and

(ii) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at http://www.sec.gov/answers/execomp.htm.)

(e) The Contractor shall not split or break down first-tier subcontract awards to a value less than $25,000 to avoid the reporting requirements in paragraph (d).

(f) The Contractor is required to report information on a first-tier subcontract covered by paragraph (d) when the subcontract is awarded. Continued reporting on the same subcontract is not required unless one of the reported data elements changes during the performance of the subcontract. The Contractor is not required to make further reports after the first-tier subcontract expires.

(g)(1) If the Contractor in the previous tax year had gross income, from all sources, under $300,000, the Contractor is exempt from the requirement to report subcontractor awards.

(2) If a subcontractor in the previous tax year had gross income from all sources under $300,000, the Contractor does not need to report awards for that subcontractor.

(h) The FSRS database at http://www.fsrs.gov will be prepopulated with some information from SAM and FPDS databases. If FPDS information is incorrect, the contractor should notify the contracting officer. If the SAM database information is incorrect, the contractor is responsible for correcting this information.

(End of clause)

52.209-9 UPDATES OF PUBLICLY AVAILABLE INFORMATION REGARDING RESPONSIBILITY MATTERS (JULY 2013)

(a) The Contractor shall update the information in the Federal Awardee Performance and Integrity Information System (FAPIIS) on a semi-annual basis, throughout the life of the contract, by posting the required information in the System for Award Management database via https://www.acquisition.gov.

(b) As required by section 3010 of the Supplemental Appropriations Act, 2010 (Pub. L. 111-212), all information posted in FAPIIS on or after April 15, 2011, except past performance reviews, will be publicly available. FAPIIS consists of two segments--

(1) The non-public segment, into which Government officials and the Contractor post information, which can only be viewed by--

(i) Government personnel and authorized users performing business on behalf of the Government; or

(ii) The Contractor, when viewing data on itself; and

(2) The publicly-available segment, to which all data in the non-public segment of FAPIIS is automatically transferred after a waiting period of 14 calendar days, except for--

(i) Past performance reviews required by subpart 42.15;

(ii) Information that was entered prior to April 15, 2011; or

(iii) Information that is withdrawn during the 14-calendar-day waiting period by the Government official who posted it in accordance with paragraph (c)(1) of this clause.

(c) The Contractor will receive notification when the Government posts new information to the Contractor's record.

(1) If the Contractor asserts in writing within 7 calendar days, to the Government official who posted the information, that some of the information posted to the non-public segment of FAPIIS is covered by a disclosure exemption under the Freedom of Information Act, the Government official who posted the information must within 7 calendar days remove the posting from FAPIIS and resolve the issue in accordance with agency Freedom of Information procedures, prior to reposting the releasable information. The contractor must cite 52.209-9 and request removal within 7 calendar days of the posting to FAPIIS.

(2) The Contractor will also have an opportunity to post comments regarding information that has been posted by the Government. The comments will be retained as long as the associated information is retained, i.e., for a total period of 6 years. Contractor comments will remain a part of the record unless the Contractor revises them.

(3) As required by section 3010 of Pub. L. 111-212, all information posted in FAPIIS on or after April 15, 2011, except past performance reviews, will be publicly available.

(d) Public requests for system information posted prior to April 15, 2011, will be handled under Freedom of Information Act procedures, including, where appropriate, procedures promulgated under E.O. 12600.

(End of clause)

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52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date

the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than the completion date stated on the task order. * The time stated for completion shall include final cleanup of the premises.

(End of clause)

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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 shown below depending on the task order value for each calendar day of delay until the work is completed or accepted.

Task Order Value	Estimated Liquidated Damages Per Calendar Day
$ 2,000 - 25,000	$ 80.00
$ 25,000 - 50,000	$110.00
$ 50,000 - 100,000	$140.00
$ 100,000 - 500,000	$200.00
Each additional $100,000 - add $50	

(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)

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52.216-18 ORDERING. (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from the date of the contract award through the completion date.

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.

(c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

(End of clause)

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52.216-19 ORDER LIMITATIONS. (OCT 1995)

(a) Minimum order. When the Government requires supplies or services covered by this contract in an amount of less than $2,000.00, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.

(b) Maximum order. The Contractor is not obligated to honor:

(1) Any order for a single item in excess of $600,000.00;

(2) Any order for a combination of items in excess of $3,000,000.00; or

(3) A series of orders from the same ordering office within 30 days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above.

(c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) above.

(d) Notwithstanding paragraphs (b) and (c) above, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 7 days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.216-20 DEFINITE QUANTITY. (OCT 1995)

(a) This is a definite-quantity, indefinite-delivery contract for the supplies or services specified, and effective for the period stated, in the Schedule.

(b) The Government shall order the quantity of supplies or services specified in the Schedule, and the Contractor shall furnish them when ordered. Delivery or performance shall be at locations designated in orders issued in accordance with the Ordering clause and the Schedule.

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that time shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after the contract completion date.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.216-21 REQUIREMENTS (OCT 1995)

(a) This is a requirements contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies or services specified in the Schedule are estimates only and are not purchased by this contract. Except as this contract may otherwise provide, if the Government's requirements do not result in orders in the quantities described as "estimated" or "maximum" in the Schedule, that fact shall not constitute the basis for an equitable price adjustment.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. Subject to any limitations in the Order Limitations clause or elsewhere in this contract, the Contractor shall furnish to the Government all supplies or services specified in the Schedule and called for by orders issued in accordance with the Ordering clause. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(c) Except as this contract otherwise provides, the Government shall order from the Contractor all the supplies or services specified in the Schedule that are required to be purchased by the Government activity or activities specified in the Schedule.

(d) The Government is not required to purchase from the Contractor requirements in excess of any limit on total orders under this contract.

(e) If the Government urgently requires delivery of any quantity of an item before the earliest date that delivery may be specified under this contract, and if the Contractor will not accept an order providing for the accelerated delivery, the Government may acquire the urgently required goods or services from another source.

(f) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after the task order completion date.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.216-22 INDEFINITE QUANTITY. (OCT 1995)

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in

the Schedule up to and including the quantity designated in the Schedule as the "maximum". The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum".

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after the completion date stated on the order.

(End of clause)

52.217-7 OPTION FOR INCREASED QUANTITY--SEPARATELY PRICED LINE ITEM (MAR 1989)

The Government may require the delivery of the numbered line item, identified in the Schedule as an option item, in the quantity and at the price stated in the Schedule. The Contracting Officer may exercise the option by written notice to the Contractor within 30 days. Delivery of added items shall continue at the same rate that like items are called for under the contract, unless the parties otherwise agree.

(End of clause)

52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor during the contract period; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 30 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 36 months.

(End of clause)

52.219-28 POST-AWARD SMALL BUSINESS PROGRAM REREPRESENTATION (JULY 2013)

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

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

Small business concern means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business

under the criteria in 13 CFR part 121 and the size standard in paragraph (c) of this clause. Such a concern is ``not dominant in its field of operation'' when it does not exercise a controlling or major influence on a national basis in a kind of business activity in which a number of business concerns are primarily engaged. In determining whether dominance exists, consideration shall be given to all appropriate factors, including volume of business, number of employees, financial resources, competitive status or position, ownership or control of materials, processes, patents, license agreements, facilities, sales territory, and nature of business activity.

(b) If the Contractor represented that it was a small business concern prior to award of this contract, the Contractor shall rerepresent its size status according to paragraph (e) of this clause or, if applicable, paragraph (g) of this clause, upon the occurrence of any of the following:

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

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

(3) For long-term contracts--

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

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

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

(d) The small business size standard for a Contractor providing a product which it does not manufacture itself, for a contract other than a construction or service contract, is 500 employees.

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

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

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

The Contractor represents that it ( ) is, ( ) is not a small business concern under NAICS Code 237310 assigned to contract number N40085-15-R-7903.

(Contractor to sign and date and insert authorized signer's name and title).

(End of clause)

52.222-54 EMPLOYMENT ELIGIBILITY VERIFICATION (AUG 2013)

(a) Definitions. As used in this clause--Commercially available off-the-shelf (COTS) item—

(1) Means any item of supply that is--

(i) A commercial item (as defined in paragraph (1) of the definition at 2.101);

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

(iii) Offered to the Government, 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. Per 46 CFR 525.1(c)(2), ``bulk cargo" means cargo that is loaded and carried in bulk onboard ship without mark or count, in a loose unpackaged form, having homogenous characteristics. Bulk cargo loaded into intermodal equipment, except LASH or Seabee barges, is subject to mark and count and, therefore, ceases to be bulk cargo.

Employee assigned to the contract means an employee who was hired after November 6, 1986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), who is directly performing work, in the United States, under a contract that is required to include the clause prescribed at 22.1803. An employee is not considered to be directly performing work under a contract if the employee--

(1) Normally performs support work, such as indirect or overhead functions; and

(2) Does not perform any substantial duties applicable to the contract.

Subcontract means any contract, as defined in 2.101, entered into by a subcontractor to furnish supplies or services for performance of a prime contract or a subcontract. It includes but is not limited to purchase orders, and changes and modifications to purchase orders.

Subcontractor means any supplier, distributor, vendor, or firm that furnishes supplies or services to or for a prime Contractor or another subcontractor.

United States, as defined in 8 U.S.C. 1101(a)(38), means the 50 States, the District of Columbia, Puerto Rico, Guam, the Commonwealth of the Northern Mariana Islands, and the U.S. Virgin Islands.

(b) Enrollment and verification requirements.

(1) If the Contractor is not enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall--

(i) Enroll. Enroll as a Federal Contractor in the E-Verify program within 30 calendar days of contract award;

(ii) Verify all new employees. Within 90 calendar days of enrollment in the E-Verify program, begin to use E-Verify to initiate verification of employment eligibility of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); and

(iii) Verify employees assigned to the contract. For each employee assigned to the contract, initiate verification within 90 calendar days after date of enrollment or within 30 calendar days of the employee's assignment to the contract, whichever date is later (but see paragraph (b)(4) of this section).

(2) If the Contractor is enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall use E-Verify to initiate verification of employment eligibility of--

(i) All new employees. (A) Enrolled 90 calendar days or more. The Contractor shall initiate verification of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); or

(B) Enrolled less than 90 calendar days. Within 90 calendar days after enrollment as a Federal Contractor in E-Verify, the Contractor shall initiate verification of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); or

(ii) Employees assigned to the contract. For each employee assigned to the contract, the Contractor shall initiate verification within 90 calendar days after date of contract award or within 30 days after assignment to the contract, whichever date is later (but see paragraph (b)(4) of this section).

(3) If the Contractor is an institution of higher education (as defined at 20 U.S.C. 1001(a)); a State or local government or the government of a Federally recognized Indian tribe; or a surety performing under a takeover agreement entered into with a Federal agency pursuant to a performance bond, the Contractor may choose to verify only employees assigned to the contract, whether existing employees or new hires. The Contractor shall follow the applicable verification requirements at (b)(1) or (b)(2), respectively, except that any requirement for verification of new employees applies only to new employees assigned to the contract.

(4) Option to verify employment eligibility of all employees. The Contractor may elect to verify all existing employees hired after November 6, 1986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), rather than just those employees assigned to the contract. The Contractor shall initiate verification for each existing employee working in the United States who was hired after November 6, 1986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), within 180 calendar days of--

(i) Enrollment in the E-Verify program; or

(ii) Notification to E-Verify Operations of the Contractor's decision to exercise this option, using the contact information provided in the E-Verify program Memorandum of Understanding (MOU).

(5) The Contractor shall comply, for the period of performance of this contract, with the requirements of the E-Verify program MOU.

(i) The Department of Homeland Security (DHS) or the Social Security Administration (SSA) may terminate the Contractor's MOU and deny access to the E-Verify system in accordance with the terms of the MOU. In such case, the Contractor will be referred to a suspension or debarment official.

(ii) During the period between termination of the MOU and a decision by the suspension or debarment official whether to suspend or debar, the Contractor is excused from its obligations under paragraph (b) of this clause. If the suspension or debarment official determines not to suspend or debar the Contractor, then the Contractor must reenroll in E-Verify.

(c) Web site. Information on registration for and use of the E-Verify program can be obtained via the Internet at the Department of Homeland Security Web site: http://www.dhs.gov/E-Verify.

(d) Individuals previously verified. The Contractor is not required by this clause to perform additional employment verification using E-Verify for any employee--

(1) Whose employment eligibility was previously verified by the Contractor through the E-Verify program;

(2) Who has been granted and holds an active U.S. Government security clearance for access to confidential, secret, or top secret information in accordance with the National Industrial Security Program Operating Manual; or

(3) Who has undergone a completed background investigation and been issued credentials pursuant to Homeland Security Presidential Directive (HSPD)-12, Policy for a Common Identification Standard for Federal Employees and Contractors.

(e) Subcontracts. The Contractor shall include the requirements of this clause, including this paragraph (e) (appropriately modified for identification of the parties), in each subcontract that--

(1) Is for--(i) Commercial or noncommercial services (except for commercial services that are part of the purchase of a COTS item (or an item that would be a COTS item, but for minor modifications), performed by the COTS provider, and are normally provided for that COTS item); or

(ii) Construction;

(2) Has a value of more than $3,000; and

(3) Includes work performed in the United States.

(End of clause)

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 _____ percent of the bid price or $_____, whichever is less.-

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

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

(End of provision)

52.228-2 ADDITIONAL BOND SECURITY (OCT 1997)

The Contractor shall promptly furnish additional security required to protect the Government and persons supplying labor or materials under this contract if--

(a) Any surety upon any bond, or issuing financial institution for other security, furnished with this contract becomes unacceptable to the Government.

(b) Any surety fails to furnish reports on its financial condition as required by the Government;

(c) The contract price is increased so that the penal sum of any bond becomes inadequate in the opinion of the Contracting Officer; or

(d) An irrevocable letter of credit (ILC) used as security will expire before the end of the period of required security. If the Contractor does not furnish an acceptable extension or replacement ILC, or other acceptable substitute, at least 30 days before an ILC's scheduled expiration, the Contracting officer has the right to immediately draw on the ILC.

(End of clause)

52.228-15 PERFORMANCE AND PAYMENT BONDS--CONSTRUCTION (OCT 2010)

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

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

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

(1) Performance bonds (Standard Form 25). The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) Payment Bonds (Standard Form 25-A). The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

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

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

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

(d) Surety or other security for bonds. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by

other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register or may be obtained from the U.S. Department of the Treasury, Financial Management Service, Surety Bond Branch, 3700 East West Highway, Room 6F01, Hyattsville, MD 20782. Or via the internet at http://www.fms.treas.gov/c570/.

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

(End of clause)

52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least 100 percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

(End of clause)

52.236-26 PRECONSTRUCTION CONFERENCE (FEB 1995)

If the Contracting Officer decides to conduct a preconstruction conference, the successful offeror will be notified and will be required to attend. The Contracting Officer's notification will include specific details regarding the date, time, and location of the conference, any need for attendance by subcontractors, and information regarding the items to be discussed.

(End of clause)

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://farsite.hill.af.mil/
https://www.acquisition.gov/comp/far/index/html

(End of clause)

252.203-7004 DISPLAY OF HOTLINE POSTERS (JAN 2015)

(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). (1) The Contractor shall display prominently the DoD fraud hotline poster, prepared by the DoD Office of the Inspector General, in common work areas within business segments performing work in the United States under Department of Defense (DoD) contracts.

(2) If the contract is funded, in whole or in part, by Department of Homeland Security (DHS) disaster relief funds, the DHS fraud hotline poster shall be displayed in addition to the DoD fraud hotline poster. If a display of a DHS fraud hotline poster is required, the Contractor may obtain such poster from:

The DHS website

(c) Display of combating trafficking in persons and whistleblower protection hotline posters. The Contractor shall display prominently the DoD Combating Trafficking in Persons and Whistleblower Protection hotline posters, prepared by the DoD Office of the Inspector General, in common work areas within business segments performing work under DoD contracts.

(d)(1) These DoD hotline posters may be obtained from: Defense Hotline, The Pentagon, Washington, DC 20301-1900, or are also available via the internet at http://www.dodig.mil/hotline/hotline_posters.htm.

(2) If a significant portion of the employee workforce does not speak English, then the posters are to be displayed in the foreign languages that a significant portion of the employees speak. Contact the DoD Inspector General at the address provided in paragraph (d)(1) of this clause if there is a requirement for employees to be notified of this clause and assistance with translation is required.

(3) Additionally, if the Contractor maintains a company Web site as a method of providing information to employees, the Contractor shall display an electronic version of these required posters at the Web site.

(e) Subcontracts. The Contractor shall include the substance of this clause, including this paragraph (e), in all subcontracts that exceed $5 million except when the subcontract is for the acquisition of a commercial item.

(End of clause)

252.209-7998 REPRESENTATION REGARDING CONVICTION OF A FELONY CRIMINAL VIOLATION UNDER ANY FEDERAL OR STATE LAW (DEVIATION 2012-O0007) (MAR 2012)

(a) In accordance with section 514 of Division H of the Consolidated Appropriations Act, 2012, none of the funds made available by that Act may be used to enter into a contract with any corporation that was convicted of a felony criminal violation under any Federal or State law within the preceding 24 months, where the awarding agency is aware of the conviction, unless the agency has considered suspension or debarment of the corporation and made a determination that this further action is not necessary to protect the interests of the Government.
(b) The Offeror represents that it is [ ] is not [ ] a corporation that was convicted of a felony criminal violation under a Federal or State law within the preceding 24 months.

(End of provision)

252.209-7999 REPRESENTATION BY CORPORATIONS REGARDING AN UNPAID DELINQUENT TAX LIABILITY OR A FELONY CONVICTION UNDER ANY FEDERAL LAW (DEVIATION 2012-O0004) (JAN 2012)

(a) In accordance with sections 8124 and 8125 of Division A of the Consolidated Appropriations Act, 2012,(Pub. L. 112-74) none of the funds made available by that Act may be used to enter into a contract with any corporation that—
(1) Has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless the agency has considered suspension or debarment of the corporation and made a determination that this further action is not necessary to protect the interests of the Government.
(2) Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless the agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.
(b) The Offeror represents that—

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

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

(End of provision)

252.216-7006 ORDERING (MAY 2011)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the contract schedule. Such orders may be issued from contract award date through the contract completion date.

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.

(c)(1) If issued electronically, the order is considered ``issued" when a copy has been posted to the Electronic Document Access system, and notice has been sent to the Contractor.

(2) If mailed or transmitted by facsimile, a delivery order or task order is considered ``issued" when the Government deposits the order in the mail or transmits by facsimile. Mailing includes transmittal by U.S. mail or private delivery services.

(3) Orders may be issued orally only if authorized in the schedule.

(End of Clause)

252.232-7003 ELECTRONIC SUBMISSION OF PAYMENT REQUESTS AND RECEIVING REPORTS (JUNE 2012)

(a) Definitions. As used in this clause–

(1) Contract financing payment and invoice payment have the meanings given in section 32.001 of the Federal Acquisition Regulation.

(2) Electronic form means any automated system that transmits information electronically from the initiating system to all affected systems. Facsimile, e-mail, and scanned documents are not acceptable electronic forms for submission of payment requests. However, scanned documents are acceptable when they are part of a submission of a payment request made using Wide Area WorkFlow (WAWF) or another electronic form authorized by the Contracting Officer.

(3) Payment request means any request for contract financing payment or invoice payment submitted by the Contractor under this contract.

(4) Receiving report means the data required by the clause at 252.246-7000, Material Inspection and Receiving Report.

(b) Except as provided in paragraph (c) of this clause, the Contractor shall submit payment requests and receiving reports using WAWF, in one of the following electronic formats that WAWF accepts: Electronic Data Interchange, Secure File Transfer Protocol, or World Wide Web input. Information regarding WAWF is available on the Internet at https://wawf.eb.mil/.

(c) The Contractor may submit a payment request and receiving report using other than WAWF only when–

(1) The Contracting Officer administering the contract for payment has determined, in writing, that electronic submission would be unduly burdensome to the Contractor. In such cases, the Contractor shall include a copy of the Contracting Officer's determination with each request for payment;

(2) DoD makes payment for commercial transportation services provided under a Government rate tender or a contract for transportation services using a DoD-approved electronic third party payment system or other exempted vendor payment/invoicing system (e.g., PowerTrack, Transportation Financial Management System, and Cargo and Billing System);

(3) DoD makes payment for rendered health care services using the TRICARE Encounter Data System (TEDS) as the electronic format; or

(4) When the Governmentwide commercial purchase card is used as the method of payment, only submission of the receiving report in electronic form is required.

(d) The Contractor shall submit any non-electronic payment requests using the method or methods specified in Section G of the contract.

(e) In addition to the requirements of this clause, the Contractor shall meet the requirements of the appropriate payment clauses in this contract when submitting payments requests.

(End of clause)

5252.201-9300 CONTRACTING OFFICER AUTHORITY (JUN 1994**)**

In no event shall any understanding or agreement between the Contractor and any Government employee other than the Contracting Officer on any contract, modification, change order, letter or verbal direction to the Contractor

be effective or binding upon the Government. All such actions must be formalized by a proper contractual document executed by an appointed Contracting Officer. The Contractor is hereby put on notice that in the event a Government employee other than the Contracting Officer directs a change in the work to be performed or increases the scope of the work to be performed, it is the Contractor's responsibility to make inquiry of the Contracting Officer before making the deviation. Payments will not be made without being authorized by an appointed Contracting Officer with the legal authority to bind the Government. (End of clause)

5252.209-9300 ORGANIZATIONAL CONFLICTS OF INTEREST (JUN 1994)

(a) The restrictions described herein shall apply to the Contractor and its affiliates, consultants and subcontracts under this contract. If the Contractor under this contract prepares or assists in preparing a statement of work, specifications and plans, the Contractor and its affiliates shall be ineligible to bid or participate, in any capacity, in any contractual effort which is based on such statement of work or specifications and plans as a prime contractor, subcontractor, consultant or in any similar capacity. The Contractor shall not incorporate its products or services in such statement of work or specification unless so directed in writing by the Contracting Officer, in which case the restriction shall not apply. This contract shall include this clause in its subcontractor's or consultants' agreements concerning the performance of this contract. (End of clause)

5252.223-9300 INSPECTION BY REGULATORY AGENCIES (JUN 1994)

Work performed under this contract is subject to inspection by State and Federal Government Regulatory agencies including those described below.

Permission has been granted by the Navy permitting Federal and State occupational health and safety officials to enter Navy shore installations, without delay and at reasonable times, to conduct routine safety and health investigations. Permission also extends to safety and health investigations based on reports of unsafe conditions. Occupational Health and Safety Administration (OSHA) officials may also investigate accidents or illnesses involving the Contractor's employees. Inspections may also be carried out by the Department of Labor to inspect for compliance with labor laws.

The Contractor shall cooperate with regulatory agencies and shall provide personnel to accompany the agency inspection or review teams. Contractor personnel shall be knowledgeable concerning the work being inspected, and participate in responding to all requests for information, inspection or review findings by regulatory agencies. (End of clause)

5252.236-9301 SPECIAL WORKING CONDITIONS AND ENTRY TO WORK AREA (JUN 1994)

Denial of entry to the work areas under this contract may be required by the Government under certain circumstances where the Contractor's work or presence would constitute a safety or security hazard to ordnance storage or handling operations. Restrictions covering entry to and availability of the work areas are as follows:

(a) Entry. Entry to work areas located within the special Security Limited areas, defined as those work areas located within the existing security fence, can be granted subject to special personnel requirements as specified herein and to other normal security and safety requirements. Complete denial of entry to the Limited Area may be required during brief periods of one to two hours (normally) and on rare occasions of two to four hours. For bidding purposes, the Contractor shall assume denial of entry to the work areas in the Limited Area of six 2-hour denials and one 4-hour denial per month.

(b) Vehicle Delay. The Contractor shall also assume for bidding purposes that, in addition to site denial, each vehicle and/or unit of construction equipment will be delayed during each movement through the security gate, both entering and leaving the limited area. Delays will average 30 minutes.

Operational Considerations. To reduce delay time while preserving required security, the following points should be considered in operational planning:

a. Vehicle Search. Security regulations required that all vehicles, when authorized to enter the Limited Area be thoroughly searched by guard force personnel. Such a search will be required for all vehicle/ construction equipment. Accordingly, once a vehicle or unit of construction equipment has been cleared, it may be left in the Limited Area after initial entry has been made. For the period of time authorized the vehicle/equipment left in the Limited Area will be assigned parking areas by the Contracting Officer. The vehicle/equipment must be secured as specified in paragraph entitled "SECURITY REQUIREMENTS." The intent is to reduce the Contractor loss of time at the security gate. No private vehicles will be allowed to enter the Limited Area.

b. Delivery Vehicles. Vehicles delivering construction materials will be inspected by guard force personnel while the driver is being processed for entry into the Limited Area. The driver and vehicle will then be escorted in the Limited Area by a Security Escort. To provide this service, delivery schedules should be promulgated in advance and vendors made aware that a reasonable delay can be expected if delivery is other than the time specified. Deliveries after 1600 hours will not be allowed entry into the Limited Area without prior approval of the Physical Security Officer. (End of clause)

5252.236-9303 ACCIDENT PREVENTION (NOV 1998)

(a) The Contractor will maintain an accurate record of, and will report to the Contracting Officer in the manner and on the forms prescribed by the Contracting Officer, all accidents resulting in death, traumatic injury, occupational disease, and damage to property, materials, supplies and equipment incident to work performed under this contract.

(b) Compliance with the provisions of this article by subcontractors will be the responsibility of the Contractor.

(c) Prior to commencement of the work, the Contractor may be required to:

(1) submit in writing his proposals for effectuating provision for accident prevention;

(2) meet in conference with representatives of the Contracting Officer to discuss and develop mutual understandings relative to administration of the overall safety program. (End of clause)

5252.236-9305 AVAILABILITY OF UTILITIES (JUN 1994)

When available, the Government will furnish reasonable amounts of the following utilities for the work to be performed under this contract at no cost to the Contractor. Information concerning the location of existing outlets may be secured from the OIC. The Contractor shall provide and maintain, at his expense, the necessary service lines from existing Government outlets to the site of work.

Electric - Water - Compressed Air

Contractor Furnished Utilities. In the event that the Government is unable to provide the required types of utilities, the Contractor shall, at his expense, arrange for the required utilities.

Contractor Energy Conservation. The Contractor shall be directly responsible for instructing employees in utilities conservation practices. The Contractor shall be responsible for operating under conditions which preclude the waste of utilities, which shall include:

a. Lights shall be used only in areas where and at the time when work is actually being performed.

b. Mechanical equipment controls for heating, ventilation and air conditioning systems will not be adjusted by the workers.

c. Water faucets or valves shall be turned off after the required usage has been accomplished.

Telephone Lines. Telephone lines for the sole use of the contractor will not be available. Government telephones shall not be used for personal reasons.

Contractor Availability. The contractor shall maintain a telephone at which he or his representative may be reached 24 hours daily. The telephone shall be listed in the contractor's name. If the contractor does not have a local telephone, he shall maintain a toll free emergency telephone (or accept collect calls from authorized Government personnel) at which he or his representative may be reached at night, weekends and holidays. It is mandatory that the contractor or his representative be available to a toll-free telephone 24 hours per day, seven days per week, including holidays. He shall notify the OIC in writing of the mailing address and telephone number within three days after award of this contract and immediately thereafter in the event of change. (End of clause)

5252.236-9310 RECORD DRAWINGS (JUN 1994)

The Contractor shall maintain at the job site two sets of full-size prints of the contract drawings, accurately marked in red with adequate dimensions, to show all variations between the construction actually provided and that indicated or specified in the contract documents, including buried or concealed construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the contract drawings. Existing utility lines and features revealed during the course of construction, shall also be accurately located and dimensioned. Variations in the interior utility systems shall be clearly defined and dimensioned; and coordinated with exterior utility connections at the building five-foot line, where applicable. Existing topographic features which differ from those shown on the contract drawings shall also be accurately located and recorded. Where a choice of materials or methods is permitted herein, or where variations in scope or character of methods is permitted herein, or where variations in scope or character of work from that of the original contract are authorized, the drawings shall be marked to define the construction actually provided. The representations of such changes shall conform to standard drafting practice and shall include such supplementary notes, legends, and details as necessary to clearly portray the as-built construction. These drawings shall be available for review by the Contracting Officer at all times. Upon completion of the work, both sets of the marked up prints shall be certified as correct, signed by the Contractor, and delivered to the Contracting Officer for his approval before acceptance. Requests for partial payments will not be approved if the marked prints are not kept current, and request for final payment will not be approved until the marked prints are delivered to the Contracting Officer. (End of clause)

5252.242-9300 GOVERNMENT REPRESENTATIVES (OCT 1996)

(a) The contract will be administered by an authorized representative of the Contracting Officer. In no event, however, will any understanding or agreement, modification, change order, or other matter deviating from the terms of the contract between the Contractor and any person other than the Contracting Officer be effective or binding upon the Government, unless formalized by proper contractual documents executed by the Contracting Officer prior to completion of this contract. The authorized representative as indicated hereinafter:

_x__(1) The Contracting Officer’s Representative (COR) will be designated by the Contracting Officer as the authorized representative of the Contracting Officer. The COR is responsible for monitoring performance and the technical management of the effort required hereunder, and should be contacted regarding questions or problems of a technical nature.

_x__(2) The designated Contract Specialist will be the Administrative Contracting Officer's representative on all other contract administrative matters. The Contract Specialist should be contacted regarding all matters pertaining to the contract or task/delivery orders.

___(3) The designated Property Administrator is the Administrative Contracting Officer's representative on property matters. The Property Administrator should be contacted regarding all matters pertaining to property administration. (End of clause)

5252.242-9305 PRE-PERFORMANCE CONFERENCE (JUL 1995)

Within 15 days of contract award, prior to commencement of the work, the Contractor will meet in conference with representatives of the Contracting Officer, at a time to be determined by the Contracting Officer, to discuss and develop mutual understanding relative to scheduling and administering work.(End of clause)

5252.245-9302 LIMITED ASSUMPTION OF RISK BY GOVERNMENT (JUN 1994)

(a) Title of all work in place shall be in the Government, and title to all property intended for incorporation in the work shall vest in the Government upon delivery thereof to the site of the work. The term "Government-owned property" as used in this clause refers to such work in place and to such other property as to which title has vested in the Government and includes any property furnished or rented to the Contractor by the Government. Upon completion of the work, any such Government-owned property not a part of the work (except property rented to, or furnished without charge to the Contractor by the Government) shall become the property of the Contractor. The vesting of title in the Government, as provided in this paragraph, shall in no way relieve the Contractor of any obligations otherwise provided in this contract in respect to such Government-owned property except as expressly stated in paragraph (b) of this clause.

(b) The Contractor represents that the contract price does not include the cost of insurance, nor any provision for a reserve, covering the risk assumed by the Government under this paragraph.

The Government assumes the risk of loss or damage to such Government-owned property (including expenses incidental to such loss or damage) which results directly or indirectly from the explosion of Government-owned or controlled munitions (including, without limitations, ammunition, bombs, powder, dynamite and other explosives), whether or not caused by negligence, except that the Government does not assume at any time the risk of, and the Contractor shall be responsible for, such loss or damage (1) which is in fact covered by insurance or for which Contractor is otherwise reimbursed, or (2) which results from disregard of proper instructions of the Contracting Officer, on the part of any of the Contractor's directors, officers or any other representatives having supervision or direction of all or substantially all the Contractor's operations under this contract.

(c) In the event of loss or damage to Government-owned property resulting from the risk assumed by the Government hereunder, the Contracting Officer shall determine whether, and to what extent, such property shall be rebuilt, repaired or replaced by the Contractor or otherwise. Should this determination cause an increase or decrease in the cost of doing the work under this contract or time required for its performance, an equitable adjustment shall be made as provided in the changes clause of the contract.

(d) The provisions contained in the statement of work under "Permits and Responsibilities," are to be deemed modified by this clause only to the extent required to give effect to the limited assumption of risk provided in this clause. (End of clause)

Section 00800 - Special Contract Requirements

WAGE DETERMINATION

WAGE DETERMINATION

GENERAL DECISION NUMBER: IN150006 06/19/2015
MODIFICATION NUMBER 8 DTD 06/19/2015

(Wage determination will be incorporated via PDF document once SOL is released)

DIVISION 01 GENERAL REQUIREMENTS

SECTION 01 20 00.00 20 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 REFERENCES

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

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE EP-1110-1-8	(2009) Construction Equipment Ownership and Operating Expense Schedule

1.2 SUBMITTALS

Submit the following in accordance with Section 01 33 00, "Submittal Procedures."

SD-01 Preconstruction Submittals

Schedule of prices; G

1.3 SCHEDULE OF PRICES

1.3.1 Data Required

The schedule of prices shall be submitted per Division 00.

1.3.2 Schedule Instructions

Payments will not be made until the Schedule of Prices has been submitted to and accepted by the Contracting Officer.

1.4 CONTRACT MODIFICATIONS

In conjunction with the Contract Clause "DFARS 252.236-7000, Modification Proposals-Price Breakdown," and where actual ownership and operating costs of construction equipment cannot be determined from Contractor accounting records, equipment use rates shall be based upon the applicable provisions of the COE EP-1110-1-8.

1.5 CONTRACTOR'S INVOICE AND CONTRACT PERFORMANCE STATEMENT

1.5.1 Content of Invoice

Requests for payment will be processed in accordance with the Contract Clause "FAR 52.232-27, Prompt Payment Construction Contracts."

a. The Contractor's invoice, on NAVFAC Form 7300/30 furnished by the Government, showing in summary form, the basis for arriving at the amount of the invoice. Form 7300/30 shall include certification by Quality Control (QC) Manager as required by the contract.

b. Updated construction and equipment delivery schedules (two copies).

1.5.2 One invoice shall be submitted and contain the following information for each Task Order:

a. Invoice date.
b. Name of Contractor.
c. Contract number.
d. Item number and contract description of service.
e. Quantity.
f. Unit prices.
g. Extended totals.
h. Name and address to which payment is to be sent (which must be the same as that in the contract or on a proper notice of assignment).
i. The name (including title, phone number and mailing address) of the person to be notified in event of a defective invoice.

1.5.3 ELECTRONIC INVOICING

In accordance with DFARS 252.232-7003, "ELECTRONIC SUBMISSION OF PAYMENT REQUEST AND RECEIVING REPORTS", the United States Navy utilizes Wide Area Work Flow (WAWF) to electronically process vendor requests for payment. This application allows DoD vendors to submit and track Invoices and Receipt/Acceptance documents electronically.

The contractor is required to utilize this system when submitting invoices under this contract, unless the provision at DFARS 252.232-7003(c) applies. The contractor shall (i) ensure an Electronic Business Point of Contact is designated in Central Contractor Registration at http://www.ccr.gov and (ii) register to use WAWF at the https://wawf.eb.mil site, within ten (10) calendar days after award of this contract. Step by step procedures to register are available at the https://wawf.eb.mil site. Additional instructions for submitting invoices via WAWF will be provided after award.

The Navy WAWF point of contact (POC) for this contract is Debbie Dills, who can be reached at 812-854-3234 or debbie.dills@navy.mil.

1.6 PAYMENTS TO THE CONTRACTOR

Payments will be made on submission of itemized requests by the contractor, which comply with the requirements of this section, and will be subject to reduction for overpayments or increase for underpayments made on previous payments to the Contractor.

1.6.1 Obligation of Government Payments

The obligation of the Government to make payments required under the provisions of this contract will, at the discretion of the Contracting Officer, be subject to reductions and/or suspensions permitted under the FAR and agency regulations including the following in accordance with "FAR 32.503-6:

a. Reasonable deductions due to defects in material or workmanship;

b. Claims, which the Government may have against the Contractor under or in connection with, this contract;

c. Unless otherwise adjusted, repayment to the Government upon demand for overpayments made to the Contractor; and

d. Failure to provide up to date record drawings not current as stated in Contract Clause "FAC 5252.236-9310, Record Drawings."

1.6.2 Payment for Materials Offsite

Payments may be made to the Contractor for materials stored off construction sites under the following conditions:

a. Conditions described in the paragraph entitled "Payments to the Contractor"

b. Material within a distance of 50 miles by streets and roads to the construction site

c. Materials adequately insured and protected from theft and exposure

d. Materials not susceptible to deterioration or physical damage in storage or in transit to the job site are acceptable for progress payments. Items such as steel, machinery, pipe, pipefittings, and electrical cable are acceptable

e. Conditions specified in "FAR 52.232-5(b) Payments under Fixed Price Construction Contracts."

PART 2 PRODUCTS – Not Used.

PART 3 EXECUTION – Not Used.

-- End of Section --

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS
11/11

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.
The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Upon award of the contract, please submit the following items.

List of Contact Personnel; G

Certificates of Insurance; G

Basic Contract ACCIDENT PREVENTION PLAN; G

Upon award of individual Task Orders, but prior to start of construction, please submit the following items.

Statement of Acknowledgement Form SF 1413; G\

Surety Bond; G

ACTIVITY HAZARD ANALYSIS; G

1.2 MINIMUM INSURANCE REQUIREMENTS

Procure and maintain during the entire period of performance under this contract the following minimum insurance coverage:

a. Comprehensive general liability: $500,000 per occurrence

b. Automobile liability: $200,000 per person, $500,000 per occurrence for bodily injury, $20,000 per occurrence for property damage

c. Workmen's compensation as required by Federal and State workers' compensation and occupational disease laws.

d. Employer's liability coverage of $100,000, except in States where workers compensation may not be written by private carrier, and

e. Others as required by Indiana State law.

These Certificates of Insurance shall be submitted to the Contracting Office upon award of the contract, and re-submitted upon their expiration,

renewal, or change in carrier. Approval of the certificates is required prior to construction work on any Task Order in this contract.

1.3 SAFETY

See 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS for details on the requirements of the Basic Contract ACCIDENT PREVENTION PLAN (APP) and the ACTIVITY HAZARD ANALYSIS (AHA). Submit the basic contract APP to the Contracting Officer within 15 calendar days after award of contract. The APP may be required to be amended over the course of the contract. A task order specific AHA will be submitted with each individual Task Orders.

1.4 SUPERVISION

While active on-Center work for at least one Task Order is in progress, provide at least one (1) qualified on-site Contractor Representative. The Contractor Representative must have a minimum of 10 years experience as a Superintendent on projects similar in size and complexity. The Contractor Representative in this context shall mean the individual with the responsibility for quality and production that has authority to act for the prime contractor.

Approval of Contractor Representative is required prior to start of each Task Order. If requested by the Contracting Officer, provide a resume for the proposed Contractor Representative describing their experience with references and qualifications to the Contracting Officer for approval. The Contracting Officer reserves the right to interview the proposed Project Manager and on-site Project Superintendent at any time in order to verify the submitted qualifications.

For Task Orders of larger size or complexity, the Task Order specific documents may require that a single Contractor Representative be responsible for only this specific Task Order. This single contractor representative will be used only when authorized by the Government.

The Contractor Representative is subject to removal by the Contracting Officer for non-compliance with requirements specified in the contract and for failure to manage the project to insure timely completion. Furthermore, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for

extension of time for excess costs or damages by the Contractor.

1.5 SUBCONTRACTORS AND PERSONNEL

a. Upon Award of of the Contract, furnish a list of List of Contact Personnel of the Contractor and subcontractors including addresses and telephone numbers for use in the event of an emergency. Identify key personnel of the contractor and subcontractors. As changes occur and additional information becomes available, correct and change the information contained in previous lists and resubmit.

b. The Contractor shall provide to the COR, the name or names of the responsible supervisory person or persons authorized to act for the Contractor.

c. The Contractor shall furnish sufficient personnel to perform all work specified within the Task Orders.

d. Contractor employees shall conduct themselves in a proper, efficient, courteous, and businesslike manner.

e. The Contractor is responsible for employees under his employment. Ensure that employees are familiar with and obey station traffic, safety, and security regulations.

f. The Contractor shall, after notice by the COR, remove from NSA Crane any individual whose continued employment is deemed by the Contracting Officer to be contrary to the public interest or inconsistent with the best interests of National Security.

g. The Contractor shall, after notice by the COR, remove from NSA Crane any individual deemed by the Contracting Officer to be in violation of health, safety, or NSA Crane rules.

h. It is the Contractor's responsibility to maintain satisfactory labor relations with his/her employees. Representatives of/and the Contracting Officer will not participate in labor relations matters.

1.6 IDENTIFICATION OF CONTRACTOR EMPLOYEES

a. All contractor/subcontractor personnel shall by identified by a distinctive name plate, emblem, or patch attached in a predominant place on an outer garment. Station required passes and badges shall not be substituted for Employee identification.

1.7.1 CONTRACTOR VEHICLES

a. Contractor vehicles and equipment operated on Government property shall be maintained in good repair. Crew trucks shall have safety lights that shall be activated when workers are engaged in tasks along roadways, to provide warning to other vehicles traveling through the work area.

b.Ingress and egress of vehicles shall be via the "Crane Village" gate. (east aise of the base of US highway 231. Motor vehicles operated within NSA Crane shall be subject to the security regulations of the station and the laws of the State of Indiana. **Proof of Insurance and vehicle registration shall be carried in the vehicle at all times.**

c. Contractor vehicles or equipment utilized for weight handling are

subject to the requirements of NAVFAC P-307 and shall have all the required documentation. Only qualified personnel shall be designated to operate weight-handling equipment (WHE).

d. Obey all posted traffic and parking signs. Parking in Magazine and Explosive Operations areas shall be as directed by the COR.

e. In accordance with FAR 52.236-7, PERMITS AND RESPONSIBILITIES, the Contractor shall, without additional expense to the Government, obtain all appointments, licenses, and permits required for the prosecution of the work. Evidence of such permits and licenses shall be provided to the Contracting Officer and/or his or her designated representative before work commences. All Contractor employees operating vehicles on Government property shall possess a valid state motor vehicle operator's license.

f. Each Contractor provided vehicle shall show the Contractor's name so that it is clearly visible and shall, at all times, display a valid state license plate.

g. Contractor employees shall not park within 30 feet of any structure or where otherwise posted as prohibited, except to drop off or pick up deliveries in direct support of this agreement. The contractor shall not access any area unless specifically requested, authorized in the performance of this agreement, or authorized by the government sponsor/point of contact.

1.8 SECURITY

1.8.1 GENERAL

a. NSA Crane is a Controlled Government Facility. All non-U.S. citizens must be escorted by a Government Employees.

No employee or representative of the Contractor will be admitted un-escorted to the site of the work unless he/she furnishes satisfactory proof that he/she is a citizen of the United States.

Due to Government manpower issues, all employees, contractor or subcontractors, assigned to regular Task Order work inside NSA Crane must be U. S. Citizens.

Any employee or representative of the Contractor who is a non-U.S. citizen or a holder of dual-citizenship that requires rare or occasional access to NSA Crane for Task Order work will be provided escort at the discretion of the Contracting Office, and only with 10 days advance notice of intent to visit.

b. Neither the Contractor nor any of its employees shall disclose or cause to be disseminated any information concerning the operations of the activity which could result in or increase the likelihood of the possibility of a breach of the activity's security or interrupt the continuity of its operations.

c. Disclosure of information relating to the services hereunder to any person not entitled to receive it, or failure to safeguard any classified information that may come to the Contractor or any person under his control in connection with work under this contract, may subject the Contractor, his agents or employees to criminal liability under 18 U.S.C., Sections 793 and 798.

d. The contractor understands that this agreement and access to NSA Crane may be cancelled at anytime due to threat conditions that may arise.

e. All inquiries, comments or complaints arising from any matter observed, experienced, or learned as a result of or in connection with the performance of this contract, the resolution of which may require the dissemination of official information, will be directed to the activity Commander.

f. Deviations from or violations of any of the provisions of this paragraph will, in addition to all other criminal and civil remedies provided by law, subject the Contractor to immediate termination for default, and/or withdrawal of the Government's acceptance and approval of employment for the individuals involved.

g. Whenever work performed under this contract breaches the physical security of any building or grounds, the Contractor will be responsible for providing temporary measures in order to assure physical security is maintained. The Contractor shall notify the Contracting Officer's Representative prior to beginning such work.

h. **By entering NSA Crane, contract employees understand that they are subject to all legal searches and inspections.** Contract employees also understand that they are responsible for complying with all Indiana State and local traffic laws and regulations. Further, that they are prohibited from transporting, carrying, possessing, or otherwise using the following items on the installation: firearms, ammunition, explosives, pyrotechnics, alcohol, illegal drugs, or any item or substance prohibited by Federal or Indiana State law.

i. Contract employees shall not use cameras (to include photographic features on cellular phones), camcorders, video recorders, tape recorders, or other recording devices on NSA Crane including any Crane Army Ammuntion Activity CAAA area or where otherwise prohibited unless specifically authorized in writing to do so. Contact your COR representative for further information if a camera pass is required.

j. Contractor employees shall not park within 30' of any structure or where otherwise posted as prohibited, except to drop off or pick up deliveries in direct support of this agreement. The contractor shall not access any CAAA area unless specifically requested, authorized by this agreement, or authorized by the government representative.

k. Contractor employees shall not disclose or cause to be disclosed any information concerning the operations and activities of CAAA or the Naval Surface Warfare Center (NSWC), Crane. Release or disclosure of such information may subject the contractor or the contractor's employees to criminal liability under Title 18, United States Code.

l. The contractor shall furnish a point of contact name and telephone number to the Contracting Officer for antiterrorism/force protection purposes. The contractor understands that this agreement and access to NSA Crane may be cancelled at anytime due to threat conditions that may arise. The government will make every reasonable attempt to keep contractor employees informed should emergencies or conditions that may have an effect on them or this agreement occur.

m. Upon entry into any CAAA area where operations are on-going, contractors

shall report to the building/area supervisor. In some instances, sign in on a visitor log and/or escort may be required.

n. The contractor shall immediately report crimes and accidents that occur on the installation to the NSA Emergency Dispatch, 812-854-2529 or 812-854-5316 via cell phone, or 911 from a land-line phone.

1.8.2 Passes and Badges

a. All Contractor employees shall obtain the required employee passes. All Contract employees who will be working on-center at NSA Crane are required to be badged through the Navy Commercial Access Control System (NCACS) Contractors/Vendors Program (i.e. RapidGate). Each employee shall retain their badge on their person at all times while at the NSA Crane.

b. Employee identification shall not be substituted for the station required badge. Other badge or identification requirements may be spelled out in the Task Orders.

c. Rapid Gate information can be found at the following web site: http://www.rapidgate.com/

All cost associated with Rapid Gate shall be the responsibility of the Contractor.

d. All contractors and subcontractors including suppliers and delivery companies are required to get RapidGate passes or obtain a daily pass by stopping at the visitor's center each day to undergo a background check and obtain a pass which could take a minimum of 30 minutes each day. Passes of a duration longer than one day will not be issued. Please do not request passes of a duration longer than one day from the project manager, engineering tech, or contract specialist.

e. An exception to paragraph (d) above is that the visitor's center will issue a 28-day pass after the employee enrolls in RapidGate, undergoes a background check, and is waiting for their RapidGate pass to be processed.

f. To request 1 day visitor passes:

- A SECNAV 5512-1 Access Form will need to be filled out and SIGNED by the individual needing a pass. (see part 6 of the contract documents under 'forms' for this)
- Base Sponsor will be your contract's assigned Construction Manager (CM), Design Manager (DM), or Engineer Technician (ET)
- Forms missing information including but not limited to the Base Sponsor information will not be processed but will be returned for completion and resubmission.
- Forms for subcontractors shall be forwarded to the CM/DM/ET by the prime contractor.
- Forms must be received by the CM/DM/ET FIVE WORKING days ahead of the requested visit date so security can conduct a background check.
- A completed SECNAV 5512-1 Access Form is only valid for 90 days. If it has been over 90 days a new signed SECNAV 5512-1 Form will need to be submitted by the individual.

g. Due to the requirement to conduct background checks, requests for one day passes that are not submitted at least 5 working days prior may not be granted.

h. Personnel requiring access for more than 10 working days in a 12-month period, regardless if it's for work on one or multiple contracts, will enroll in RapidGate. Requests for one day passes for the same individual exceeding 10 working days won't be processed.

i. If entry of any individual is denied, the Contractor will be immediately notified. Failure to obtain entry approval will not affect the contract price or time of completion.

j. When an employee leaves the Contractor's service or is removed from the contractor by request of the Contracting Officer, the employee's badge shall be returned to the contractor the same day. That same day, the contractor shall inform NSA Crane Security (Mr. Mark Zehnder 854-8393) that the employee is no longer allowed access to NSA Crane.

k. If an employee's badge is lost or stolen, it must be reported to the Government security Office immediately.

l. Be advised that the RapidGate process and the temporary badge process both involve a background check. Persons with any felony conviction, persons listed on the terrorist watch list, persons who are registered sex offenders, persons with any outstanding criminal warrants, and persons with certain misdemeanors will not be issued badges or passes.

1.9 Access to Buildings

It shall be the Contractor's responsibility, through the Contracting Officer, to obtain access to buildings and facilities and arrange for them to be opened and closed.

b. Keys may be issued to the Contractor. In that event it is the Contractor's responsibility to secure the project site at the end of each work day.

c. The Contractor shall be responsible for the cost of replacing any keys that are furnished to and lost by his employees, plus immediately notifying the Contracting Officer's Representative. No locks or keys shall be replaced without prior approval of the Contracting Officer. If the Contracting Officer decides that a lock must be replaced because of theloss of a key by the Contractor's employees, the Contractor shall pay the cost of that replacement. Similarly, the Contractor shall pay the cost of changing a combination if the Contracting Officer has reasonable cause to believe that the combination has been compromised.

1.10 PRECONSTRUCTION CONFERENCE

After award of the contract and for each individual Task Order, prior to commencement of any work at the site, meet with the Contracting Officer to discuss and develop a mutual understanding relative to the administration of the value engineering and safety program, preparation of the schedule of prices or earned value report, shop drawings, and other submittals, scheduling programming, and prosecution of the work. Major subcontractors

who will engage in the work shall also attend.

If required by the Task Order, expectations of the "Interim DD Form 1354" Submittal will be discussed.
At any time after Task Order award, but prior to the start of construction, submitt the following:

Statement of Acknowledgement Form SF 1413

Surety Bond

Addendum to ACCIDENT PREVENTION PLAN

1.11 FACILITY TURNOVER PLANNING MEETINGS (NAVFAC Red Zone - NRZ)

Key personnel will meet to identify strategies to ensure the project is carried to expeditious closure and turnover to the Client. Start the turnover process at the Pre Construction Conference meeting and convene at the Facility Turnover Meetings once the project has reached approximately
75 percent completion or three to six months prior to Beneficial Occupancy Date (BOD), whichever comes first. The Contracting Officer's Representative will lead the meetings and guide discussions based on an agenda provided by the Government. The facility Turnover effort shall include the following:

a. Pre Construction Meeting - Contracting Officer's Technical Representative (COTR) will provide the NRZ Checklist and the Contractor, Client, and NAVFAC Representatives will compare Contractor's schedule to NRZ Checklist items.

b. Facility Turnover Meetings

1. Fill in the NRZ Checklist including Contractor, Client, and NAVFAC Checklist Items and assign a person responsible for each item and a due date. The Contractor's Representative will facilitate the assignment of responsibilities, fill out the NRZ Checklist, and discuss "Interim DD Form 1354" requirements.

2. If included in the Task Order, the "Interim DD From 1354" requirements will be disscussed

3. Review the Contractor's updated schedule. The Contractor shall develop a POAM for the completion of all Contractor, Client, and NAVFAC Checklist items.

4. Confirm that all NRZ Checklist items will be completed on time for the scheduled Facility Turnover.

1.12 PARTNERING

FOR TASK ORDERS OVER $200,000: To most effectively accomplish this contract, the Government requires the formation of a cohesive partnership within the Project Team whose members are from the Government, the Contractor and their Subcontractors. Key personnel from the Supported Command, the End User (who will occupy the facility), NAVFAC (Echelon III and IV), the Navy Region/Installation, the Contractor and Subcontractors, and if applicable, the Designer of Record will be invited to participate in the Partnering process.

The Partnership will draw on the strength of each organization in an effort to achieve a project that is without any safety mishaps, conforms to the Contract, and stays within budget and on schedule.

The Contracting Officer will provide Information on the Partnering Process and a list of key and optional personnel who should attend the Partnering meeting.

1.12.1 Informal Partnering

The Contracting Officer will organize the Partnering Sessions with key personnel of the project team, including Contractor personnel and Government personnel.

The Initial Partnering session should be a part of the Pre-Construction Meeting. Partnering sessions will be held at a location agreed to by the Contracting Officer and the Contractor (typically a conference room provided by the PWD FEAD/ROICC office or the Contractor).

The Initial Informal Partnering Session will be conducted and facilitated using electronic media (a video and accompanying forms) provided by the Contracting Officer.

The Partners will determine the frequency of the follow-on sessions.

1.13 AVAILABILITY OF CADD DRAWING FILES

After award and upon request, (if required by the Task Order) the electronic "Computer-Aided Drafting and Design (CADD)" drawing files will only be made available to the Contractor for use in preparation of construction drawings and data related to the referenced contract subject to the following terms and conditions. Request specific drawing numbers of files required; the entire set of drawing files will not be provided.

If required for the Task Order, data contained on these electronic files shall not be used for any purpose other than as a convenience in the preparation of construction drawings and data for the referenced project. Any other use or reuse shall be at the sole risk of the Contractor and without liability or legal exposure to the Government. The Contractor shall make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the Government, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor shall, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic CADD drawing files are not construction documents. Differences may exist between the CADD files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic CADD files, nor does it make representation to the compatibility of these files with the Contractors hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished CADD files, the signed and sealed construction documents shall govern. The Contractor is responsible for determining if any conflict

exists. Use of these CADD files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project.

If the Contractor uses, duplicates and/or modifies these electronic CADD files for use in producing construction drawings and data related to this contract, all previous indicia of ownership (seals, logos, signatures, initials and dates) shall be removed.

1.14 ELECTRONIC MAIL (E-MAIL) ADDRESS

The Contractor shall establish and maintain electronic mail (e-mail) capability along with the capability to open various electronic attachments in Microsoft, Adobe Acrobat, and other similar formats. Within 10 days after contract award, the Contractor shall provide the Contracting Officer a single (only one) e-mail address for electronic communications from the Contracting Officer related to this contract including, but not limited to contract documents, invoice information, request for proposals, and other correspondence. The Contracting Officer may also use email to notify the Contractor of base access conditions when emergency conditions warrant, such as hurricanes, terrorist threats, etc. Multiple email address will not be allowed.

It is the Contractor's responsibility to make timely distribution of all Contracting Officer initiated e-mail with its own organization including field office(s). The Contractor shall promptly notify the Contracting Officer, in writing, of any changes to this email address.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

DIVISION 01 GENERAL REQUIREMENTS

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 DEFINITIONS

1.1.1. SubmittalS

Shop drawings, product data, samples, and administrative submittals presented for review and approval. Contract Clauses "FAR 52.236-5, Material and Workmanship", Paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Constructions", Paragraphs (d), (e), and (f) apply to all "submittals".

1.1.2 Types of Submittals

a. Shop Drawings: As used in this Section, drawings, schedules, diagrams, and other data prepared specifically for this Contract, by the Contractor or through the Contractor by way of a subcontractor, manufacturer, supplier, distributor, or other lower tier contractor, to illustrate a portion of the work.

b. Product Data: Preprinted material such as illustrations, standard schedules, performance charts, instructions, brochures diagrams, manufacturer's descriptive literature, catalog data, and other data to illustrate a portion of the work, but not prepared exclusively for this contract.

c. Samples: Physical examples of products, materials equipment, assemblies, or workmanship that are physically identical to a portion of the work, illustrating a portion of the work or establishing standards of evaluating the appearance of the finished work or both.

d. Administrative Submittals: Data presented for reviews and approval to ensure that the administrative requirements of the project are adequately met but not ensure directly that the work is in accordance with the design concept and in compliance with the Contract documents.

1.1.3 Approving Authority: The person authorized to approve a submittal.

1.1.4 Work: As used in the Section, on and off site construction required by the contract documents, including labor necessary to produce the construction and materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2 PROCEDURES FOR SUBMITTALS

1.2.1 Reviewing, Certifying, Approving Authority

The QC organization shall be responsible for reviewing and certifying that the submittals are in the compliance with contract requirements. The approving authority on submittals is the QC Manager unless otherwise specified for the specific submittal. At each "Submittal" paragraph in the individual specification sections, a notation "G" following a submittal item indicates the Contracting Officer is the approving authority for that submittal item.

1.2.2 Constraints

a. Submittals listed or specified in this contract shall conform to the provisions of this Section, unless explicitly stated otherwise.

b. Submittals shall be complete for each definable feature of work; components of the definable feature interrelated as a system shall be submitted at the same time.

c. When acceptability of a submittal is dependent on conditions, items, or material included in separate, subsequent submittals, the submittal will be returned without review.

d. Approval of a separate material, product, or component does not imply approval of an assembly in which the item functions.

1.2.3 Scheduling

a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of the work so that work will not be delayed by submittal processing. Allow for potential requirements to resubmit.

b. Except as specified otherwise, allow a review period, beginning with receipt by the approving authority, which includes at least 15 working days for submittals for Contracting Officer approval. The period of review for submittals with Contracting Officer approval begins when the Government receives

the submittal from the QC organization. The period of review for each resubmittal is the same as for the initial submittal.

c. For submittals requiring review by the Fire Protection Engineer, allow a review period beginning when the Government receives the submittal for the QC organization and the 10 working days for return of the submittal to the Contractor. The period of review for each resubmittal is the same as for the initial submittal.

1.2.4 Variations

Variations from the contract requirements require Government approval pursuant to contract clause FAR 52.236-21, Specifications and Drawings for Construction. Variations will be considered where it is deemed advantageous to the Government. When proposing a variation, submit a written request to the Contracting Office, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to the Government. If lower cost is a benefit, also include an estimate of the cost savings. Identify the proposed variation along with the required submittal for the item. When submitting a variation for approval, the Contractor warrants the following:

1.2.4.1 Variation is Compatible: The contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of the work.

1.2.4.2 Contractor is Responsible: The Contractor shall take actions and bear the additional costs including review costs by the Government necessary due to the proposed variation.

1.2.4.3 Review Schedule is modified: In addition to the normal submittal review period, a period of 10 working days will be allowed for consideration by the Government of submittals with variations.

1.2.5 Contractor's Responsibilities:

a. Determine and verify field measurements, materials, field construction criteria; review each submittal; and check and coordinate each submittal with requirements of the work and contract documents.

b. Transmit submittals to the QC organization in orderly sequence in accordance with the Submittal Register and to

prevent delays in the work, delays to the Government, or delays to separate contractors.

c. Advise the Contracting Officer of variation, as required by the paragraph entitled "Variations".

d. Correct and resubmit the submittal as directed by the approving authority. When resubmitting disapproved transmittals or transmittals noted for resubmittal, the Contractor shall provide a copy of that previously submitted transmittal including all reviewer comments for use by the approving authority on previous submissions.

e. Furnish additional copies of submittals when requested by the Contracting Officer to a limit of 20 submittals.

f. Complete work, which must be accomplished as a basis of a submittal in time to allow the submittal to occur as scheduled.

g. Ensure that no work has begun until submittals for that work have been returned as "approved" or "approved as noted" except to the extent that a portion of the work must be accomplished as a basis of the submittal.

1.2.6 QC Organization Responsibilities

a. Note the date on which the submittal was received from the contractor on each submittal for which the QC manager is the approving authority.

b. Determine and verify field measurements, material, field construction criteria; review each submittal; and check and coordinate each submittal with requirements of the work and contract documents.

c. Review submittals for conformance with project design concepts and compliance with the Contract documents.

d. Act on submittals, determining the appropriate action based on the QC organization's review of the submittal.

(1) When the QC Manager is the approving authority, take the appropriate action on the submittal from the possible actions defined in the paragraph entitled "Actions Possible".

(2) When the Contracting Officer is the approving authority or when a variation has been proposed, forward the submittal to the Government with the certifying statement or return the submittal marked "not reviewed" or "revised and resubmit" as appropriate. The QC organization's review of the submittal determines the appropriate action.

e. Ensure that material is clearly legible.

f. Stamp each sheet of each submittal with the QC certifying statement or approving statement except that data submitted in bound volume or on one sheet printed on two sides may be stamped on the front of the first sheet only.

(1) When the approving authority is the Contracting Officer, the QC organization will certify submittals forwarded to the Contracting Officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with Contract Number _____ is in compliance with the Contract drawings and specification, can be installed in the allocated spaces, and is submitted for Government approval. Government approval of proposed variation, if any, is recommended."

Certified by: Submittal Reviewer _____, Date_____
(Signature if applicable)

Certified by: QC Manager _____, Date_____
(Signature)

(2) When the approving authority is the QC Manager, the QC Manager will use the following approval statement when returning submittals to the Contractor as "Approved" or "Approved as Noted."

"I hereby certify that the (equipment (material) (article) shown and marked in this submittal is that proposed to be incorporated with Contract Number_____. It is in compliance with the Contract drawing and specifications, can be installed in the allocated spaces, and is _____approved for use, _____approved for use subject to Government approval of proposed variation.

Certified by: Submittal Reviewer _____, Date_____
(Signature if applicable)

Certified by: QC Manager _____, Date_____
(Signature)

g. Sign the certifying statement or approval statement. The person signing the certifying statements shall be the QC organizations member designated in the approved QC plan. The signatures shall be in original ink. Stamped signatures are not acceptable.

h. Update the submittal register as submittal actions occur and maintain the submittal register at the project site until final acceptance of all work by the Contracting Officer.

i. Retain a copy of approval submittal at the project site including the Contractor's copy of approved samples.

j. When the approving authority is the QC Manager, forward two copies of each approved submittal, except "Samples," where one set is required, to the Contracting Officer.

1.2.7 Government's Responsibilities: When the approving authority is the Contracting Officer, the Government will:

a. Note the date on which the submittal was received from the QC Manager, on each submittal for which the Contacting Officer is the approving authority.

b. Review submittals for approval within the scheduling period specified and only for conformance with project design concepts and compliance with the contact documents.

c. Identify returned submittals with one of the actions defined in the paragraph entitled "Actions Possible" and with markings appropriate for the action indicated.

d. Retain three copies of each submittal except "Samples" where one copy will be retained.

1.2.8 Actions Possible: Submittals will be returned with the one of the following notations:

a. Submittals marked "not reviewed" will indicate the submittal has been previously reviewed and approved, are not required as a submittal, does not have evidence of being reviewed and approved by the Contractor, or is not complete. A

submittal marked "Not Reviewed" will be returned with an explanation of the reason it was not reviewed. Returned submittals deemed to lack review by the Contractor or to be incomplete shall be resubmitted with appropriate action, coordination, or change.

b. Submittals marked "approved" or "approved as submitted" authorize the Contractor to proceed with the work covered.

c. Submittals marked "approved as noted" authorize the Contractor to proceed with work as noted provided the Contractor takes no exception to the notations.

d. Submittals marked "revise and resubmit" or "disapproved" indicate the submittal is incomplete, does not comply with the design concept, or the requirements of the Contract documents and shall be resubmitted with appropriate changes.

1.3 FORMAT OF SUBMITTALS

1.3.1 Transmittal Form: Transmit each submittal except sample installations and sample panels to the office of the approving authority. Transmit submittals with a transmittal form prescribed by the Contacting Office and standard for the project. The transmittal form shall identify the Contractor, indicate the date of the submittal, and include information prescribed by the transmittal form and required in the paragraph entitled "Identifying Submittals". Process transmittal forms to record actions regarding sample panels and sample installations.

1.3.2 Identifying Submittals: Identify submittals, except sample panel and sample installation, with the following information permanently adhered to or noted on each separate component of each submittal and noted on the transmittal form. Make each copy of each submittal identical with the following:

a. Project, title and location

b. Construction Contract Number

c. The Section number of the specification section by which the submittal is required.

d. The submittal description (SD) number of each component of the submittal.

e. When a resubmission, assign an alphabetic suffix on the submittal description, of example -- SD-10A, to indicate the resubmission.

f. The names, address, and telephone number of the subcontractor, supplier, manufacturer and any other second tier contractor associated with the submittal.

g. The product identification and its location in the project.

1.3.3 Format for Product Data

a. Present product data submittals for each section as a complete, bound volume. Include a table of contents listing the page and catalog item numbers for each product data.

b. Indicate, by prominent notation, each product, which is being submitted, the specification Section number, and the paragraph number to which it pertains.

c. Supplement product data with material prepared for the project to satisfy submittal requirements for which the product data does not exist. Identify this material as developed specifically for the project.

1.3.4 Format for Shop Drawings

a. Shop drawings shall be not less than 8-1/2 by 11 inches nor more than 30 X 42 inches.

b. Present 8-1/2 x 11 inch sized shop drawings as a part of the bound volume for the submittals required by the Section. Present larger drawings in sets.

c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to the information required in the paragraph entitled "Identifying Submittals".

d. Dimension drawings except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Identify materials and products for work shown.

1.3.5 Format of Samples

a. Furnish samples in sizes below unless otherwise specified or unless the manufacturer has prepackaged samples of approximately the same size as specified.

(1) Sample of Equipment or Device: Full Size

(2) Sample of Materials Less than 2 by 3 inches: Built up to 8 1/2 by 11 inches.

(3) Sample of Material exceeding 8-1/2 by 11 inches: Cut down to 8-1/2 by 11 inches and adequate to indicate color,
texture, and material variations.

4) Sample of Materials: 10-inch Length or
Length to be supplied if less than 10 inches.

b. Reusable Samples: Incorporate returned samples into the work only if so specified or indicated. Incorporated samples shall be in undamaged condition at the time of use.

1.3.6 Format of Administrative Submittals

a. When the submittal includes a document which is to be used in the project to become a part of the project record other than as a submittal, do not apply the Contractor's approval stamp to the document, but to a separate sheet accompanying the document.

b. Operation and Maintenance Manual data: Submit operation and maintenance (O&M) data/manuals, which are specifically applicable to this contract and a complete and concise depiction of the provided equipment or product. Data containing extraneous information to be sorted through to find applicable instructions will not be accepted. Present information in sufficient detail to clearly explain user O&M requirements at the system, equipment, component, and subassembly level.

1.4 QUANTITY OF SUBMITTALS

1.4.1 Number of Copies of Product Data: Submit two copies of submittals of product data requiring review and approval only by the QC organization and four copies of product data requiring review and approval by the Contracting Officer.

1.4.2 Number of Copies of Shop Drawings:

(a) For shop drawings present submit two prints of each shop drawing prepared for this project.

1.4.3 Number of Samples

(a) Submit two samples of each required item. The approved samples will be returned to the Contractor.

(b) Submit one sample installation if directed.

1.4.4 Number of Copies of Administrative Submittals

(a) Unless otherwise specified, submit two copies of administrative submittals.

1.5 SCHEDULE OF SUBMITTAL DESCRIPTIONS (SD)

SD-01: Data

Submittals which provide calculations, descriptions, or other documentation regarding the work.

SD-02: Manufacturer's Catalog Data

Data composed of catalog cuts, brochures, circulars, specifications, and product data, and printed information in sufficient detail and scope of verify compliance with requirements of the contract documents. A type of product data.

SD-04: Drawings

Submittals which graphically show relationship of various components of the work, diagrams, layout of connections, and other relational aspects of the work. A type of shop drawing.

SD-05: Design Data

Design calculations, mix designs, analyses, or other data written in nature and pertaining to a part of the work. A type of shop drawing.

SD-06: Instructions

Preprinted material describing installation of a product, system, or material including special notices an Material Safety Data Sheets, if any, concerning impedances, hazards, and safety precautions. A type of product data.

SD-07: Schedules

A tabular list of data or tabular list including location, features, or other pertinent information regarding products

materials, equipment, or components to be used in the work. A type of shop drawing.

SD-08: Statement

A document required of the contractor, or through the Contractor by way of a supplier, installer, manufacturer, or other lower tier contractor, the purpose of which is to further the quality or orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications, or other verification of quality. A type of shop drawing.

SD-09: Reports

Reports of inspection and laboratory test including analysis and interpretation of test results. Each report shall be properly identified. Test methods used and compliance with recognized test standards shall be described.

SD-10: Test Reports

A report signed by an authorized official of a testing laboratory that a material, product, or system identical to the material, product or system to be provided has been tested in accordance with requirements specified by naming the test method and material. The test report must state the test was performed in accordance with the test requirements; state the test results; and indicate whether the material, product, or system has passed or failed the test. Testing must have been within three years of the date of award of this contract. A type of product data.

SD-11: Factory Test Reports

A written report that includes the findings of a test required to be performed by the Contractor on an actual portion of the work. The report must be signed by an authorized official of a testing laboratory and must state the test was performed in accordance with the test requirements; state the test results; and indicate whether the material, product, or system has passed or failed the test. A type of shop drawing.

SD-12: Field Test Reports

A written report that includes the findings of a test made at the job site, in the vicinity of the job site, or on a sample taken for the job site, on a portion of the work, during or

after installation. The report must be signed by an authorized official of a testing laboratory or agency and must state the test was performed in accordance with the test requirements; state the test results; and indicate whether the material, product, or system has passed or failed the test. A type of shop drawing.

SD-13: Certificates

Statement signed by responsible officials of a manufacturer of a product, system, or material attesting that the product system or material meets specified requirements. The statements must be dated after the award of this contract, name the project, and list the specific requirements, which it is intended to address. A type of shop drawing.

SD-14: Samples

Samples including both fabricated and unfabricated physical examples of material, products, and units of work as complete units or as portions of unit of work. A type of sample.

SD-15: Not Used

SD-16: Not Used

SD-17: Not Used

SD-18: Records

Documentation to ensure compliance with an administrative requirement or to establish an administrative mechanism. A type of administrative submittal.

SD-19: Operation and Maintenance Manuals

Data intended to be incorporated in an Operations and Maintenance Manual. A type of administrative submittal.

PART 2 PRODUCTS Not used.

PART 3 EXECUTION Not used

-- End of Section --

SECTION 01 35 26

GOVERNMENTAL SAFETY REQUIREMENTS
02/12

1 PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

ASSE/SAFE A10.32	(2012) Fall Protection
ASSE/SAFE Z359.1	(2007) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components

ASME INTERNATIONAL (ASME)

ASME B30.22	(2010) Articulating Boom Cranes
ASME B30.3	(2012) Tower Cranes
ASME B30.5	(2011) Mobile and Locomotive Cranes
ASME B30.8	(2010) Floating Cranes and Floating Derricks

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2013) Standard for Portable Fire Extinguishers
NFPA 241	(2013) Standard for Safeguarding Construction,Alteration, and Demolition Operations
NFPA 70	(2014) National Electrical Code
NFPA 70E	(2012; Errata 2012) Standard for Electrical Safety in the Workplace

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements Manual, 30 November 2014

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

10 CFR 20	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards

29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.1400	Cranes & Derricks in Construction
29 CFR 1926.16	Rules of Construction
29 CFR 1926.500	Fall Protection
CPL 2.100	(1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)

NAVFAC P-307	(2009; Change 1 Mar 2011; Change 2 Aug 2011)Management of Weight Handling Equipment

1.2 DEFINITIONS

a. Competent Person for Fall Protection. A person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest system or any component thereof, as well as their application and use with related equipment, and has the authority to take prompt corrective measures to eliminate the hazards of falling.

b. High Visibility Accident. Any mishap which may generate publicity or high visibility.

c. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

d. Operating Envelope. The area surrounding any crane. Inside this "envelope" is the crane, the operator, riggers and crane walkers, rigging gear between the hook and the load, the load and the crane's supporting structure (ground, rail, etc.).

e. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

(1) Death, regardless of the time between the injury and death, or the length of the illness;

(2) Days away from work (any time lost after day of injury/illness onset);

(3) Restricted work;

(4) Transfer to another job;

(5) Medical treatment beyond first aid;

(6) Loss of consciousness; or

(7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

f. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

[g] Weight Handling Equipment (WHE) Accident. A WHE accident occurs when any one or more of the eight elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; or collision, including unplanned contact between the load, crane, or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, roll over, etc.) Any mishap meeting the criteria described above shall be documented in both the Contractor Significant Incident Report (CSIR) and using the NAVFAC prescribed Navy Crane Center (NCC) form submitted within five days both as provided by the Contracting Officer. Comply with additional requirements and procedures for accidents in accordance with NAVFAC P-307, Section 12.
]

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

ACCIDENT PREVENTION PLAN GENERAL (APP) G

Accident Prevention Plan - ADDENDUM; G

Activity Hazard Analysis (AHA); G

Crane Critical Lift Plan; G

Proof of qualification for Crane Operators; G

qualifications for all site safety and health personnel; G

Radiography Operations Planning Worksheet; G

SD-06 Test Reports

Accident Notifications**

Accident Reports**

** Submit reports as their incidence occurs, in accordance with the requirements of the paragraphs, "Accident Notifications" and "Accident and Reports."

Crane Reports

SD-07 Certificates

Confined Space Entry Permit

Hot work permit

License Certificates

Weight Handling Equipment Certificate of Compliance

Contractor Safety Self-Evaluation Checklist; G
(Obtain copy from Contrating Officer)

Submit one copy of each permit/certificate attached to each Daily Production Report.

1.4 CONTRACTOR SAFETY SELF-EVALUATION CHECKLIST

Contracting Officer will provide a "Contractor Safety Self-Evaluation checklist" to the Contractor at the pre-construction conference. Complete the checklist monthly and submit with each request for payment voucher. An acceptable score of 90 or greater is required. Failure to submit the completed safety self-evaluation checklist or achieve a score of at least 90 may result in retention of up to 10 percent of the voucher. Additionally, provide a Monthly Exposure Report and attach to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. Failure to submit the report may result in retention of up to 10 percent of the voucher. The Contracting Officer will submit a copy of the Contractor Safety Self-Evaluation and Monthly Exposure Report to the local safety and occupational health office.

1.5 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, comply with the most recent edition of USACE EM 385-1-1, and applicable OSHA, federal, Indiana state laws, ordinances, criteria, rules and regulations concerning workplace safety. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.6 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.6.1 Personnel Qualifications

1.6.1.1 Site Safety and Health Officer (SSHO)

The SSHO must meet the requirements of EM 385-1-1 section 1 and ensure that the requirements of 29 CFR 1926.16 are met for the project. Provide a Safety oversight team that includes a minimum of one (1) person at each project site to function as the Site Safety and Health Officer (SSHO). The SSHO or an equally-qualified Designated Representative/alternate shall be at the work site at all times to implement and administer the Contractor's safety program and government-accepted Accident Prevention Plan. The SSHO's training, experience, and qualifications shall be as required by EM 385-1-1 paragraph 01.A.17, entitled SITE SAFETY AND HEALTH OFFICER (SSHO), and all associated sub-paragraphs.

A Competent Person shall be provided for all of the hazards identified in the Contractor's Safety and Health Program in accordance with the accepted Accident Prevention Plan, and shall be on-site at all times when the work that presents the hazards associated with their professional expertise is being performed. Provide the credentials of the Competent Persons(s) to the the Contracting Officer for acceptance in consultation with the Safety Office.

1.6.1.2 Competent Person for Confined Space Entry

Provide a "Competent Person" to supervise the entry into each confined space. That individual must meet the requirements and definition of Competent Person as contained in EM 385-1-1.

1.6.1.3 Crane Operators

Meet the crane operators requirements in USACE EM 385-1-1, Section 16 and Appendix I. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacitates of 50,000 pounds or greater, designate crane operators as qualified by a source that qualifies crane operators (i.e., union, a government agency, or an organization that tests and qualifies crane operators). Provide proof of current qualification. In addition, the Contractor shall comply with Contractor Operated Crane Requirements included in the latest revision of document NAVFAC P-307 Section 1.7.2 "Contractor Operated Cranes," and Appendix P, Figure P-1 and with 29 CFR 1926, Subpart CC.

1.6.2 Personnel Duties

1.6.2.1 Site Safety and Health Officer (SSHO)

The SSHO shall:

a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Attach safety inspection logs to the Contractors' daily production report.

b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.

c. Maintain applicable safety reference material on the job site.

d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.

e. Implement and enforce accepted APPS and AHAs.

f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. Post a list of unresolved safety and health deficiencies on the safety bulletin board.

g. Ensure sub-contractor compliance with safety and health requirements.

h. Maintain a list of hazardous chemicals on site and their material safety data sheets.

i. Within one calendar day after commencement of work, erect a safety bulletin board at the job site. Where size, duration, or logistics of project do not facilitate a bulletin board, an alternative method, acceptable to the Contracting Officer, that is accessible and includes all mandatory information for employee and visitor review, shall be deemed as meeting the requirement for a bulletin board. Include and maintain information on safety bulletin board as required by EM 385-1-1, section 01.A.06. Additional items required to be posted include:

1) Confined space entry permit.

2) Hot work permit.

3) If applicable, Digging Permit.

4) If applicable, Explosive Safety Permit and Building Permit.

Failure to perform the above duties will result in dismissal of the superintendent, QC Manager, and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

1.6.3 Meetings

1.6.3.1 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis.

In addition, establish a schedule for the preparation, submittal, review, and acceptance of AHAs to preclude project delays.

c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Do not begin work until there is an accepted APP.

1.6.3.2 Safety Meetings

Conduct and document meetings as required by EM 385-1-1. Attach minutes showing contract title, signatures of attendees and a list of topics discussed to the Contractors' daily production report.

1.7 ACCIDENT PREVENTION PLAN GENERAL (APP)

The APP for this contract is meant to be a 'living document' covering general hazards and situations as defined by EM-385-1-1(Haz. Energy Control Plan, respirator protection plan, confined space, hazardous communications plan, etc) typically found at construction activities for the duration of the contract, but flexible enough to incorporate individual Delivery Order specific hazards as the projects are awarded.

Use a qualified person to prepare the written General APP. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 30 November 2014 and as supplemented herein.

Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan". Specific requirements for some of the APP elements are described below. The APP shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the APP in the applicable APP element and made site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer, the Contractor Quality control Manager, and any designated CSP and/or CIH.

Submit the General APP to the Contracting Officer 15 calendar days prior to the date of overall contract Notice of Award or the Prework conference for acceptance. Work cannot proceed without an accepted General APP. Once accepted by the Contracting Officer, the General APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted General APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Once work begins, changes to the accepted APP shall be made with the

knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and quality control manager. Should any severe hazard exposure, i.e. imminent danger, become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSE/SAFE A10.34,) and the environment.

Copies of the accepted plan will be maintained at the Contracting Officer's office and at the job site. Continuously review and amend the APP, as necessary, throughout the life of the contract. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered.

1.7.1 DELIVERY ORDER SPECIFIC AMENDMENTS TO THE Accident Prevention Plan - ADDENDUM

Use a qualified person to prepare the written Delivery Order Specific addendums the contract approved APP. Addendums will cover unusual or high-hazard activities specific to the individual Delivery Orders not identified in the original APP.

The APP addendums shall be signed by the person and firm (senior person) preparing the APP, the Contractor, and (as applicable to the Delivery Order), the on-site superintendent, the designated site safety and health officer, and the Contractor Quality control Manager. These APP amendments shall be submitted and approved prior to the start of construction.

Once work begins, changes to the accepted APP and Delivery Order Specific Addendums (if any) shall be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and quality control manager. Should any severe hazard exposure, i.e. imminent danger, become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSE/SAFE A10.34,) and the environment.

Copies of the accepted plan and Delivery Order Addendums will be maintained at the Contracting Officer's office and at the job site.

1.7.2 EM 385-1-1 CONTENTS

In addition to the requirements outlined in USACE EM 385-1-1, the following is required:

a. Names and qualifications (resumes including education, training, experience and certifications) of all site safety and health personnel designated to perform work on this project to include the designated site safety and health officer and other competent and qualified

personnel to be used such as CSPs, CIHs, STSs, CHSTs. Specify the duties of each position.

b. Qualifications of competent and of qualified persons. As a minimum, designate and submit qualifications of competent persons for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; personal protective equipment and clothing to include selection, use and maintenance.

c. Confined Space Entry Plan. Develop a confined and/or enclosed space entry plan in accordance with USACE EM 385-1-1, applicable OSHA standards 29 CFR 1910, 29 CFR 1915, and 29 CFR 1926, OSHA Directive 2.100, and any other federal, state and local regulatory requirements identified in this contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

d. Fall Protection and Prevention (FP&P) Program Documentation. The program documentation shall be site specific and address all fall hazards in the work place and during different phases of construction. Address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 1.8 m 6 feet. A qualified person for fall protection shall prepare and sign the program documentation. Include fall protection and prevention systems, equipment and methods employed for every phase of work, responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Revise the Fall Protection and Prevention Program documentation every six months for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. Keep and maintain the accepted Fall Protection and Prevention Program documentation at the job site for the duration of the project. Include the Fall Protection and Prevention Program documentation in the Accident Prevention Plan.

The FP&P Plan shall include a Rescue and Evacuation Plan in accordance with USACE EM 385-1-1, Section 21.M. The plan shall include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan in the Fall Protection and Prevention (FP&P) Plan, and as part of the Accident Prevention Plan (APP).

e. Weight Handling Equipment Certificate of Compliance. Provide a Certificate of Compliance for each crane when entering an activity under this contract (see Contracting Officer for a blank certificate). State within the certificate that the crane and rigging gear meet applicable OSHA regulations (with the Contractor citing which OSHA regulations are applicable, e.g., cranes used in construction demolition, or maintenance comply with 29 CFR 1926 and USACE EM 385-1-1. Certify on the Certificate of Compliance that the crane operator(s)

is qualified and trained in the operation of the crane to be used. For cranes at DOD activities in foreign countries, certify that the crane and rigging gear conform to the appropriate host country safety standards. Also certify that all of its crane operators working on the DOD activity have been trained in the proper use of all safety devices (e.g., anti-two block devices). Post certifications on the crane.

f. Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of the capacity of the crane or hoist (or lifts over 50 percent of the capacity of a barge mounted mobile crane's hoists) at any radius of lift; lifts involving more than one crane or hoist; lifts of personnel; and lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks. Submit 15 calendar days prior to on-site work and include the requirements of USACE EM 385-1-1, and the following:

(1) For lifts of personnel, demonstrate compliance with the requirements of 29 CFR 1926.1400.

g. Severe Storm Plan. In the event of a severe storm warning, the Contractor must:

(1). Secure outside equipment and materials and place materials that could be damaged in protected areas.

(2). Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

(3). Ensure that temporary erosion controls are adequate.

If appropriate to an individual Delivery Order, include the following:

h. Occupant Protection Plan. The safety and health aspects of lead-based paint removal, prepared in accordance with Section 02 82 33.13 20 REMOVAL/CONTROL AND DISPOSAL OF PAINT WITH LEAD.

i. Lead Compliance Plan. The safety and health aspects of lead work, prepared in accordance with Section 02 83 13.00 20 LEAD IN CONSTRUCTION.

j. Asbestos Hazard Abatement Plan. The safety and health aspects of asbestos work, prepared in accordance with Section 02 82 16.00 20 ENGINEERING CONTROL OF ASBESTOS CONTAINING MATERIALS.

m. Site Demolition Plan. The safety and health aspects prepared in accordance with Section 02 41 00 DEMOLITION AND DESCONSTRUCTION and referenced sources. Include engineering survey as applicable.

n. Excavation Plan. If significant excavation is included in an individual Delivery Order: The safety and health aspects shall be prepared in accordance with the Delivery Order supplied Section 31 00 00 EARTHWORK.

1.8 ACTIVITY HAZARD ANALYSIS (AHA)

The Activity Hazard Analysis (AHA) format shall be in accordance with USACE EM 385-1-1 and as provided by the Contracting Officer at the pre work

meeting. Submit the AHA for review at least 15 calendar days prior to the start of each phase.

The AHA is Delivery Order specific and should be submitted for each awarded Delivery Order to cover task-specific (crane critical lift, scaffolding, fall protection, PPE, etc) safety items.

Format subsequent AHAs as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls and reviewed with all employees involved in the work.

The AHA list will be reviewed at the Delivery Order Preconstruction meeting and periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change. Develop the activity hazard analyses using the project schedule as the basis for the activities performed.

Any activities listed on the project schedule will require an AHA. Competent persons required for phases involving such things as fall protection, excavations, scaffold, and electrical work shall be identified. AHAs should be developed by the contractor, supplier, or subcontractor performing the work and provided to the prime contractor for review and submitted to the Contracting Officer for acceptance after prime contractor approval.

1.9 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.10 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.11 NOTIFICATIONS AND REPORTS

1.11.1 Accident Notifications

a. Notify the Contracting Officer as soon as practical, but no more than four hours after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than $2,000, or any weight handling equipment accident. Within notification include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted.

1.11.2 Accident Reports

a. Conduct an accident investigation for recordable injuries and illnesses, as defined in "Article - Definitions" property damage accidents resulting in at least $20,000 in damages, and near misses as defined in "Article - Definiations" to establish the root cause(s) of the accident, complete the applicable NAVFAC Contractor Incident Reporting System (CIRS) and electronically submit via the NAVFAC Enterprise Safety Applications Management System (ESAMS) The Contracting Officer will provide copies of any required or special forms.

b. Near Misses: Require the completion of the applicable NAVFAC Contractor Incident Reporting System (CIRS) and electronically submit via the NAVFAC Enterprise Safety Applications Management System (ESAMS).

c. Conduct an accident investigation for any weight handling equipment accident (including rigging gear accidents) to establish the root cause(s) of the accident, complete the WHE Accident Report (Crane and Rigging Gear) form and provide the report to the Contracting Officer within 30 calendar days of the accident. Do not proceed with crane operations until cause is determined and corrective actions have been implemented to the satisfaction of the contracting officer. The Contracting Officer will provide a blank copy of the accident report form.

1.11.3 Crane Reports

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix I and as specified herein with Daily Reports of Inspections.

1.12 HOT WORK

To the greatest extent possible, situations that could require hot work permits (welding, cutting, etc.) will be called out in the individual Task Order Scopes of Work.

If the contractor intends to employ means or methods that will involve hot work, or spark producing tools, state so in the Delivery Order proposal and conform to the hot work permit rules below.

For hot work in CAAA buildings, submit and obtain a written permit prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, from the Fire Division.

For hot work in NSWC explosive operations buildings, submit and obtain a written permit prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, from the Fire Division and the NSWC Explosive Safety Office. See 01 11 00 SUMMARY OF WORK for further details on Explosive Safety Permits.

For hot work in all other buildings, submit and obtain a written permit prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, from the Contracting Officer.

CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC

rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal.

It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in accordance with NFPA 51B and remain on-site for a minimum of 30 minutes after completion of the task or as specified on the hot work permit.

When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Division phone number. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE FIRE DIVISION IMMEDIATELY.

Obtain services from a NFPA Certified Marine Chemist for "HOT WORK" within or around flammable materials (such as fuel systems, welding/cutting on fuel pipes) or confined spaces (such as sewer wet wells, manholes, vaults, etc.) that have the potential for flammable or explosive atmospheres.

1.13 RADIATION SAFETY REQUIREMENTS

Work shall be performed in accordance with NAVFACINST 5104.1.

If work involving a radiography source is proposed, submit the attached Radiography Operations Planning Worksheet 60 days in advance of the proposed source being brought onto the Activity.

License Certificates for radiation materials and equipment shall be submitted to the Contracting Officer and Radiation Safety Office (RSO), and Contracting Oversight Technician (COT) for all specialized and licensed material and equipment that could cause fatal harm to construction personnel or to the construction project.

Workers shall be protected from radiation exposure in accordance with 10 CFR 20. Standards for Protection Against Radiation

License Certificates, employee training records, and Leak Test Reports for radiation materials and equipment shall be submitted to the Contracting Officer and Navy Radiation Safety Office (RSO), and Contracting Oversight Technician (COT) for all specialized and licensed material and equipment proposed for use on the construction project. Maintain on-site records whenever licensed radiological materials or ionizing equipment are on government property.

Protect workers from radiation exposure in accordance with 10 CFR 20. Standards for Protection against radiation, ensuring any personnel exposures are maintained As Low As Reasonably Achievable.

Submit a Radiography Operation Planning Work Sheet to Contracting Officer 14 days prior to commencement of operations involving radioactive materials or radiation generating devices. The Contracting Officer and COT will review this worksheet and submit questions and comments

Contractors must use primary dosimeters process by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

Coordinate site access and security requirements with the Contracting Officer and COT for all radiological materials and equipment containing ionizing radiation that are proposed for use on a government facility. The Navy COT or authorized representative will meet the contractor at a designated location, ensure safety of the materials being transported, and will escort the contractor to the job site and return upon completion of the work.

Loss or release of radioactive materials, and unplanned personnel exposures must be reported immediately to the Contracting Officer, RSO, and Base Security Department Emergency Number.

Actual exposure of the radiographic film or unshielding the source must not be initiated until after 5 p.m. on weekdays.

Work outside regular working hours requires Contracting Officer approval. Make application 15 calendar days prior to such work to allow arrangements to be made by the Government, giving the specific dates, hours, location, type of work to be performed, contract number and project title.

Provide a copy of all calibration records, and utilization records to the COT for radiological operations performed on the site.

Properly demark and barricade an area surrounding radiological operations to preclude personnel entrance, as per Navy Instruction, EM-385-1-1, Nuclear Regulatory Commission and Applicable State regulations and license requirements, and as per requirements established in the accepted Radiography Operation Planning Work Sheet.

Properly secure the radiological material and ionizing radiation equipment at all times, including keeping the devices in a properly marked and locked container, and secondarily locking the container to a secure point in the Contractor's vehicle or other approved storage location during transportation and while not in use. While in use, maintain a continuous visual observation on the radiological material and ionizing radiation equipment.

In instances where radiography is scheduled near or adjacent to buildings or areas having limited access or one-way doors, no assumptions shall be made as to building occupancy. Where necessary, the Contracting Officer will direct the Contractor to conduct an actual building entry, search, and alert. Where removal of personnel from such a building cannot be accomplished and it is otherwise safe to proceed with the radiography, a fully instructed employee shall be positioned inside such building or area to prevent exiting while external radiographic operations are in process.

Transportation of Regulated Amounts of Radioactive Material will comply with 49 CFR, Subchapter C, Hazardous Material Regulations. Notify Local Fire authorities and the site Radiation Safety Officer (RSO) of any Radioactive Material use.

1.14 HAZARDS OF ELECTROMEGNETIC RADIATION TO ORDNANCE (HERO) ANALYSIS TRANSMITTER REQUEST

Transmitter Requirements: The base policy (NSACRANEINST 8020.1, Explosives Safety Program at NSA Crane, chapter 11, found in part 6) concerning the

use of transmitters such as radios, cell phones, etc., must be adhered to by all Contractor personnel. Requests to do shall be accompanied by the HAZARDS OF ELECTROMAGNETIC RADIATION TO ORDNANCE (HERO) PROGRAM transmitter form, found in part 6 of this contract. No transmitting device shall be brought onto center without written consent of the Contracting Officer."

1.15 FACILITY OCCUPANCY CLOSURE

Streets, walks, and other facilities occupied and used by the Government shall not be closed or obstructed without written permission from the Contracting Officer.

1.16 SEVERE STORM PLAN

In the event of a severe storm warning, the Contractor must:

a. Secure outside equipment and materials and place materials that could be damaged in protected areas.

b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

c. Ensure that temporary erosion controls are adequate.

1.17 CONFINED SPACE ENTRY REQUIREMENTS.

Contractors entering and working in confined spaces while performing general industry work are required to follow the requirements of OSHA 29 CFR 1926 and comply with the requirements in Section 34 of EM 385-1-1, OSHA 29 CFR 1910, and OSHA 29 CFR 1910.146.

2 PART 2 PRODUCTS

2.1 CONFINED SPACE SIGNAGE

Provide permanent signs integral to or securely attached to access covers for new permit-required confined spaces. Signs wording:

"DANGER--PERMIT-REQUIRED CONFINED SPACE - DO NOT ENTER -"

in bold letters a minimum of one inch in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" shall be red and readable from 5 feet.

3 PART 3 EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

Comply with USACE EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA, Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise

hazardous areas or when performing noise hazardous tasks. Safety glasses must be carried/available on each person.

Mandatory PPE includes:

a. Hard Hat

b. Appropriate Safety Shoes

c. Reflective Vests

3.1.1 Hazardous Material Use

Each hazardous material must receive approval from the Contracting Office or their designated representative prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material.

3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocynates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further Contracting Officer approval. Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on base.

3.1.3 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos and other OSHA regulated chemicals (i.e. 29 CFR Part 1910.1000). If material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 15 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage, and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to

beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the Contracting Officer to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist. For electrical work positive cable/circuit identification must be made prior to submitting any outage request. Arrangements are to be coordinated with the Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Following the application of lockout/tag out devices to all hazardous energy sources, applicable AHA should outline equipment restart methods to ensure "zero energy" state has been accomplished.

3.3 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Ensure that each employee is familiar with and complies with these procedures and USACE EM 385-1-1, Section 12, Control of Hazardous Energy.

3.4 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

Establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures in accordance with ASSE/SAFE Z359.1.

3.4.1 Training

Institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, provide training for each employee who might be exposed to fall hazards. Provide training by a competent person for fall protection in accordance with USACE EM 385-1-1, Section 21.B.

3.4.2 Fall Protection Equipment and Systems

Enforce use of the fall protection equipment and systems designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1, Section 21. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, Paragraphs 21.N through 21.N.04. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M, USACE EM 385-1-1 and ASSE/SAFE A10.32.

3.4.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ASSE/SAFE Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 6 feet. The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

3.4.3 Fall Protection for Roofing Work

Implement fall protection controls based on the type of roof being constructed and work being performed. Evaluate the roof area to be accessed for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 6 feet of an edge, on low-slope roofs, protect personnel from falling by use of personal fall arrest systems, guardrails, or safety nets. A safety monitoring system is not adequate fall protection and is not authorized.

(2) For work greater than 6 feet from an edge, erect and install warning lines in accordance with 29 CFR 1926.500 and USACE EM 385-1-1.

b. Steep-Sloped Roofs: Work on steep-sloped roofs requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also includes residential or housing type construction.

3.4.4 Horizontal Lifelines

Design, install, certify and use under the supervision of a qualified person horizontal lifelines for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500).

3.4.5 Guardrails and Safety Nets

Design, install and use guardrails and safety nets in accordance with EM 385-1-1 and 29 CFR 1926 Subpart M.

3.4.6 Rescue and Evacuation Procedures

When personal fall arrest systems are used, ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a

medical facility. Include the Rescue and Evacuation Plan within the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.5 SCAFFOLDING

Provide employees with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access scaffold platforms greater than 20 feet maximum in height by use of a scaffold stair system. Do not use vertical ladders commonly provided by scaffold system manufacturers for accessing scaffold platforms greater than 20 feet maximum in height. The use of an adequate gate is required. Ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward. Give special care to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Place work platforms on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

3.6 EQUIPMENT

3.6.1 Material Handling Equipment

a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.

b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions. Additionally, when material handling equipment is used as a crane it must meet NAVFAC P-307 requirements in Sections 1.7.2, "Contractor Operated Cranes," and 12, "Investigation and Reporting of Crane and Rigging Gear Accidents."

c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

3.6.2 Weight Handling Equipment

a. Equip cranes and derricks as specified in EM 385-1-1, section 16.

b. Notify the Contracting Officer 15 days in advance of any cranes entering the activity so that necessary quality assurance spot checks can be coordinated.Contractor's operator shall remain with the crane during the spot check.

c. Comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Perform erection under the supervision of a designated person (as defined in ASME B30.5). Perform all testing in accordance with the manufacturer's recommended procedures.

d. Comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, and ASME B30.8 for floating cranes and floating derricks.

e. Under no circumstance shall a Contractor make a lift at or above 90 percent of the cranes rated capacity in any configuration.

f. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and follow the requirements of USACE EM 385-1-1 Section 11, NAVFAC P-307 Figure 10-3 and ASME B30.5 or ASME B30.22 as applicable.

g. Do not crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane.

h. Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.

i. All employees must keep clear of loads about to be lifted and of suspended loads.

j. Use cribbing when performing lifts on outriggers.

k. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

l. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

m. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Contracting Officer personnel.

n. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.

o. Certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

p. Take steps to ensure that wind speed does not contribute to loss of control of the load during lifting operations. Prior to conducting lifting operations set a maximum wind speed at which a crane can be safely operated based on the equipment being used, the load being lifted, experience of operators and riggers, and hazards on the work site. This maximum wind speed determination shall be included as part of the activity hazard analysis plan for that operation.

3.6.3 Equipment and Mechanized Equipment

a. Proof of qualifications for operator shall be kept on the project site for review.

b. Manufacture specifications or owner's manual for the equipment shall be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Incorporate such additional safety precautions or requirements into the AHAs.

3.6.4 USE OF EXPLOSIVES

Explosives shall not be used or brought to the Activity.

3.7 EXCAVATIONS

Soil classification must be performed by a competent person in accordance with 29 CFR 1926 and EM 385-1-1.

3.7.1 Utility Locations

All underground utilities in the work area must be positively identified by a third party, independent, private utility locating company in addition to any station locating service and coordinated with the station utility department.

3.7.2 Utility Location Verification

Physically verify underground utility locations, including utility depth, by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system.

3.7.3 Utilities Within and Under Concrete, Bituminous Asphalt, and Other Impervious Surfaces

Utilities located within and under concrete slabs or pier structures, bridges, parking areas, and the like, are extremely difficult to identify. Whenever contract work involves chipping, saw cutting, or core drilling through concrete, bituminous asphalt or other impervious surfaces, the existing utility location must be coordinated with station utility departments in addition to location and depth verification by a third party, independent, private locating company. The third party, independent, private locating company shall locate utility depth by use of Ground Penetrating Radar (GPR), X-ray, bore scope, or ultrasound prior to the start of demolition and construction. Outages to isolate utility systems must be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the contractor from meeting this requirement.

3.8 ELECTRICAL

3.8.1 Conduct of Electrical Work

As delineated in USACE EM 385-1-1 electrical work is to be conducted in a de-energized state unless there is no alternative method for accomplishing the work. In those cases an energized work permit shall be obtained from the contracting officer.

The energized work permit application shall be accompanied by the AHA and a summary of why the equipment/circuit needs to be worked energized.

NOTE: the energized work permits require written justification and approval from Headquarters. Cost savings are not sufficient justification, nor is approval likely. Make requests in witting to the Contracting Officer no less than 45 days prior to the proposed work.

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Attachment of temporary grounds shall be in accordance with ASTM F855 and IEEE 1048.

Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method.

When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves and electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA. Contractor shall ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.147.

3.9.1 Portable Extension Cords

Size portable extension cords in accordance with manufacturer ratings for the tool to be powered and protected from damage. Immediately removed from service all damaged extension cords. Portable extension cords shall meet the requirements of EM 385-1-1, NFPA 70E, and OSHA electrical standards.

3.9 WORK IN CONFINED SPACES

Comply with the requirements in Section 34 of USACE EM 385-1-1, OSHA 29 CFR 1910, OSHA 29 CFR 1910.146, OSHA Directive CPL 2.100 and OSHA 29 CFR 1926. Any potential for a hazard in the confined space requires a permit system to be used.

a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 34 of USACE EM

385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.

b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.

c. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

-- End of Section --

SECTION 01 45 00.10

NAVFAC QUALITY CONTROL FOR MINOR CONSTRUCTION
02/10

PART 1 GENERAL

1.1 REFERENCES

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

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2008) Safety and Health Requirements Manual

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A880	(1995) Criteria for Use in Evaluation of Testing Laboratories and Organization for Examination and Inspection of Steel, Stainless Steel, and Related Alloys
ASTM C1077	(1998) Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM D3666	(2000) Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D3740	(1999; Rev C.) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E329	(2000; Rev. A) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
ASTM E543	(1999) Agencies Performing Nondestructive Testing

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE EM 385-1-1	(1996) Safety and Health Requirements Manual
INDOT	(2012)

1.2 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-01 Preconstruction Submittals

Quality Control (QC) plan; G

Submit a QC plan within 20 calendar days after receipt of Notice of Award.

1.3 INFORMATION FOR THE CONTRACTING OFFICER

Prior to commencing work on construction, the Contractor can obtain a single copy set of the current report forms from the Contracting Officer, or by calling the local EFD/EFA QA Coordinator for an electronic version of the report forms. The report forms will consist of the Contractor Production Report, Contractor Production Report (Continuation Sheet), Contractor Quality Control Report, Contractor Quality Control Report (Continuation Sheet), Preparatory Phase Checklist, Initial Phase Checklist, Rework Items List, and Testing Plan and Log. Other reports referenced below may be in formats customarily used by the Contractor, Testing Laboratories, etc. and will contain the information required by this specification.

Deliver the following to the Contracting Officer:

a. Contractor Quality Control Report; original and 1 copy, by 10:00 AM the next working day after each day that work is performed.

b. Contractor Production Report: Original and 1 copy, by 10:00 AM the next working day after each day that work is performed, attached to the Contractor Quality Control Report.

c. Preparatory Phase Checklist: Original attached to the original Contractor Quality Control Report and 1 copy attached to each copy.

d. Initial Phase Checklist: Original attached to the original Contractor Quality Control Report and 1 copy attached to each copy.

e. QC specialist Reports: Originals and 1 copy, by 10:00 AM the next working day after each day that work is performed, attached to the Contractor Quality Control Report.

f. Field Test Reports: 2 copies, within 2 working days after the test is performed, attached to the Contractor Quality Control Report.

g. Monthly Summary Report of Tests: 2 copies attached to the Contractor Quality Control Report.

h. Testing Plan and Log, 2 copies, at the end of each month.

i. Rework Items List: 2 copies, by the last working day of the month.

j. QC Meeting Minutes: 2 copies, within 2 working days after the meeting.

k. QC Certifications: As required by the paragraph entitled "QC Certifications."

1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. The QC program consists of a QC Organization, a QC Plan, a QC Plan Meeting, a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, completion inspections, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this Contract. The QC program shall cover on-site and off-site work and shall be keyed to the work sequence. No work or testing may be performed unless the QC Manager is on the work site. The QC Manager shall report to an officer of the firm and shall not be subordinate to the Project Superintendent or the Project Manager. The QC Manager, Project Superintendent and Project Manager must work together effectively. Although the Quality Control Manager is the primary individual responsible for quality control, all three individuals will be held responsible for the quality of work on the job. The project superintendent will be held responsible for the quality of production.

1.4.1 Preliminary Work Authorized Prior to Approval

The only work that is authorized to proceed prior to the approval of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying.

1.4.2 Approval

Approval of the QC Plan is required prior to the start of construction. The Contracting Officer reserves the right to require changes in the QC Plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The Contracting Officer reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications. All QC organization personnel shall be subject to acceptance by the Contracting Officer. The Contracting Officer may require the removal of any individual for non-compliance with quality requirements specified in the contract.

1.4.3 Notification of Changes

Notify the Contracting Officer, in writing, of any proposed change, including changes in the QC organization personnel, a minimum of seven calendar days prior to a proposed change. Proposed changes shall be subject to acceptance by the Contracting Officer.

1.5 QC ORGANIZATION

1.5.1 QC Manager

1.5.1.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. In addition to implementing and managing the QC program, the QC Manager may perform the duties of project superintendent. The QC Manager is required to attend the QC Plan Meeting, attend the Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by Testing Laboratory personnel and any other inspection and testing personnel required by this Contract.

1.5.1.2 Qualifications

An individual with a minimum of 5 years experience as a superintendent, inspector, QC Manager, project manager, project engineer or construction manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual must be familiar with the requirements of COE EM 385-1-1, and have experience in the areas of hazard identification and safety compliance.

1.5.2 Alternate QC Manager Duties and Qualifications

Designate an alternate for the QC Manager at the work site to serve in the event of the designated QC Manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QC Manager shall be the same as for the QC manager.

1.6 QUALITY CONTROL (QC) PLAN

1.6.1 Requirements

Provide, for approval by the Contracting Officer, a QC plan submitted in a 3-ring binder with pages numbered sequentially that covers both on-site and off-site work and includes the following:

a. A table of contents listing the major sections identified with tabs in the following order:

I. QC ORGANIZATION
II. NAMES AND QUALIFICATIONS
III. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL
IV. OUTSIDE ORGANIZATIONS
V. APPOINTMENT LETTERS
VI. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER
VII. TESTING LABORATORY INFORMATION
VIII. TESTING PLAN AND LOG
IX. PROCEDURES TO COMPLETE REWORK ITEMS
X. DOCUMENTATION PROCEDURES
XI. LIST OF DEFINABLE FEATURES
XII. PROCEDURES FOR PERFORMING THE THREE PHASES OF CONTROL

b. A chart showing the QC organizational structure.

c. Names and qualifications, in resume format, for each person in the QC organization.

d. Duties, responsibilities and authorities of each person in the QC organization.

e. A listing of outside organizations such as, architectural and consulting engineering firms that will be employed by the Contractor and a description of the services these firms will provide.

f. Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager and stating that they are responsible for implementing and managing the QC program as described in this contract. Include in this letter the responsibility of the QC Manager and Alternate QC Manager to implement and manage the three phases of quality control, and their authority to stop work which is not in compliance with the contract. The QC Manager shall issue letters of direction to all other QC specialists outlining their duties, authorities, and responsibilities. Copies of the letters shall be included in the QC plan.

g. Procedures for reviewing, approving and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in section entitled "Submittal Procedures."

h. Testing laboratory information required by the paragraphs entitled "Accreditation Requirements" or "Construction Materials Testing Laboratory Requirements", as applicable.

i. A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.

j. Procedures to identify, record, track and complete rework items.

k. Documentation procedures, including proposed report formats.

l. List of definable features of work. A definable feature of work (DFOW) is a task which is separate and distinct from other tasks, has the same control requirements and work crews. The list shall be cross-referenced to the contractor's Construction Schedule and the specification sections. For projects requiring a Progress Chart, the list of definable features of work shall include but not be limited to all items of work on the schedule.

1.7 QC PLAN MEETING

Prior to submission of the QC plan, meet with the Contracting Officer to discuss the QC plan requirements of this Contract. The purpose of this meeting is to develop a mutual understanding of the QC plan requirements prior to plan development and submission.

1.8 COORDINATION AND MUTUAL UNDERSTANDING MEETING

After submission of the QC Plan, and prior to the start of construction, meet with the Contracting Officer to present the QC program required by this Contract. The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, and the coordination of the Contractor's management, production and QC personnel. At the meeting, the Contractor will be required to explain in detail how three phases of control will be implemented for each definable feature of work. As a minimum, the Contractor's personnel required to attend shall include an officer of the firm, the project manager, project superintendent, QC Manager, Alternate QC Manager and subcontractor representatives. Each subcontractor who will be assigned QC responsibilities shall have a principal of the firm at the meeting. Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor, and the Contracting Officer. The Contractor shall provide a copy of the signed minutes to all attendees. Repeat the coordination and mutual understanding meeting when a new QC Manager is appointed.

1.9 QC MEETINGS

After the start of construction, the QC Manager shall conduct QC meetings once every two weeks at the work site with the project superintendent. The QC Manager shall prepare the minutes of the meeting and provide a copy to the Contracting Officer within 2 working days after the meeting. The Contracting Officer may attend these meetings. The QC Manager shall notify the Contracting Officer at least 48 hours in advance of each meeting. As a minimum, the following shall be accomplished at each meeting:

a. Review the minutes of the previous meeting;

b. Review the schedule and the status of work:

(1) Work or testing accomplished since last meeting

(2) Rework items identified since last meeting

(3) Rework items completed since last meeting;

c. Review the status of submittals:

(1) Submittals reviewed and approved since last meeting

(2) Submittals required in the near future;

d. Review the work to be accomplished in the next 2 weeks and documentation required:

(1) Establish completion dates for rework items

(2) Update the schedule showing planned and actual dates of the preparatory, initial and follow-up phases, including testing and any other inspection required by this contract

(3) Discuss construction methods and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each definable feature of work

(4) Discuss status of off-site work or testing

(5) Documentation required;

(6) Discuss upcoming Activity Hazard Analyses:

e. Resolve QC and production problems:

(1) Assist in resolving Request for Information issues; and

f. Address items that may require revising the QC plan:

(1) Changes in QC organization personnel

(2) Changes in procedures.

g. Review health and safety plan

1.10 THREE PHASES OF CONTROL

The Three Phases of Control shall adequately cover both on-site and off-site work and shall include the following for each definable feature of work.

1.10.1 Preparatory Phase

Notify the Contracting Officer at least 2 work days in advance of each preparatory phase. This phase shall include a meeting conducted by the QC Manager and attended by the superintendent, and the foreman responsible for the definable feature. Document the results of the preparatory phase actions in the daily Contractor Quality Control Report and in the Preparatory Phase Checklist. Perform the following prior to beginning work on each definable feature of work:

a. Review each paragraph of the applicable specification sections;

b. Review the Contract drawings;

c. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required;

d. Review the testing plan and ensure that provisions have been made to provide the required QC testing;

e. Examine the work area to ensure that the required preliminary work has been completed;

f. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data;

g. Discuss construction methods, construction tolerances, workmanship standards, and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each definable feature of work; and

h. Review the safety plan and appropriate activity hazard analysis to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted.

1.10.2 Initial Phase

Notify the Contracting Officer at least 2 work days in advance of each initial phase. When construction crews are ready to start work on a definable feature of work, conduct the initial phase with the QC Specialists, the superintendent, and the foreman responsible for that definable feature of work. Observe the initial segment of the definable feature of work to ensure that the work complies with Contract requirements. Document the results of the initial phase in the daily Contractor Quality Control Report and in the Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site, or when acceptable levels of specified quality are not being met. Perform the following for each definable feature of work:

a. Establish the quality of workmanship required;

b. Resolve conflicts;

c. Ensure that testing is performed by the approved laboratory, and

d. Check work procedures for compliance with the Safety Plan and the appropriate activity hazard analysis to ensure that applicable safety requirements are met.

1.10.3 Follow-Up Phase

Perform the following for on-going work daily, or more frequently as necessary until the completion of each definable feature of work and document in the daily Contractor Quality Control Report:

a. Ensure the work is in compliance with Contract requirements;

b. Maintain the quality of workmanship required;

c. Ensure that testing is performed by the approved laboratory;

d. Ensure that rework items are being corrected; and

e. Perform safety inspections.

1.10.4 Additional Preparatory and Initial Phases

Additional Preparatory and Initial Phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a definable feature is resumed after substantial period of inactivity, or if other problems develop.

1.10.5 Notification of Three Phases of Control for Off-Site Work

Notify the Contracting Officer at least two weeks prior to the start of the preparatory and initial phases.

1.11 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review and approval of submittals are described in section entitled "Submittal Procedures."

1.12 TESTING

Except as stated otherwise in the specification sections, perform sampling and testing required under this Contract.

1.12.1 Accreditation Requirements

Construction materials testing laboratories performing work for Navy construction contracts will be required to submit the following:

a. A copy of the Certificate of Accreditation and Scope of Accreditation by an acceptable laboratory accreditation authority.

Construction materials testing laboratories performing work for Navy construction contracts must be accredited by one of the laboratory accreditation authorities. The laboratory's scope of accreditation must include the ASTM standards listed in the paragraph titled "Construction Materials Testing Laboratory Requirements" as appropriate

to the testing field. The policy applies to the specific laboratory performing the actual testing, not just the "Corporate Office".

1.12.2 Construction Materials Testing Laboratory Requirements

Provide an INDOT approved and accredited test lab to perform sampling and tests required by this Contract. Testing laboratories that have obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" submit to the Contracting Officer, a copy of the Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test methods required by the Contract. For testing laboratories that have not yet obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" submit an acknowledgment letter from one of the laboratory accreditation authorities indicating that the application for accreditation has been received and the accreditation process has started, and submit to the Contracting Officer for approval, certified statements, signed by an official of the testing laboratory attesting that the proposed laboratory, meets or conforms to the ASTM standards listed below as appropriate to the testing field.

a. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E329.

b. Laboratories engaged in testing of concrete and concrete aggregates shall meet the requirements of ASTM C1077.

c. Laboratories engaged in testing of bituminous paving materials shall meet the requirements of ASTM D3666.

d. Laboratories engaged in testing of soil and rock, as used in engineering design and construction, shall meet the requirements of ASTM D3740.

e. Laboratories engaged in inspection and testing of steel, stainless steel, and related alloys will be evaluated according to ASTM A880.

f. Laboratories engaged in nondestructive testing (NDT) shall meet the requirements of ASTM E543.

g. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA.

1.12.3 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities are the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology, the American Association of State Highway and Transportation Officials (AASHTO) program, ICBO Evaluation Service, Inc. (ICBO ES), and the American Association for Laboratory Accreditation (A2LA) program and the Washington Association of Building Officials (WABO) (Approval authority for WABO is limited to projects within Washington State), and the Washington Area Council of Engineering Laboratories (WACEL) (Approval authority by WACEL is limited to projects within the Chesapeake Division and Public Works Center Washington geographical area).

Furnish to the Contracting Officer, a copy of the Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test methods required by the Contract.

1.12.4 Capability Check

The Contracting Officer retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract.

1.12.5 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify Contracting Officer immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. A testing laboratory representative authorized to sign certified test reports shall sign test results. Furnish the signed reports, certifications, and other documentation to the Contracting Officer via the QC Manager. Furnish a summary report of field tests at the end of each month. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month.

1.12.6 Test Reports and Monthly Summary Report of Tests

The QC Manager shall furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the Contracting Officer. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month.

1.13 QC CERTIFICATIONS

1.13.1 Contractor Quality Control Report Certification

Each Contractor Quality Control Report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge, except as noted in this report."

1.13.2 Invoice Certification

Furnish a certificate to the Contracting Officer with each payment request, signed by the QC Manager, attesting that as-built drawings are current and attesting that the work for which payment is requested, including stored material, is in compliance with contract requirements.

1.13.3 Completion Certification

Upon completion of work under this Contract, the QC Manager shall furnish a certificate to the Contracting Officer attesting that "the work has been completed, inspected, tested and is in compliance with the Contract."

1.14 COMPLETION INSPECTIONS

1.14.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings and specifications. Include in the punch list any remaining items on the "Rework Items List" which were not corrected prior to the Punch-Out Inspection. The punch list shall include the estimated date by which the deficiencies will be corrected. A copy of the punch list shall be provided to the Contracting Officer. The QC Manager or staff shall make follow-on inspections to ascertain that all deficiencies have been corrected. Once this is accomplished the Contractor shall notify the Government that the facility is ready for the Government "Pre-Final Inspection."

1.14.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Pre-Final Punch List" may be developed as a result of this inspection. The QC Manager shall ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the customer can be scheduled. Any items noted on the "Pre-Final" inspection shall be corrected in timely manner

and shall be accomplished before the contract completion date for the work or any particular increment thereof if the project is divided into increments by separate completion dates.

1.14.3 Final Acceptance Inspection

The QC Manager, the QC specialists, the superintendent or other primary contractor management personnel, and the Contracting Officer's representative will be in attendance at this inspection. Additional Government personnel may be in attendance. The Contracting Officer based upon results of the “Pre-Final” inspection will formally schedule the final acceptance inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final inspection stating that all specific items previously identified to the Contractor, as being unacceptable, along with all the remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the Contract Clause entitled "Inspection of Construction." When the Contracting Officer takes possession of partially completed work, it will be in accordance with Contract Clause "Use and Possession Prior to Completion".

1.15 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

1.15.1 Contractor Production Report

Reports are required for each day that work is performed and shall be attached to the Contractor Quality Control Report prepared for the same day. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Production Reports are to be prepared, signed and dated by the project superintendent and shall contain the following information:

a. Date of report, report number, name of contractor, Contract number, title and location of Contract and superintendent present.

b. Weather conditions in the morning and in the afternoon including maximum and minimum temperatures.

c. Identify work performed by corresponding Schedule Activity No., PC#, Modification No., etc.

d. A list of Contractor and subcontractor personnel on the work site, their trades, employer, work location, description of work performed, hours worked by trade, daily total work hours on work site this date (include hours on continuation sheets), and total work hours from start of construction.

e. A list of job safety actions taken and safety inspections conducted. Indicate that safety requirements have been met including the results on the following:

(1) Was a job safety meeting held this date? (If YES, attach a copy of the meeting minutes.)

(2) Were there any lost time accidents this date? (If YES, attach a copy of the completed OSHA report.)

(3) Was crane/manlift/trenching/scaffold/hv electrical/high work/hazmat work done? (If YES, attach a statement or checklist showing inspection performed.)

(4) Was hazardous material/waste released into the environment? (If YES, attach a description of incident and proposed action.)

f. Identify Schedule Activity No. related to safety action and list safety actions taken today and safety inspections conducted.

g. Identify Schedule Activity No., Submittal # and list equipment/material received each day that is incorporated into the job.

h. Identify Schedule Activity No., Owner and list construction and plant equipment on the work site including the number of hours used.

i. Include a "remarks" section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site. For each remark given, identify the Schedule Activity No. that is associated with the remark.

1.15.1.1 Contractor Production Report (Continuation Sheet)

Additional space required to contain daily information on the Contractor Production Report will be placed on its Continuation Sheet(s). An unlimited number of Continuation Sheets may be added as necessary and attached to the Production Report.

1.15.2 Contractor Quality Control Report

Reports are required for each day that work is performed and for every seven consecutive calendar days of no-work and on the last day of a no-work period. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Quality Control Reports are to be prepared, signed and dated by the QC Manager and shall contain the following information:

a. Date of report, report number, Contract Number, and Contract Title.

b. Indicate if Preparatory Phase work was performed today (Yes/No checkboxes).

c. If Preparatory Phase work was performed today (including on-site and off-site work), identify its Schedule Activity No. and Definable Feature of Work. The Index # is a cross reference to the Preparatory Phase Checklist. An example of the Index # is: 0025-P01, where "0025" is the Contractor Quality Control Report Number, "P" indicates Preparatory Phase, and "01" is the Preparatory Phase Checklist number(s) for this date. Each entry in this section must be accompanied with a corresponding Preparatory Phase Checklist.

d. Indicate if Initial Phase work was performed today (Yes/No checkboxes).

e. If Initial Phase work was performed today (including on-site and off-site work), identify its Schedule Activity No. and Definable Feature of Work. The Index # is a cross reference to the Initial Phase Checklist. An example of the Index # is: 0025-I01, where "0025" is the Contractor Quality Control Report Number, "I" indicates Initial Phase, and "01" is the Initial Phase Checklist number(s) for this date. Each entry in this section must be accompanied with a corresponding Initial Phase Checklist.

f. Results of the Follow-up Phase inspections held today (including on-site and off-site work), including Schedule Activity No., the location of the definable feature of work, Specification Sections, etc. Indicate in the report for this definable feature of work that the work complies with the Contract as approved in the Initial Phase, work complies with safety requirements, and that required testing has been performed and include a list of who performed the tests.

g. List the rework items identified, but not corrected by close of business; along with its associated Schedule Activity Number.

h. List the rework items corrected from the rework items list along with the corrective action taken and its associated Schedule Activity Number.

i. Include a "remarks" section in this report which will contain pertinent information including directions received, quality control problem areas, deviations from the QC plan, construction deficiencies encountered, QC meetings held, acknowledgement that as-built drawings have been updated, corrective direction given by the QC Organization and corrective action taken by the Contractor. For each remark given, identify the Schedule Activity No. that is associated with the remark.

j. Contractor Quality Control Report certification, signature and date.

k. Reference: **Attachment "C".**

1.15.2.1 Contractor Quality Control Report (Continuation Sheet)

Additional space required to contain daily information on the Contractor Quality Control Report will be placed on its Continuation Sheet(s). An unlimited number of Continuation Sheets may be added as necessary and attached to the Contractor Quality Control Report.

1.15.3 Preparatory Phase Checklist

Each Definable Feature of Work that is in the Preparatory Phase shall have this checklist filled out for it. The checklist shall be identified by terminology consistent with the construction schedule. Attach this checklist to the Contractor Quality Control Report of the same date.

a. Specification Section, date of report, and Contract number shall be filled out. Duplicate this information in the header of the second page of the report.

b. Definable Feature of Work, Schedule Activity No. and Index # entry and format will match entry in the Preparatory Phase section of the Contractor Quality Control Report. Duplicate this information in the header of the second page of the report.

c. Personnel Present: Indicate the number of hours of advance notice that was given to the Government Representative and indicate (Yes/No checkboxes) whether or not the Government Rep was notified. Indicate the Names of Preparatory Phase Meeting attendees, their position and company/government they are with.

d. Submittals: Indicate if submittals have been approved (Yes/No checkboxes), if no indicate what has not been submitted. Are materials on hand (Yes/No checkboxes) and if not, what items are missing. Check delivered material/equipment against approved submittals and comment as required.

e. Material Storage: Indicate if materials/equipment is stored properly (Yes/No checkboxes) and if not, what action is/was taken.

f. Specifications: Review and comment on Specification Paragraphs that describe the material/equipment, procedure for accomplishing the work and clarify any differences.

g. Preliminary Work & Permits: Ensure preliminary work is in accordance with the contract documents and necessary permits are on file, if not, describe the action taken.

h. Testing: Identify who performs tests, the frequency, and where tests are to occur. Review the testing plan, report abnormalities, and if the test facilities have been approved.

i. Safety: Indicate if the activity hazard analysis has been approved (Yes/No checkboxes) and comment on the review of the applicable portions of the COE EM 385-1-1.

j. Meeting Comments: Note comments and remarks during the Preparatory Phase Meeting that was not addressed in previous sections of this checklist.

k. Other Items or Remarks: Note any other remarks or items that were a result of the Preparatory Phase.

l. QC Manager will sign and date the checklist.

1.15.4 Initial Phase Checklist

Each Definable Feature of Work that is in the Initial Phase shall have this checklist filled out for it. The checklist shall be identified by terminology consistent with the construction schedule. Attach this checklist to the Contractor Quality Control Report of the same date.

a. Specification Section, date of report, and Contract number shall be entered.

b. Definable Feature of Work, Schedule Activity No. and Index # entry and format will match entry in the Initial Phase section of the Contractor Quality Control Report.

c. Personnel Present: Indicate the number of hours of advance notice that was given to the Government Representative and indicate (Yes/No checkboxes) whether or not the Government Rep was notified. Indicate the Names of Initial Phase Meeting attendees, their position and company/government they are with.

d. Procedure Compliance: Comment on compliance with procedures identified at Preparatory Phase of Control and assurance that work is in accordance with plans, specifications and submittals.

e. Preliminary Work: Ensure preliminary work being placed is in compliance and if not, what action is/was taken.

f. Workmanship: Identify where initial work is located; if a sample panel is required (Yes/No checkboxes); is the initial work the sample (Yes/No checkboxes); and if Yes, describe the panel location and precautions taken to preserve the sample.

g. Resolution: Comment on any differences and the resolutions reached.

h. Check Safety: Comment on the safety review of the job conditions.

i. Other: Note any other remarks or items that were a result of the Initial Phase.

j. QC Manager will sign and date the checklist.

1.15.5 Testing Plan and Log

As tests are performed, the QC Manager shall record on the "Testing Plan and Log" the date the test was conducted, the date the test results were forwarded to the Contracting Officer, remarks and acknowledgement that an accredited or Contracting Officer approved testing laboratory was used. Attach a copy of the updated "Testing Plan and Log" to the last daily Contractor Quality Control Report of each month.

1.15.6 Rework Items List

The QC Manager shall maintain a list of work that does not comply with the Contract, identifying what items need to be reworked, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is

discovered. Attach a copy of the "Rework Items List" to the last daily Contractor Quality Control Report of each month. The Contractor shall be responsible for including on this list items needing rework including those identified by the Contracting Officer.

1.15.7 As-Built Drawings

The QC Manager is required to ensure the as-built drawings, required by Section 01770N "Closeout Procedures," are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation (e.g. PC No., Modification No., Request for Information No., etc.). The QC Manager or QC specialist assigned to an area of responsibility shall initial each deviation and each revision. Upon completion of work, the QC Manager shall furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the Contracting Officer.

1.15.8 Report Forms

The following forms are acceptable for providing the information required by the paragraph entitled "Documentation." While use of these specific formats is not required, any other format used shall contain the same information:

a. Combined Contractor Production Report and Quality Control Report w/ continuation sheet(s

b. Testing Plan and Log.

c. Rework Items List.

1.16 NOTIFICATION ON NON-COMPLIANCE

The Contracting Officer will notify the Contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to such stop orders the subject of claim for extension of time for excess costs or damages.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 57 23

TEMPORARY STORM WATER POLLUTION CONTROL
04/08

PART 1 GENERAL

1.1 REFERENCES

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

ASTM INTERNATIONAL (ASTM)

ASTM D 4439	(2004) Geosynthetics
ASTM D 4491	(1999a; R 2004e1) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(2004) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(2008) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(2004) Determining Apparent Opening Size of a Geotextile
ASTM D 4873	(2002) Identification, Storage, and Handling of Geosynthetic Rolls and Samples

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 832-R-92-005	(1992) Storm Water Management for Construction Activities Developing Pollution Preventions and Plans and Best Management Practices

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 122.26	Storm Water Discharges (Applicable to State NPDES Programs, see section 123.25)

1.2 SYSTEM DESCRIPTION

The work consists of implementing the storm water pollution prevention measures to prevent sediment from entering streams or water bodies as specified in this Section in conformance with the requirements of Section 01 57 20.00 10 ENVIRONMENTAL PROTECTION, and the requirements of the National Pollution Discharge Elimination System (NPDES) permit attached to that Section.

1.3 EROSION AND SEDIMENT CONTROLS

The controls and measures required of the Contractor are described below.

1.3.1 Stabilization Practices

The stabilization practices to be implemented include temporary seeding, mulching, geotextiles, and erosion control matts. On the daily CQC Report, record the dates when the major grading activities occur, (e.g., clearing and grubbing, excavation, embankment, and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs UNSUITABLE CONDITIONS and NO ACTIVITY FOR LESS THAN 21 DAYS, initiate stabilization practices as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have temporarily or permanently ceased.

1.3.1.1 Unsuitable Conditions

Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases or is precluded by unsuitable conditions caused by the weather, initiate stabilization practices as soon as practicable after conditions become suitable.

1.3.1.2 No Activity for Less Than 21 Days

When the total time period in which construction activity is temporarily ceased on a portion of the site is 21 days minimum, stabilization practices do not have to be initiated on that portion of the site until 14 days have elapsed after construction activity temporarily ceased.

1.3.1.3 Burnoff

Burnoff of the ground cover is not permitted.

1.3.1.4 Protection of Erodible Soils

Immediately finish the earthwork brought to a final grade, as indicated or specified, and protect the side slopes and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils.

1.3.2 Erosion, Sediment and Stormwater Control

a. Storm Water Notice of Intent for Construction Activities

b. Submit a Storm Water Notice of Intent for NPDES coverage under the general permit for construction activities and a Storm Water Pollution Prevention Plan (SWPPP) for the project to the Contracting Officer prior to the commencement of work. The SWPPP shall meet the requirements of the State of Indiana general permit for storm water discharges from construction sites. Submit the SWPPP along with any required Notice of Intents, Notice of Termination, and appropriate permit fees, via the Contracting Officer, to the appropriate State agency for approval, a minimum of 14 calendar days prior to the start of any land disturbing activities. Maintain an approved copy of the SWPPP at the construction on-site office, and continually update as regulations require, to reflect current site conditions. Include within the SWPPP:

(1) Identify potential sources of pollution which may be reasonably expected to affect the quality of storm water discharge from the site.

(2) Describe and ensure implementation of practices which will be used to reduce the pollutants in storm water discharge from the site.

(3) Ensure compliance with terms of the State of Indiana general permit for storm water discharge.

(4) Select applicable best management practices from EPA 832-R-92-005.

(5) Include a completed copy of the Registration Statement, BMP Inspection Report Template and Notice of Termination except for the effective date.

(6) Storm Water Pollution Prevention Measures and Notice of Intent 40 CFR 122.26, EPA 832-R-92-005. Provide a "Storm Water Pollution Prevention Plan" (SWPPP) for the project. The SWPPP will meet the requirements of the State of Indiana general permit for storm water discharges from construction sites. Submit the SWPPP along with any required Notice of Intents, Notice of Termination, and appropriate permit fees, via the Contracting Officer, to the appropriate State agency for approval, a minimum of 14 calendar days prior to the start of construction. A copy of the approved SWPPP will be kept at the construction on-site office, and continually updated as regulations require to reflect current site conditions.

1.3.3 Stormwater Drainage

There will be no discharge of excavation ground water to the sanitary sewer, storm drains, or to the river without prior specific authorization of Navfac in writing. Discharge of hazardous substances will not be permitted under any circumstances. Construction site runoff will be prevented from entering any storm drain or the river directly by the use of straw bales or other method suitable to the State of Indiana. Provide erosion protection of the surrounding soils.

1.3.4 Structural Practices

Implement structural practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Implement structural practices in a timely manner, during the construction process, to minimize erosion and sediment runoff. Location and details of installation and construction are shown on the drawings.

1.3.4.1 Silt Fences

Provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Properly install silt fences to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Install silt fences in the

locations indicated on the drawings. Obtain approval from the Contracting Officer prior to final removal of silt fence barriers.

1.3.4.2 Straw Bales

Provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. If bales are used, properly place the bales to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in a area between a ridge and drain, place the bales as work progresses, remove/replace/relocate the bales as needed for work to progress in the drainage area). Show on the drawings areas where straw bales are to be used. The Contracting Officer will approve the final removal of straw bale barriers. Provide rows of bales of straw as follows:

a. Along the downhill perimeter edge of all areas disturbed.

b. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.

c. Along the toe of all cut slopes and fill slopes of the construction areas.

d. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc. that traverse disturbed areas or carry runoff from disturbed areas. Space the rows as shown on the drawings.

e. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales. Space the rows as shown on the drawings.

f. At the entrance to culverts that receive runoff from disturbed areas.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Storm Water Pollution Prevention Plan
Storm Water Notice of Intent

Pollution prevention plan and Notice of intent for NPDES coverage under the general permit for construction activities

1.5 DELIVERY, STORAGE, AND HANDLING

Identify, store and handle filter fabric in accordance with ASTM D 4873.

PART 2 PRODUCTS

2.1 COMPONENTS FOR SILT FENCES

2.1.1 Filter Fabric

Provide geotextile that complies with the requirements of ASTM D 4439, and consists of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and contains stabilizers and/or inhibitors added to the base plastic to make the filaments resistent to deterioration due to ultraviolet and heat exposure. Provide synthetic filter fabric that contains ultraviolet ray inhibitors and stabilizers to assure a minimum of six months of expected usable construction life at a temperature range of -18 to plus 49 degrees C 0 to 120 degrees F. The filter fabric shall meet the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile	ASTM D 4632	445 N min.
Elongation (percent)		30 percent max.
Trapezoid Tear	ASTM D 4533	245 N min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile	ASTM D 4632	100 lbs. min.
Elongation (percent)		30 percent max.
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

2.1.2 Silt Fence Stakes and Posts

Use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 50 by 50 mm 2 by 2 inches when oak is used and 100 by 100 mm 4 by 4 inches when pine is used, and have a minimum length of 1.5 m 5 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum mass of 1.98 kg/linear meter weight of 1.33 pounds/linear foot and a minimum length of 1.5 m 5 feet.

2.1.3 Mill Certificate or Affidavit

Provide a mill certificate or affidavit attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above. Specify in the mill certificate or affidavit the actual

Minimum Average Roll Values and identify the fabric supplied by roll identification numbers. Submit a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the filter fabric.

2.2 COMPONENTS FOR STRAW BALES

The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as byhalia, bermuda, etc., furnished in air dry condition. Provide bales with a standard cross section of 350 by 450 mm 14 by 18 inches. Wire-bound or string-tie all bales. Use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, shall have a minimum dimensions of 50 by 50 mm 2 by 2 inches in cross section and have a minimum length of 1 m 3 feet. Steel posts (standard "U" or "T" section) utilized for securing straw bales, shall have a minimum mass of 1.98 kg/linear meter weight of 1.33 pounds/linear foot and a minimum length of 1 m 3 feet.

PART 3 EXECUTION

3.1 INSTALLATION OF SILT FENCES

Extend silt fences a minimum of 400 mm 16 inches above the ground surface without exceeding 860 mm 34 inches above the ground surface. Provide filter fabric from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, splice together filter fabric at a support post, with a minimum 150 mm 6 inch overlap, and securely sealed. Excavate trench approximately 100 mm 4 inches wide and 100 mm 4 inches deep on the upslope side of the location of the silt fence. The 100 by 100 mm 4 by 4 inch trench shall be backfilled and the soil compacted over the filter fabric. Remove silt fences upon approval by the Contracting Officer. Silt fences can be plowed into the ground.

3.2 INSTALLATION OF STRAW BALES

Place the straw bales in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. Install straw bales so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings. Entrench and backfill the barrier. Excavate a trench the width of a bale and the length of the proposed barrier to a minimum depth of 100 mm 4 inches. After the bales are staked and chinked (gaps filled by wedging with straw), backfill the excavated soil against the barrier. Conform the backfill soil with the ground level on the downhill side and build up to 100 mm 4 inches against the uphill side of the barrier. Scatter loose straw over the area immediately uphill from a straw bale barrier to increase barrier efficiency. Securely anchor each bale by at least two stakes driven through the bale. Drive the first stake or steel post in each bale toward the previously laid bale to force the bales together. Drive stakes or steel pickets a minimum 450 mm 18 inches deep into the ground to securely anchor the bales.

3.3 FIELD QUALITY CONTROL

Maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover,

and by repair of erosion and sediment control measures and other protective measures. Use the following procedures to maintain the protective measures.

3.3.1 Silt Fence Maintenance

Inspect the silt fences in accordance with paragraph, titled "Inspections," of this section. Any required repairs shall be made promptly. Pay close attention to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, replace the fabric promptly. Remove sediment deposits when deposits reach one-third of the height of the barrier. Remove a silt fence when it is no longer required. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade.

3.3.2 Straw Bale Maintenance

Inspect straw bale barriers in accordance with paragraph, titled "Inspections". Pay close attention to the repair of damaged bales, end runs and undercutting beneath bales. Accomplish necessary repairs to barriers or replacement of bales in a promptly manner. Remove sediment deposits when deposits reach one-half of the height of the barrier. At the each end of each row turn bales uphill when used to retain sediment. Remove a straw bale barrier when it is no longer required. The immediate area occupied by the bales and any sediment deposits shall be shaped to an acceptable grade. Seed the areas disturbed by this shaping in accordance with line item paragraph for seeding.

3.3.3 Diversion Dike Maintenance

Inspect diversion dikes in accordance with paragraph, titled "Inspections," of this section. Pay close attention to the repair of damaged diversion dikes and accomplish necessary repairs promptly. When diversion dikes are no longer required, shape to an acceptable grade. Seed the areas disturbed by this shaping in accordance with line item paragraph for seeding.

3.4 INSPECTIONS

3.4.1 General

Inspect disturbed areas of the construction site, areas that have not been finally stabilized used for storage of materials exposed to precipitation, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 13 mm 0.5 inches or more rainfall at the site. Conduct inspections at least once every month where sites have been finally stabilized.

3.4.2 Inspections Details

Inspect disturbed areas and areas used for material storage that are exposed to precipitation for evidence of, or the potential for, pollutants entering the drainage system. Observe erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan to ensure that they are operating correctly. Inspect discharge locations or points to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Inspect locations where vehicles

exit the site for evidence of offsite sediment tracking.

<END/>

SECTION 01 78 00

CLOSEOUT SUBMITTALS
08/11

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are or information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01331 DESIGN SUBMITTAL PROCEDURES:

SD-10 Operation and Maintenance Data

Equipment/Product Warranty List; G

Submit Data Package 1 in accordance with Section 01781 OPERATION AND MAINTENANCE DATA.

SD-11 Closeout Submittals

As-Built Drawings; G

Record Of Materials; G

Utility Record Drawings

Utility As-Built Drawings; G

Equipment/Product Warranty Tag; G

Certification of EPA Designated Items; G

1.2 UTILITY AS-BUILT DRAWINGS

In addition to as-built drawings provide for each exterior utility system a set of reproducible utility drawings, stamped and signed by a registered professional civil engineer or professional land surveyor, and two copies. Submit within ten working days after each system is in place, but no later than five working days before final inspection. Indicate exterior utilities from a point five feet from a building to the termination point or point of connection to existing system. Include the following:

a. Horizontal and vertical controls for new utilities and existing utilities exposed during construction. Reference to station's horizontal and vertical control system.

b. Sufficient dimensional control for all important features such as beginning and termination points, points of connection, inverts for sewer lines and drainage collection systems, top of pipe or conduit runs, manholes, cathodic protection appurtenances, valves, valve stem tops, backflow preventers, and other significant features.

c. Indicate type and size of all materials used in the construction of the system.

d. Indicate bearing and distance on tangent lines. On curves, indicate delta and radius of the curve, also provide X, Y, and Z coordinates at all BC and EC angle points. Indicate horizontal and vertical control for all intersecting and tangent points where utility alignment changes. Indicate X, Y, and Z coordinates at building line and point of connection for straight building laterals or services under 40 feet.

e. Tolerances: Horizontal and vertical control dimensions, plus or minus 0.10 foot. Angular control, plus or minus 0 degrees 01 minute.

1.4 CERTIFICATION OF EPA DESIGNATED ITEMS

Submit the Certification of EPA Designated Items as required by FAR 52.223-9, "Certification and Estimate of Percentage of Recovered Material Content for EPA Designated Items".

1.5 PROJECT RECORD DOCUMENTS

1.5.1 Not Used

1.5.2 Not Used

1.5.3 As-Built Record of Materials

Furnish a record of materials.

Where several manufacturers' brands, types, or classes of the item listed have been used in the project, designate specific areas where each item was used. Designations shall be keyed to the areas and spaces depicted on the contract drawing. Furnish the record of materials used in the following format:

MATERIALS DESIGNATION	SPECIFICATION	MANUFACTURER (MANUFACTURER'S USED DESIGNATION)	MATERIALS USED	WHERE
_____	_____	_____	_____	_____

1.6 EQUIPMENT/PRODUCT WARRANTIES

1.6.1 Equipment/Product Warranty List

Furnish to the Project Manager a bound and indexed notebook containing written warranties for equipment/products furnished under the contract, and prepare a complete listing of such equipment/products. The equipment/products list shall state the specification section applicable to the equipment/product, duration of the warranty therefor, start date of the warranty, ending date of the warranty, and the point of contact for fulfillment of the warranty. The warranty period shall begin on the same date as project acceptance and shall continue for the full product warranty period. Execute the full list and deliver to the Contracting Officer prior to final acceptance of the facility.

1.6.2 Equipment Warranty Tags and Guarantor's Local Representative

Furnish with each warranty the name, address, and telephone number of the guarantor's representative nearest to the location where the equipment and appliances are installed. The guarantor's representative, upon request of the station representative, shall honor the warranty during the warranty period, and shall provide the services prescribed by the terms of the warranty. At the time of installation, tag each item of warranted equipment with a durable, oil- and water-resistant tag approved by the Project Manager. Attach tag with copper wire and spray with a clear silicone waterproof coating. Leave the date of acceptance and QC's signature blank until project is accepted for beneficial occupancy. Tag shall show the following information:

EQUIPMENT/PRODUCT WARRANTY TAG

Type of Equipment/Product _____
Warranty Period _____ From _____ To _____
Contract No. _____
Inspector's Signature _____ Date Accepted _____

Construction Contractor:
Name: _____
Address: _____
Telephone: _____

Warranty Contact: _____
Name: _____
Address: _____
Telephone: _____

STATION PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE

1.7 NOT USED

1.8 CLEANUP

Leave premises "broom clean." Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Replace filters of operating equipment. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA
07/06

PART 1 GENERAL

1.1 REFERENCES

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

ASTM INTERNATIONAL (ASTM)

ASTM E 1971	(2005) Stewardship for the Cleaning of Commercial and Institutional Buildings

1.2 SUBMISSION OF OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 SUBMISSION OF OPERATION AND MAINTENANCE DATA

Submit Operation and Maintenance (O&M) Data specifically applicable to this contract and a complete and concise depiction of the provided equipment, product, or system. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 01330 SUBMITTAL PROCEDURES.

1.1.1 Package Quality

Documents must be fully legible. Poor quality copies and material with hole punches obliterating the text or drawings will not be accepted.

1.1.2 Package Content

Data package content shall be as shown in the paragraph titled "Schedule of Operation and Maintenance Data Packages." Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission.

1.1.3 Changes to Submittals

Manufacturer-originated changes or revisions to submitted data shall be furnished by the Contractor if a component of an item is so affected subsequent to acceptance of the O&M Data. Changes, additions, or revisions required by the Contracting Officer for final acceptance of submitted data, shall be submitted by the Contractor within 30 calendar days of the notification of this change requirement.

1.1.4 Quantity

Submit (five) sets of the supplier/manufacturers' O&M information specified herein for the components, assemblies, subassemblies, attachments, and accessories. The items for which O&M Data/Manuals are required are listed in the technical sections which specifies those particular items

1.1.5 Delivery

Submit O&M Data Manuals to the Contracting Officer for review and acceptance; submit data specified for a given item within 30 calendar days after the item is delivered to the contract site.

a. In the event the Contractor fails to deliver O&M Data/Manuals within the time limits set forth above, the Contracting Officer may withhold from progress payments 50 percent of the price of the item with which such O&M Data/Manuals are associated.

1.2 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

1.2.1 Operating Instructions

Include specific instructions, procedures, and illustrations for the following phases of operation:

1.2.1.1 Safety Precautions

List personnel hazards and equipment or product safety precautions for all operating conditions.

1.2.1.2 Operator Prestart

Include procedures required to set up and prepare each system for use.

1.2.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

1.2.1.4 Normal Operations

Provide narrative description of Normal Operating Procedures. Include Control Diagrams with data to explain operation and control of systems and specific equipment.

1.2.1.5 Emergency Operations

Include Emergency Procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of all utility systems including required valve positions, valve locations and zones or portions of systems controlled.

1.2.1.6 Operator Service Requirements

Include instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gage readings.

1.2.1.7 Environmental Conditions

Include a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.

1.2.2 Preventive Maintenance

Include the following information for preventive and scheduled maintenance to minimize corrective maintenance and repair.

1.2.2.1 Lubrication Data

Include preventative maintenance lubrication data, in addition to instructions for lubrication provided under paragraph titled "Operator Service Requirements":

a. A table showing recommended lubricants for specific temperature ranges and applications.

b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities.

c. A Lubrication Schedule showing service interval frequency.

1.2.2.2 Preventive Maintenance Plan and Schedule

Include manufacturer's schedule for routine preventive maintenance, inspections, tests and adjustments required to ensure proper and economical operation and to minimize corrective maintenance. Provide manufacturer's projection of preventive maintenance work-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

1.2.3 Corrective Maintenance (Repair)

Include manufacturer's recommended procedures and instructions for correcting problems and making repairs.

1.2.3.1 Troubleshooting Guides and Diagnostic Techniques

Include step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

1.2.3.2 Wiring Diagrams and Control Diagrams

Wiring diagrams and control diagrams shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.

1.2.3.3 Maintenance and Repair Procedures

Include instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

1.2.3.4 Removal and Replacement Instructions

Include step-by-step procedures and list required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Instructions shall include a combination of text and illustrations.

1.2.3.5 Spare Parts and Supply Lists

Include lists of spare parts and supplies required for maintenance and repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

1.2.4 Corrective Maintenance Work-Hours

Include manufacturer's projection of corrective maintenance work-hours including requirements by type of craft. Corrective maintenance that requires completion or participation of the equipment manufacturer shall be identified and tabulated separately.

1.2.5 Appendices

Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:

1.2.6 Parts Identification

Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master parts catalog.

1.2.6.1 Warranty Information

List and explain the various warranties and include the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Include warranty information for primary components such as the compressor of air conditioning system.

1.2.6.2 Personnel Training Requirements

Provide information available from the manufacturers that is needed for use in training designated personnel to properly operate and maintain the equipment and systems.

1.2.6.3 Testing Equipment and Special Tool Information

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.

1.2.6.4 Contractor Information

Provide a list that includes the name, address, and telephone number of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.3 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES

Furnish the O&M data packages specified in individual technical sections. The required information for each O&M data package is as follows:

1.3.1 Data Package 1

a. Safety precautions

b. Maintenance and repair procedures

c. Warranty information

d. Contractor information

e. Spare parts and supply list

1.3.2 Data Package 2

a. Safety precautions

b. Normal operations

c. Environmental conditions

d. Lubrication data

e. Preventive maintenance plan and schedule

f. Maintenance and repair procedures

g. Removal and replacement instructions

h. Spare parts and supply list

i. Parts identification

j. Warranty information

k. Contractor information

1.3.3 Data Package 3

a. Safety precautions

b. Normal operations

c. Emergency operations

d. Environmental conditions

e. Lubrication data

f. Preventive maintenance plan and schedule

g. Troubleshooting guides and diagnostic techniques

h. Wiring diagrams and control diagrams

i. Maintenance and repair procedures

j. Removal and replacement instructions

k. Spare parts and supply list

l. Parts identification

m. Warranty information

n. Testing equipment and special tool information

o. Contractor information

1.3.4 Data Package 4

a. Safety precautions

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Operator service requirements

g. Environmental conditions

h. Lubrication data

i. Preventive maintenance plan and schedule

j. Troubleshooting guides and diagnostic techniques

k. Wiring diagrams and control diagrams

l. Maintenance and repair procedures

m. Removal and replacement instructions

n. Spare parts and supply list

o. Corrective maintenance man-hours

p. Parts identification

q. Warranty information

r. Personnel training requirements

s. Testing equipment and special tool information

t. Contractor information

1.3.5 Data Package 5

a. Safety precautions

b. Operator prestart

c. Start-up, shutdown, and post-shutdown procedures

d. Normal operations

e. Environmental conditions

f. Preventive maintenance plan and schedule

g. Troubleshooting guides and diagnostic techniques

h. Wiring and control diagrams

i. Maintenance and repair procedures

j. Spare parts and supply list

k. Testing equipments and special tools

l. Warranty information

m. Contractor information

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 03 30 00

CAST-IN-PLACE CONCRETE
051/14

PART 1 GENERAL

1.1 REFERENCES

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

ACI INTERNATIONAL (ACI)

ACI/MCP-1	(2008) Manual of Concrete Practice Part 1: ACI 104-71R-97 to 223-98
ACI/MCP-2	(2008) Manual of Concrete Practice Part 2 - ACI 224R-01 to ACI 313R-97
ACI/MCP-3	(2008) Manual of Concrete Practice Part 3 - ACI 315-99 to ACI 343R-95
ACI/MCP-4	(2008) Manual of Concrete Practice Part 4 - ACI 345R-05 to 355.2R-04

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 182	(2005) Standard Specification for Burlap Cloth Made from Jute or Kenaf and Cotton Mats
AASHTO M 322M/M 322	(2007) Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement

AMERICAN HARDBOARD ASSOCIATION (AHA)

AHA A135.4	(2004) Basic Hardboard

AMERICAN WELDING SOCIETY (AWS)

AWS D1.4/D1.4M	(2005; Errata 2005) Structural Welding Code - Reinforcing Steel

ASTM INTERNATIONAL (ASTM)

ASTM A 123/A 123M	(2008) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 185/A 185M	(2007) Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete

ASTM A 496/A 496M	(2007) Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement
ASTM A 497/A 497M	(2007) Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete
ASTM A 53/A 53M	(2007) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A 615/A 615M	(2008b) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A 706/A 706M	(2008a) Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A 767/A 767M	(2005) Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement
ASTM A 775/A 775M	(2007b) Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A 780	(2001; R 2006) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A 82/A 82M	(2007) Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
ASTM A 934/A 934M	(2007) Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A 996/A 996M	(2006a) Standard Specification for Rail-Steel and Axle-Steel Deformed Bars or Concrete Reinforcement
ASTM C 1017/C 1017M	(2007) Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C 1107/C 1107M	(2008) Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
ASTM C 1116/C 1116M	(2008) Standard Specification for Fiber-Reinforced Concrete
ASTM C 1240	(2005) Standard Specification for Silica Fume Used in Cementitious Mixtures
ASTM C 1260	(2007) Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)

ASTM C 143/C 143M	(2008) Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C 150	(2007) Standard Specification for Portland Cement
ASTM C 156	(2005) Standard Test Method for Water Retention by Concrete Curing Materials
ASTM C 1567	(2008) Standard Test Method for Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
ASTM C 171	(2007) Standard Specification for Sheet Materials for Curing Concrete
ASTM C 172	(2008) Standard Practice for Sampling Freshly Mixed Concrete
ASTM C 173/C 173M	(2008) Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 192/C 192M	(2007) Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
ASTM C 231	(2008c) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 233	(2007) Standard Test Method for Air-Entraining Admixtures for Concrete
ASTM C 260	(2006) Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C 295	(2008) Petrographic Examination of Aggregates for Concrete
ASTM C 309	(2007) Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 31/C 31M	(2008a) Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C 311	(2007) Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland-Cement Concrete
ASTM C 33	(2007) Standard Specification for Concrete Aggregates
ASTM C 330	(2005) Standard Specification for Lightweight Aggregates for Structural Concrete

ASTM C 39/C 39M	(2005e1e2) Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C 42/C 42M	(2004) Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM C 494/C 494M	(2008a) Standard Specification for Chemical Admixtures for Concrete
ASTM C 567	(2005a) Determining Density of Structural Lightweight Concrete
ASTM C 595	(2008) Standard Specification for Blended Hydraulic Cements
ASTM C 618	(2008a) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C 881/C 881M	(2002) Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C 920	(2008) Standard Specification for Elastomeric Joint Sealants
ASTM C 932	(2006) Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering
ASTM C 94/C 94M	(2007) Standard Specification for Ready-Mixed Concrete
ASTM C 989	(2006) Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars
ASTM C 990	(2008) Standard Specification for Joints for Concrete Pipe, Manholes and Precast Box Sections Using Preformed Flexible Joint Sealants
ASTM D 1190	(1997) Standard Specification for Concrete Joint Sealer, Hot-Applied Elastic Type
ASTM D 1557	(2007) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)
ASTM D 1751	(2004; R 2008) Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)

ASTM D 1752	(2004a; R 2008) Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion
ASTM D 2103	(2008) Standard Specification for Polyethylene Film and Sheeting
ASTM D 2628	(1991; R 2005) Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements
ASTM D 4397	(2008) Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM D 5759	(1995; R 2005) Characterization of Coal Fly Ash and Clean Coal Combustion Fly Ash for Potential Uses
ASTM D 7116	(2005) Standard Specification for Joint Sealants, Hot Applied, Jet Fuel Resistant Types, for Portland Cement Concrete
ASTM E 1155	(1996; R 2008) Standard Test Method for Determining Floor Flatness and Floor Levelness Numbers
ASTM E 329	(2008) Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
ASTM E 648	(2008a) Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)

CRSI 10MSP	(2001; 27Ed) Manual of Standard Practice

FOREST STEWARDSHIP COUNCIL (FSC)

FSC STD 01 001	(2000) Principles and Criteria for Forest Stewardship

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST PS 1	(2007) Construction and Industrial Plywood

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE CRD-C 572	(1974) Specifications for Polyvinylchloride Waterstops

U.S. DEPARTMENT OF COMMERCE (DOC)

PS1	(1995) Construction and Industrial Plywood (APA V995)

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS LLL-B-810	(Rev B) Building Board, (Hardboard) Hard Pressed, Vegetable Fiber
FS MMM-A-001993	(1978) Adhesive, Epoxy, Flexible, Filled (For Binding, Sealing, and Grouting)
FS SS-S-1614	(Rev A; Am 1) Sealants, Joint,Jet-Fuel-Resistant, Hot-Applied, for Portland Cement and Tar Concrete Pavements
FS SS-S-200	(Rev E; Am 2) Sealant, Joint, Two-Component, Jet-Blast-Resistant, Cold-Applied, for Portland Cement Concrete Pavement
FS UU-B-790	(Rev A) Building Paper, Vegetable Fiber: (Kraft, Waterproofed, Water Repellent and Fire Resistant)

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED	(2002; R 2005) Leadership in Energy and Environmental Design(tm) Green Building Rating System for New Construction (LEED-NC)

1.2 DEFINITIONS

a. "Cementitious material" as used herein shall include all portland cement, pozzolan, fly ash, ground iron blast-furnace slag.

b. "Exposed to public view" means situated so that it can be seen from eye level from a public location after completion of the building. A public location is accessible to persons not responsible for operation or maintenance of the building.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Formwork

Reinforcing steel; G,

Reproductions of contract drawings are unacceptable.

SD-03 Product Data

Materials for curing concrete;G

Joint sealants; G

Joint filler; G

SD-05 Design Data

Concrete mix design; G

Thirty days minimum prior to concrete placement, submit a mix design for each strength and type of concrete. Submit a complete list of materials including type; brand; source and amount of cement, fly ash, pozzolans, ground slag and admixtures; and applicable reference specifications. Provide mix proportion data using at least three different water-cement ratios for each type of mixture, which will produce a range of strength encompassing those required for each class and type of concrete required. If source material changes, resubmit mix proportion data using revised source material. No material shall be provided unless proven by trial mix studies to meet the requirements of this specification, unless otherwise approved in writing by the Contracting Officer. The submittal shall clearly indicate where each mix design will be used when more than one mix design is submitted. Submit additional data regarding concrete aggregates if the source of aggregate changes. In addition, copies of the fly ash, and pozzolan test results shall be submitted.

SD-06 Test Reports

Concrete mix design; G

Compressive strength tests; G

1.4 MODIFICATION OF REFERENCES

Accomplish work in accordance with ACI publications except as modified herein. Consider the advisory or recommended provisions to be mandatory, as though the word "shall" had been substituted for the words "should" or "could" or "may," wherever they appear. Interpret reference to the "Building Official," the "Structural Engineer," and the "Architect/Engineer" to mean the Contracting Officer.

1.5 DELIVERY, STORAGE, AND HANDLING

Do not deliver concrete until vapor barrier, forms, reinforcement, embedded items, and chamfer strips are in place and ready for concrete placement. Refer to ACI 301 for job site storage of materials. Protect materials from contaminants such as grease, oil, and dirt. Ensure materials can be accurately identified after bundles are broken and tags removed.

1.5.1 Reinforcement

Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground. Protect from contaminants such as grease, oil, and dirt. Ensure bar sizes can be accurately identified after bundles are broken and tags removed.

1.6 QUALITY ASSURANCE

1.6.1 Design Data

1.6.2 Drawings

1.6.2.1 Reinforcing Steel

ACI SP-66. Indicate bending diagrams, assembly diagrams, splicing and laps of bars, shapes, dimensions, and details of bar reinforcing, accessories, and concrete cover. Do not scale dimensions from structural drawings to determine lengths of reinforcing bars.

1.6.3 Control Submittals

1.6.3.1 Curing Concrete Elements

Submit proposed materials and methods for curing concrete elements.

1.6.3.2 Pumping Concrete

Submit proposed materials and methods for pumping concrete. Submittal shall include mix designs, pumping equipment including type of pump and size and material for pipe, and maximum length and height concrete will be pumped.

1.6.3.3 Finishing Plan

The contractor shall submit proposed material and procedures to be used in obtaining the finish for the floors. Include qualification of person to be used for obtaining floor tolerance measurement, description measuring equipment to be used, and sketch showing lines and locations the measuring equipment will follow.

1.6.3.4 Material Safety Data Sheets

Submit Material Safety Data Sheets (MSDS) for all materials that are regulated for hazardous health effects. Prominently post the MSDS at the construction site.

1.6.4 Test Reports

1.6.4.1 Concrete Mix Design

Submit copies of laboratory test reports showing that the mix has been successfully tested to produce concrete with the properties specified and that mix will be suitable for the job conditions. The laboratory test reports shall include mill test and all other test for cement,
aggregates, and admixtures. Provide maximum nominal aggregate size, gradation analysis, percentage retained and passing sieve, and a graph of percentage retained verses sieve size. Test reports shall be submitted along with the concrete mix design. Obtain approval before concrete placement.

1.6.4.2 Fly Ash and Pozzolan

Submit test results in accordance with ASTM C 618 for fly ash and pozzolan. Submit test results performed within 6 months of submittal date.

1.6.4.3 Ground Iron Blast-Furnace Slag

Submit test results in accordance with ASTM C 989 for ground iron blast-furnace slag. Submit test results performed within 6 months of submittal date.

1.6.5 Field Samples

PART 2 PRODUCTS

2.1 MATERIALS FOR FORMS

Provide wood, plywood, or steel. Use plywood or steel forms where a smooth form finish is required. Lumber shall be square edged or tongue-and-groove boards, free of raised grain, knotholes, or other surface defects. Plywood: PS1, B-B concrete form panels or better or AHA A135.4, hardboard for smooth form lining. Steel form surfaces shall not contain irregularities, dents, or sags.

2.2 FORM TIES AND ACCESSORIES

The use of wire alone is prohibited. Form ties and accessories shall not reduce the effective cover of the reinforcement.

2.2.1 Polyvinylchloride Waterstops

COE CRD-C 572.

2.2.2 Dovetail Anchor Slot

Preformed metal slot approximately 1 by 1 inch of not less than 22 gage galvanized steel cast in concrete. Coordinate actual size and throat opening with dovetail anchors and provide with removable filler material.

2.3 CONCRETE

2.3.1 Contractor-Furnished Mix Design

Aggregate Nominal Maximum Size (inches)	Size No.	Air Content, Percent Moderate Exposure
3/8	8	8
1/2	7	7
3/4	67	7
1	57	5
1 1/2	467	5

Class	Usual Traffic	Typical Uses	Str. psi	Slump in.
1	Light foot	Residential or tile covered	3000	4
2	Foot	Offices, churches, schools, hospitals, residences	3500	4
3	Light foot & pneumatic wheels	Drives, garage floors, and sidewalks for residence	3500	4
4	Foot and pneumatic wheels	Light industrial, commercial	4000	3
5	Foot & wheels abrasive wear	Single-course industrial, integral topping	4500	3
6	Foot & steel-tire vehicles - severe abrasion]	Two-course heavy industrial topping	See ACI 301	

Compressive Strength	Without AE	With AE

3000 PSI (20 MPa)	0.58	0.50
3500 PSI (25 MPa)	0.54	0.48
4000 PSI (30 MPa)	0.50	0.45

AE= air-entrainment

Exposure Condition	Max. Water-Cement Ratio (Normal Weight Aggregate)
Concrete intended to be watertight:	
(a) Concrete exposed to fresh water	0.50
(b) Concrete exposed to brackish water or seawater	0.45
Concrete exposed to freezing and thawing in moist conditions:	
(a) Curbs, gutters, guardrails, or thin sections	0.45
(b) Other elements	0.50
(c) In presence of deicing chemicals	0.45
For corrosion protection for reinforced concrete exposed to deicing salts, brackish water, seawater, or spray from these sources:	
(a) Min. concrete cover per ACI 318	0.40
(b) ACI 318 cover exceeded by 0.50 in.	0.45

2.3.2 Mix Proportions for Normal Weight Concrete

Trial design batches, mixture proportioning studies, and testing requirements for various classes and types of concrete specified shall be the responsibility of the Contractor. Mixture proportions shall be based on compressive strength as determined by test specimens fabricated in accordance with ASTM C 192/C 192M and tested in accordance with ASTM C 39. Samples of all materials used in mixture proportioning studies shall be representative of those proposed for use in the project and shall be accompanied by the manufacturer's or producer's test report indicating compliance with these specifications. Trial mixtures having proportions, consistencies, and suitable for the work shall be made based on methodology described in ACI 211.1. The trial mixture shall use at least three different water-cement ratios for each type of mixture, which will produce a range of strength encompassing those required for each class and type of concrete required on the project. The maximum water-cement ratio required will be based on equivalent water-cement ratio calculations as determined by the conversion from the weight ratio of water to cement plus pozzolan and ground granulated blast-furnace slag by weight equivalency method. Laboratory trial mixture shall be designed for maximum permitted slump and air content. Each combination of material proposed for use shall have separate trial mixture, except for accelerator or retarder use can be provided without separate trial mixture. The temperature of concrete in each trial batch shall be reported. For each water-cement ratio, at least three test cylinders for each test age shall be made and cured in accordance with ASTM C 192/C 192M and tested in accordance with ASTM C 39 for 7 and 28 days. From these results, a curve shall be plotted showing the relationship between water-cement ratio and strength for each set of trial mix studies. In addition a curve shall be plotted showing the relationship between 7 and 28 day strengths.

2.3.3 Required Average Strength of Mix Design

The selected mixture shall produce an average compressive strength exceeding the specified strength by the amount indicated in ACI 301. When a concrete production facility has a record of at least 15 consecutive tests, the standard deviation shall be calculated and the required average compressive strength shall be determined in accordance with ACI 301. When a concrete production facility does not have a suitable record of tests to establish a standard deviation, the required average strength shall be as follows:

a. For f'c less than 3000 psi, 1000 psi plus f'c.

b. For f'c between 3000 and 5000 psi, 1200 psi plus f'c.

c. For f'c over 5000 psi, 1400 psi plus f'c.

2.4 MATERIALS

2.4.1 Cement

ASTM C 150 Portland	ASTM C 59/C 59M5 Blended	
Type I	Type IP or IS	For general use in construction.
Type II	Type IP(MS) or Type IS(MS)	For general use in construction where concrete is exposed to moderate sulfate action or where moderate heat of hydration is required. ASTM C 59/C 59M5 (blended hydraulic cements): add the suffix MS or MH where either moderate sulfate resistance or moderate heat of hydration, respectively, is required. Type IP is portland-pozzolan blended cement and Type IS is portland-blast furnace slag cement.
	Type IP(MH) or Type IS(MH)	For general use in construction where Concrete is exposed to moderate heat of hydration.
Type III	None	For use when high early strength is required.
Type V	None	For use when high sulfate resistance is required.

ASTM C 150, Type I or IIor ASTM C 59/C 59M5, Type IP(MS) or IS MS blended cement except as modified herein. The blended cement shall consist of a mixture of ASTM C 150, Type II, cement and one of the following materials: ASTM C 618 pozzolan or fly ash, ASTM C 989 ground iron blast-furnace slag. The pozzolan or fly ash content shall not exceed 25 percent by weight of the total cementitious material. The ground iron blast-furnace slag shall not exceed 50 percent by weight of total cementitious material. For exposed concrete, use one manufacturer for each type of cement, ground slag, fly ash, and pozzolan.

2.4.1.1 Fly Ash and Pozzolan

ASTM C 618, Type N, F, or C, except that the maximum allowable loss on ignition shall be 6 percent for Types N and F. Add with cement.

2.4.1.2 Ground Iron Blast-Furnace Slag

ASTM C 989, Grade 120.

2.4.2 Water

Water shall be fresh, clean, and potable; free from injurious amounts of oils, acids, alkalis, salts, organic materials, or other substances deleterious to concrete.

2.4.3 Aggregates

ASTM C 33, except as modified herein. Furnish aggregates for exposed concrete surfaces from one source. Aggregates shall not contain any substance which may be deleteriously reactive with the alkalies in the cement.

2.4.3.1 Aggregrates/Combined Aggregrate Gradation (Floor Slabs Only)

ASTM C 33, uniformly graded and as follows: Nominal maximum aggregrate size of 1 inch. A combined sieve analysis shall indicate a well graded aggregrate from coarsest to finest with not more than 18 percent and not less than 8 percent retained on an individual sieve, except that less than 8 percent may be retained on coarsest sieve and on No. 50 (0.3mm) sieve, and less than 8 percent may be retained on sieves finer than No. 50 (0.3mm). Sand shall be at least 50 percent natural sand.

2.4.4 Nonshrink Grout

ASTM C 1107.

2.4.5 Admixtures

ASTM C 494/C 494M: Type A, water reducing; Type B, retarding; Type C, accelerating; Type D, water-reducing and retarding; and Type E, water-reducing and accelerating admixture. Do not use calcium chloride admixtures.

2.4.6 Materials for Curing Concrete

2.4.6.1 Impervious Sheeting

ASTM C 171; waterproof paper, clear or white polyethylene sheeting, or polyethylene-coated burlap.

2.4.6.2 Pervious Sheeting

AASHTO M 182.

2.4.6.3 Liquid Membrane-Forming Compound

ASTM C 309, white-pigmented, Type 2, Class B.

2.4.7 Liquid Chemical Sealer-Hardener Compound

Compound shall be magnesium fluosilicate which when mixed with water seals and hardens the surface of the concrete. Do not use on exterior slabs exposed to freezing conditions. Compound shall not reduce the adhesion of resilient flooring, tile, paint, roofing, waterproofing, or other material applied to concrete.

2.4.8 Expansion/Contraction Joint Filler

ASTM D 1751, ASTM D 1752, or 100% recycled material meeting ASTM D 1752 Material shall be 1/2 inch thick, unless otherwise indicated.

2.4.9 Joint Sealants

2.4.9.1 Horizontal Surfaces, 3 Percent Slope, Maximum

ASTM D 1190 or ASTM C 920, Type M, Class 25,.

2.4.9.2 Vertical Surfaces Greater Than 3 Percent Slope

ASTM C 920, Type M, Grade NS, Class 25, Use T.

2.4.10 Epoxy Bonding Compound

ASTM C 881. Provide Type I for bonding hardened concrete to hardened concrete; Type II for bonding freshly mixed concrete to hardened concrete; and Type III as a binder in epoxy mortar or concrete, or for use in bonding skid-resistant materials to hardened concrete. Provide Grade 1 or 2 for horizontal surfaces and Grade 3 for vertical surfaces. Provide Class A if placement temperature is below 40 degrees F; Class B if placement temperature is between 40 and 60 degrees F; or Class C if placement temperature is above 60 degrees F.

2.5 REINFORCEMENT

2.5.1 Reinforcing Bars

ACI 301 unless otherwise specified. ASTM A 615/A 615M and ASTM A 617/A 617M with the bars marked A, S, W, Grade 60; or ASTM A 616/A 616M with the bars marked R, Grade 60.

2.5.2 Mechanical Reinforcing Bar Connectors

ACI 301. Provide 125 percent minimum yield strength of the reinforcement bar.

2.5.3 Welded Wire Fabric

ASTM A 185 or ASTM A 497. Provide flat sheets of welded wire fabric for slabs and toppings.

2.5.4 Wire

ASTM A 82 or ASTM A 496.

2.5.5 Reinforcing Bar Supports

Provide bar ties and supports of coated or non corrodible material.

PART 3 EXECUTION

3.1 FORMS

ACI 301. Provide forms, shoring, and scaffolding for concrete placement. Set forms mortar-tight and true to line and grade. Chamfer above grade exposed joints, edges, and external corners of concrete 0.75 inch unless otherwise indicated. Provide formwork with clean-out openings to permit inspection and removal of debris. Forms submerged in water shall be watertight.

3.1.1 Coating

Before concrete placement, coat the contact surfaces of forms with a nonstaining mineral oil, nonstaining form coating compound, or two coats of nitrocellulose lacquer. Do not use mineral oil on forms for surfaces to which adhesive, paint, or other finish material is to be applied.

3.1.2 Removal of Forms and Supports

After placing concrete, forms shall remain in place for the time periods specified in ACI 347R. Prevent concrete damage during form removal.

3.1.2.1 Special Requirements for Reduced Time Period

Forms may be removed earlier than specified if ASTM C 39 test results of field-cured samples from a representative portion of the structure indicate that the concrete has reached a minimum of 85 percent of the design strength.

3.1.3 Reshoring

Reshore concrete elements where forms are removed prior to the specified time period. Do not permit elements to deflect or accept loads during form stripping or reshoring. Forms on columns, walls, or other load-bearing members may be stripped after 2 days if loads are not applied to the members. After forms are removed, slabs and beams over 10 feet in span and cantilevers over 4 feet shall be reshored for the remainder of the specified time period in accordance with paragraph entitled "Removal of Forms." Perform reshoring operations to prevent subjecting concrete members to overloads, eccentric loading, or reverse bending. Reshoring elements shall have the same load-carrying capabilities as original shoring and shall be spaced similar to original shoring. Firmly secure and brace reshoring elements to provide solid bearing and support.

3.2 WATERSTOP SPLICES

Fusion weld in the field.

3.3 FORMED SURFACES

3.3.1 Tolerances

ACI 347R and as indicated.

3.3.2 As-Cast Form

Provide form facing material producing a smooth, hard, uniform texture on the concrete. Arrange facing material in an orderly and symmetrical manner and keep seams to a practical minimum. Support forms as necessary to meet required tolerances. Material with raised grain, torn surfaces, worn edges, patches, dents, or other defects which will impair the texture of the concrete surface shall not be used.

3.4 PLACING REINFORCEMENT AND MISCELLANEOUS MATERIALS

ACI 301. Provide bars, wire fabric, wire ties, supports, and other devices necessary to install and secure reinforcement. Reinforcement shall not have rust, scale, oil, grease, clay, or foreign substances that would reduce the bond. Rusting of reinforcement is a basis of rejection if the effective cross-sectional area or the nominal weight per unit length has been reduced. Remove loose rust prior to placing steel. Tack welding is prohibited.

3.4.1 Vapor Barrier

Provide beneath the on-grade concrete floor slab. Use the greatest widths and lengths practicable to eliminate joints wherever possible. Lap joints a minimum of 12 inches and tape or cement joints. Remove torn, punctured, or damaged vapor barrier material and provide with new vapor barrier prior to placing concrete. Concrete placement shall not damage vapor barrier material.

3.4.2 Reinforcement Supports

Place reinforcement and secure with galvanized or non corrodible chairs, spacers, or metal hangers. For supporting reinforcement on the ground, use concrete or other non corrodible material, having a compressive strength equal to or greater than the concrete being placed.

3.4.3 Epoxy Coated Reinforcing

Shall meet the requirements of ASTM A 934/A 934M including Appendix X2, ASTM A 775/A 775M including Appendix X1, "Guidelines for Job Site Practices" except as otherwise specified herein.

3.4.3.1 Epoxy Coated Reinforcing Steel Placement and Coating Repair

Carefully handle and install bars to minimize job site patching. Use the same precautions as described in paragraph for reinforcement delivery, handling, and storage when placing coated reinforcement. Do not drag bars over other bars or over abrasive surfaces. Keep bar free of dirt and grit. When possible, assemble reinforcement as tied cages prior to final placement into the forms. Support assembled cages on padded supports. It is not expected that coated bars, when in final position ready for concrete placement, will be completely free of damaged areas; however, excessive nicks and scrapes, which expose steel, will be cause for rejection. Criteria for defects, which require repair and for those that do not require repair are as indicated. Inspect for defects and provide required repairs prior to assembly. After assembly, reinspect and provide final repairs.

a. Immediately prior to application of the patching material, any rust and debonded coating shall be manually removed from the reinforcement by suitable techniques employing devices such as wire brushes and emery paper. Care shall be exercised during this surface preparation so that the damaged areas are not enlarged more than necessary to accomplish the repair. Damaged areas shall be clean of dirt, debris, oil, and similar materials prior to application of the patching material.

b. Repair and patching shall be done in accordance with the patching material manufacturer's recommendations. These recommendations, including cure times, shall be available at the job site at all times.

c. Allow adequate time for the patching materials to cure in accordance with the manufacturer's recommendation prior to concrete placement.

3.4.4 Splicing

As indicated. For splices not indicated ACI 301. Do not splice at points of maximum stress. Overlap welded wire fabric the spacing of the cross wires, plus 2 inches.

3.4.5 Future Bonding

Plug exposed, threaded, mechanical reinforcement bar connectors with a greased bolt. Bolt threads shall match the connector. Countersink the connector in the concrete. Calk the depression after the bolt is installed.

3.4.6 Cover

ACI 301 for minimum coverage, unless otherwise indicated.

3.4.7 Setting Miscellaneous Material

Place and secure anchors and bolts, pipe sleeves, conduits, and other such items in position before concrete placement. Plumb anchor bolts and check location and elevation. Temporarily fill voids in sleeves with readily removable material to prevent the entry of concrete.

3.4.8 Construction Joints

Locate joints to least impair strength. Continue reinforcement across joints unless otherwise indicated.

3.4.9 Expansion Joints and Contraction Joints

Provide expansion joint at edges of interior floor slabs on grade abutting vertical surfaces, and as indicated. Make expansion joints 1/2 inch wide unless indicated otherwise. Fill expansion joints not exposed to weather with preformed joint filler material. Completely fill joints exposed to weather with joint filler material and joint sealant. Do not extend reinforcement or other embedded metal items bonded to the concrete through any expansion joint unless an expansion sleeve is used. Provide contraction joints, either formed or saw cut or cut with a jointing tool, to the indicated depth after the surface has been finished. Sawed joints shall be completed within 4 to 12 hours after concrete placement. Protect joints from intrusion of foreign matter.

3.5 BATCHING, MEASURING, MIXING, AND TRANSPORTING CONCRETE

ASTM C 94/C 94M, ACI 301, ACI 302.1R, and ACI 304R, except as modified herein. Batching equipment shall be such that the concrete ingredients are consistently measured within the following tolerances: 1 percent for cement and water, 2 percent for aggregate, and 3 percent for admixtures. Furnish mandatory batch ticket information for each load of ready mix concrete.

3.5.1 Measuring

Make measurements at intervals as specified in paragraphs entitled "Sampling" and "Testing."

3.5.2 Mixing

ASTM C 94/C 94M and ACI 301. Machine mix concrete. Begin mixing within 30 minutes after the cement has been added to the aggregates. Place concrete within 90 minutes of either addition of mixing water to cement and aggregates or addition of cement to aggregates if the air temperature is less than 85 degrees F. Reduce mixing time and place concrete within 60 minutes if the air temperature is greater than 85 degrees F except as follows: if set retarding admixture is used and slump requirements can be met, limit for placing concrete may remain at 90 minutes. Additional water may be added, provided that both the specified maximum slump and water-cement ratio are not exceeded. When additional water is added, an additional 30 revolutions of the mixer at mixing speed is required. If the entrained air content falls below the specified limit, add a sufficient quantity of admixture to bring the entrained air content within the specified limits. Dissolve admixtures in the mixing water and mix in the drum to uniformly distribute the admixture throughout the batch.

3.5.3 Transporting

Transport concrete from the mixer to the forms as rapidly as practicable. Prevent segregation or loss of ingredients. Clean transporting equipment thoroughly before each batch. Do not use aluminum pipe or chutes. Remove concrete, which has segregated in transporting, and dispose of as directed.

3.6 PLACING CONCRETE

Place concrete as soon as practicable after the forms and the reinforcement have been inspected and approved. Do not place concrete when weather conditions prevent proper placement and consolidation; in uncovered areas during periods of precipitation; or in standing water. Prior to placing concrete, remove dirt, construction debris, water, snow, and ice from within the forms. Deposit concrete as close as practicable to the final position in the forms. Do not exceed a free vertical drop of 3 feet from the point of discharge. Place concrete in one continuous operation from one end of the structure towards the other. Position grade stakes on 10 foot centers maximum in each direction when pouring interior slabs and on 20 foot centers maximum for exterior slabs.

3.6.1 Vibration

ACI 301. Furnish a spare, working, vibrator on the job site whenever concrete is placed. Consolidate concrete slabs greater than 4 inches in depth with high frequency mechanical vibrating equipment supplemented by hand spading and tamping. Consolidate concrete slabs 4 inches or less in depth by wood tampers, spading, and settling

with a heavy leveling straightedge. Operate internal vibrators with vibratory element submerged in the concrete, with a minimum frequency of not less than 6000 impulses per minute when submerged. Do not use vibrators to transport the concrete in the forms. Insert and withdraw vibrators approximately 18 inches apart. Penetrate the previously placed lift with the vibrator when more than one lift is required. Place concrete in 18 inch maximum vertical lifts. External vibrators shall be used on the exterior surface of the forms when internal vibrators do not provide adequate consolidation of the concrete.

3.6.2 Application of Epoxy Bonding Compound

Apply a thin coat of compound to dry, clean surfaces. Scrub compound into the surface with a stiff-bristle brush. Place concrete while compound is stringy. Do not permit compound to harden prior to concrete placement. Follow manufacturer's instructions regarding safety and health precautions when working with epoxy resins.

3.6.3 Pumping

ACI 304R and ACI 304.2R. Pumping shall not result in separation or loss of materials nor cause interruptions sufficient to permit loss of plasticity between successive increments. Loss of slump in pumping equipment shall not exceed 2 inches. Concrete shall not be conveyed through pipe made of aluminum or aluminum alloy. Rapid changes in pipe sizes shall be avoided. Maximum size of course aggregate shall be limited to 33 percent of the diameter of the pipe. Maximum size of well rounded aggregate shall be limited to 40 percent of the pipe diameter. Samples for testing shall be taken at both the point of delivery to the pump and at the discharge end.

3.6.4 Cold Weather

ACI 306.1. Do not allow concrete temperature to decrease below 50 degrees F Obtain approval prior to placing concrete when the ambient temperature is below 40 degrees F or when concrete is likely to be subjected to freezing temperatures within 24 hours. Cover concrete and provide sufficient heat to maintain 50 degrees F minimum adjacent to both the formwork and the structure while curing. Limit the rate of cooling to 5 degrees F in any 1 hour and 50 degrees F per 24 hours after heat application.

3.6.5 Hot Weather

ACI 305R. Maintain required concrete temperature using Figure 2.1.5 in ACI 305R to prevent the evaporation rate from exceeding 0.2 pound of water per square foot of exposed concrete per hour. Cool ingredients before mixing or use other suitable means to control concrete temperature and prevent rapid drying of newly placed concrete. Shade the fresh concrete as soon as possible after placing. Start curing when the surface of the fresh concrete is sufficiently hard to permit curing without damage. Provide water hoses, pipes, spraying equipment, and water hauling equipment, where job site is remote to water source, to maintain a moist concrete surface throughout the curing period. Provide burlap cover or other suitable, permeable material with fog spray or continuous wetting of the concrete when weather conditions prevent the use of either liquid membrane curing compound or impervious sheets. For vertical surfaces, protect forms from direct sunlight and add water to top of structure once concrete is set.

3.7 SURFACE FINISHES EXCEPT FLOOR, SLAB, AND PAVEMENT FINISHES

3.7.1 Defects

Repair formed surfaces by removing minor honeycombs, pits greater than 1 square inch surface area or 0.25 inch maximum depth, or otherwise defective areas. Provide edges perpendicular to the surface and patch with nonshrink grout. Patch tie holes and defects when the forms are removed. Concrete with extensive honeycomb including exposed steel reinforcement, cold joints, entrapped debris, separated aggregate, or other defects, which affect the serviceability or structural strength, will be rejected, unless correction of defects is approved. Obtain approval of corrective action prior to repair. The surface of the concrete shall not vary more than the allowable tolerances of ACI 347R. Exposed surfaces shall be uniform in appearance and finished to a smooth form finish unless otherwise specified.

3.7.2 Not Against Forms (Top of Walls)

Surfaces not otherwise specified shall be finished with wood floats to even surfaces. Finish shall match adjacent finishes.

3.7.3 Formed Surfaces

3.7.3.1 Tolerances

ACI 117 and as indicated.

3.7.3.2 As-Cast Rough Form

Provide for surfaces not exposed to public view. Patch this holes and defects and level abrupt irregularities. Remove or rub off fins and other projections exceeding 0.25 inch in height.

3.8 FLOOR, SLAB, AND PAVEMENT FINISHES AND MISCELLANEOUS CONSTRUCTION

ACI 302.1R, unless otherwise specified. Slope floors uniformly to drains where drains are provided

3.8.1 Finish

Place, consolidate, and immediately strike off concrete to obtain proper contour, grade, and elevation before bleedwater appears. Permit concrete to attain a set sufficient for floating and supporting the weight of the finisher and equipment. If bleedwater is present prior to floating the surface, drag the excess water off or remove by absorption with porous materials. Do not use dry cement to absorb bleedwater.

3.8.1.1 Scratched

Use for surfaces intended to receive bonded applied cementitious applications. After the concrete has been placed, consolidated, struck off, and leveled to a Class C tolerance as defined below, the surface shall be roughened with stiff brushes of rakes before final set.

3.8.1.2 Floated

After the concrete has been placed, consolidated, struck off, and leveled, do not work the concrete further, until ready for floating. Whether floating with a wood, magnesium, or composite hand float, with a bladed power trowel equipped with float shoes, or with a powered disc, float shall begin when the surface has stiffened sufficiently to permit the operation. During or after the first floating, surface shall be checked with a 10 foot straightedge applied at no less than two different angles, one of which is perpendicular to the direction of strike off. High spots shall be cut down and low spots filled during this procedure to produce a surface level within 1/4inch in 10 feet.

3.8.1.3 Concrete Containing Silica Fume

Finish using magnesium floats or darbies.

3.8.1.4 Steel Troweled

Use for floors intended as walking surfacesThe first troweling after floating shall produce a smooth surface, which is relatively free of defects, but which may still show some trowel marks. Additional trowelings shall be done by hand after the surface has hardened sufficiently. The final troweling shall be done when a ringing sound is produced as the trowel is moved over the surface. The surface shall be thoroughly consolidated by the hand troweling operations. The finished surface shall be essentially free of trowel marks and uniform in texture and appearance. The finished surface shall produce a surface level to within 1/4 inch in 10 feet. On surfaces intended

to support floor coverings, any defects of sufficient magnitude to show through the floor covering shall be removed by grinding.

3.8.1.5 Nonslip Finish

Use on surfaces of exterior platforms, steps, and landings; and on exterior and interior pedestrian ramps. Apply dry shake aggregate of to the surface at a minimum rate of 25 pounds per 100 square feet. Blend approximately two-thirds of the aggregate with portland cement as recommended by the manufacturer and apply to the surface evenly and without segregation. After floating has embedded blended material, apply the remainder of the blended material to the surface at right angles to the previous application. Apply blended material heavier in any areas not sufficiently covered by the first application. Perform a second floating immediately following the first. After the selected material has been embedded by the two floatings, complete the operation with a selected finish.

3.8.1.6 Broomed

Use on surfaces of exterior walks, platforms, patios, and ramps, unless otherwise indicated. Perform a floated finish, then draw a broom or burlap belt across the surface to produce a coarse scored texture. Permit surface to harden sufficiently to retain the scoring or ridges. Broom transverse to traffic or at right angles to the slope of the slab.

3.8.1.7 Pavement

Screed the concrete with a template advanced with a combined longitudinal and crosswise motion. Maintain a slight surplus of concrete ahead of the template. After screeding, float the concrete longitudinally. Use a straightedge to check slope and flatness; correct and refloat as necessary. Obtain final finish by a burlap drag. Drag a strip of clean, wet burlap from 3 to 10 feet wide and 2 feet longer than the pavement width across the slab. Produce a fine, granular, sandy textured surface without disfiguring marks. Round edges and joints with an edger having a radius of 1/8 inch.

3.8.1.8 Concrete Toppings Placement

The following requirements apply to the placement of toppings of concrete on base slabs that are both freshly placed and still plastic, or on hardened base slabs.

a. Placing on a Fresh Base: Screed and bull float the base slab. As soon as the water sheen has disappeared, lightly rake the surface of the base slab with a stiff bristle broom to produce a bonding surface for the topping. Immediately spread the topping mixture evenly over the roughened base before final set takes place. Give the topping the finish indicated on the drawings.

b. Bonding to a Hardened Base: When the topping is to be bonded to a floated or troweled hardened base, roughen the base by scarifying, grit-blasting, scabbling, planing, flame cleaning, or acid-etching to lightly expose aggregate and provide a bonding surface. Remove dirt, laitance, and loose aggregate by means of a stiff wire broom. Keep the clean base wet for a period of 12 hours preceding the application of the topping. Remove excess water and apply a 1:1:1/2 cement-sand-water grout, and brush into the surface of the base slab. Do not allow the cement grout to dry, and spread it only short distances ahead of the topping placement. Do not allow the temperature differential between the completed base and the topping mixture to exceed 10 degrees F at the time of placing. Place the topping and finish as indicated.

3.8.2 Concrete Walks

Provide 4 inches thick minimum. Provide contraction joints spaced every 5 linear feet unless otherwise indicated. Cut contraction joints one inch deep with a jointing tool after the surface has been finished. Provide 0.5-inch thick transverse expansion joints at changes in direction where sidewalk abuts curb, steps, rigid pavement, or other similar structures; space expansion joints every 50 feet maximum. Give walks a broomed

finish. Unless indicated otherwise, provide a transverse slope of 1/48. Limit variation in cross section to 1/4 inch in 5 feet.

3.8.3 Pits and Trenches

Place bottoms and walls monolithically or provide waterstops and keys.

3.8.4 Curbs and Gutters

Provide contraction joints spaced every 10 feet maximum unless otherwise indicated. Cut contraction joints 3/4 inch deep with a jointing tool after the surface has been finished. Provide expansion joints 1/2 inch thick and spaced every 100 feet maximum unless otherwise indicated. Perform pavement finish.

3.8.5 Splash Blocks

Provide at outlets of downspouts emptying at grade. Splash blocks may be precast concrete, and shall be 24 inches long, 12 inches wide, and 4 inches thick, unless otherwise indicated, with smooth-finished countersunk dishes sloped to drain away from the building.

3.9 CURING AND PROTECTION

ACI 301 unless otherwise specified. Begin curing immediately following form removal. Avoid damage to concrete from vibration created by blasting, pile driving, movement of equipment in the vicinity, disturbance of formwork or protruding reinforcement, and any other activity resulting in ground vibrations. Protect concrete from injurious action by sun, rain, flowing water, frost, mechanical injury, tire marks, and oil stains. Do not allow concrete to dry out from time of placement until the expiration of the specified curing period. Do not use membrane-forming compound on surfaces where appearance would be objectionable, on any surface to be painted, where coverings are to be bonded to the concrete, or on concrete to which other concrete is to be bonded. If forms are removed prior to the expiration of the curing period, provide another curing procedure specified herein for the remaining portion of the curing period. Provide moist curing for those areas receiving liquid chemical sealer-hardener or epoxy coating.

3.9.1 Moist Curing

Remove water without erosion or damage to the structure.

3.9.1.1 Ponding or Immersion

Continually immerse the concrete throughout the curing period. Water shall not be more than 20 degrees F less than the temperature of the concrete. For temperatures between 40 and 50 degrees F, increase the curing period by 50 percent.

3.9.1.2 Fog Spraying or Sprinkling

Apply water uniformly and continuously throughout the curing period. For temperatures between 40 and 50 degrees F, increase the curing period by 50 percent.

3.9.1.3 Pervious Sheeting

Completely cover surface and edges of the concrete with two thicknesses of wet sheeting. Overlap sheeting 6 inches over adjacent sheeting. Sheeting shall be at least as long as the width of the surface to be cured. During application, do not drag the sheeting over the finished concrete nor over sheeting already placed. Wet sheeting thoroughly and keep continuously wet throughout the curing period.

3.9.1.4 Impervious Sheeting

Wet the entire exposed surface of the concrete thoroughly with a fine spray of water and cover with impervious sheeting throughout the curing period. Lay sheeting directly on the concrete surface and overlap edges 12 inches minimum. Provide sheeting not less than 18 inches wider than the concrete surface to be cured. Secure edges and transverse laps to form closed joints. Repair torn or damaged sheeting or provide new sheeting. Cover or wrap columns, walls, and other vertical structural elements from the top down with impervious sheeting; overlap and continuously tape sheeting joints; and introduce sufficient water to soak the entire surface prior to completely enclosing.

3.9.2 Liquid Membrane-Forming Curing Compound

Seal or cover joint openings prior to application of curing compound. Prevent curing compound from entering the joint. Apply in accordance with the recommendations of the manufacturer immediately after any water sheen, which may develop after finishing has disappeared from the concrete surface. Provide and maintain compound on the concrete surface throughout the curing period. Do not use this method of curing where the use of Figure 2.1.5 in ACI 305R indicates that hot weather conditions will cause an evaporation rate exceeding 0.2 pound of water per square foot per hour.

3.9.2.1 Application

Unless the manufacturer recommends otherwise, apply compound immediately after the surface loses its water sheen and has a dull appearance, and before joints are sawed. Mechanically agitate curing compound thoroughly during use. Use approved power-spraying equipment to uniformly apply two coats of compound in a continuous operation. The total coverage for the two coats shall be 200 square feet maximum per gallon of undiluted compound unless otherwise recommended by the manufacturer's written instructions. The compound shall form a uniform, continuous, coherent film that will not check, crack, or peel. Immediately apply an additional coat of compound to areas where the film is defective. Re-spray concrete surfaces subjected to rainfall within 3 hours after the curing compound application.

3.9.2.2 Protection of Treated Surfaces

Prohibit pedestrian and vehicular traffic and other sources of abrasion at least 72 hours after compound application. Maintain continuity of the coating for the entire curing period and immediately repair any damage.

3.9.3 Liquid Chemical Sealer-Hardener

Apply sealer-hardener to interior floors not receiving floor covering and floors located under access flooring. Apply the sealer-hardener in accordance with manufacturer's recommendations. Seal or cover joints and openings in which joint sealant is to be applied as required by the joint sealant manufacturer. The sealer-hardener shall not be applied until the concrete has been moist cured and has aged for a minimum of 30 days. Apply a minimum of two coats of sealer-hardener.

3.9.4 Curing Periods

ACI 301 except 10 days for retaining walls, pavement or chimneys, 21 days for concrete that will be in full-time or intermittent contact with seawater, salt spray, alkali soil or waters. Begin curing immediately after placement. Protect concrete from premature drying, excessively hot temperatures, and mechanical injury; and maintain minimal moisture loss at a relatively constant temperature for the period necessary for hydration of the cement and hardening of the concrete. The materials and methods of curing shall be subject to approval by the Contracting Officer.

3.9.5 Requirements for Type III, High-Early-Strength Portland Cement

The curing periods shall be not less than one-fourth of those specified for portland cement, but in no case less than 72 hours.

3.10 FIELD QUALITY CONTROL

3.10.1 Sampling

ASTM C 172. Collect samples of fresh concrete to perform tests specified. ASTM C 31/C 31M for making test specimens.

3.10.2 Testing

3.10.2.1 Slump Tests

ASTM C 143/C 143M. Take concrete samples during concrete placement. The maximum slump may be increased as specified with the addition of an approved admixture provided that the water-cement ratio is not exceeded. Perform tests at commencement of concrete placement, when test cylinders are made, and for each batch (minimum) or every 20 cubic yards (maximum) of concrete.

3.10.2.2 Temperature Tests

Test the concrete delivered and the concrete in the forms. Perform tests in hot or cold weather conditions (below 50 degrees F and above 80 degrees F) for each batch (minimum) or every 20 cubic yards (maximum) of concrete, until the specified temperature is obtained, and whenever test cylinders and slump tests are made.

3.10.2.3 Compressive Strength Tests

ASTM C 39. Make five test cylinders for each set of tests in accordance with ASTM C 31/C 31M. Precautions shall be taken to prevent evaporation and loss of water from the specimen. Test two cylinders at 7 days, two cylinders at 28 days, and hold one cylinder in reserve. Samples for strength tests of each mix design of and for concrete placed each day shall be taken not less than once a day, nor less than once for each 100 cubic yards of concrete, nor less than once for each 5000 square feet of surface area for slabs or walls. For the entire project, take no less than five sets of samples and perform strength tests for each mix design of concrete placed. Each strength test result shall be the average of two cylinders from the same concrete sample tested at 28 days. If the average of any three consecutive strength test results is less than f'c or if any strength test result falls below f'c by more than 500 psi, take a minimum of three ASTM C 42/C 42M core samples from the in-place work represented by the low test cylinder results and test. Concrete represented by core test shall be considered structurally adequate if the average of three cores is equal to at least 85 percent of f'c and if no single core is less than 75 percent of f'c. Locations represented by erratic core strengths shall be retested. Remove concrete not meeting strength criteria and provide new acceptable concrete. Repair core holes with nonshrink grout. Match color and finish of adjacent concrete.

Flowable Fill Mix 197

The special flowable fill mix 197 has 600 lbs. of cementitious material and the standard flowable fill mix has 50 lbs. Crane requested the special mix so that it would set-up quicker and allow the roads to be opened to traffic

-- End of Section --

SECTION 10 14 01

EXTERIOR SIGNAGE
04/08

PART 1 GENERAL

1.1 REFERENCES

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

ALUMINUM ASSOCIATION (AA)

AA DAF-45	(2003) Designation System for Aluminum Finishes

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z97.1	(2004) Safety Glazing Materials Used in Buildings

AMERICAN WELDING SOCIETY (AWS)

AWS C1.1M/C1.1	(2000; R 2006)Resistance Welding
AWS D1.1/D1.1M	(2008) Structural Welding Code - Steel
AWS D1.2/D1.2M	(2008) Structural Welding Code - Aluminum

ASTM INTERNATIONAL (ASTM)

ASTM A 1011/A 1011M	(2008) Standard Specification for Steel, Sheet, and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
ASTM A 123/A 123M	(2008) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 36/A 36M	(2008) Standard Specification for Carbon Structural Steel
ASTM A 653/A 653M	(2008) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A 924/A 924M	(2008a) Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process

MUTCD 2009 edition

ASTM B 108/B 108M	(2008) Standard Specification for Aluminum-Alloy Permanent Mold Castings
ASTM B 209	(2007) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B 209M	(2007) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
ASTM B 221	(2008) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B 221M	(2007) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
ASTM B 26/B 26M	(2005) Standard Specification for Aluminum-Alloy Sand Castings
ASTM B 62	(2002) Standard Specification for Composition Bronze or Ounce Metal Castings
ASTM C 1036	(2006) Standard Specification for Flat Glass
ASTM D 3841	(1997e1; R 2008) Standard Specification for Glass Fiber-Reinforced Polyester Plastic Panels
ASTM E 84	(2008a) Standard Test Method for Surface Burning Characteristics of Building Materials

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)

NAAMM AMP 500	(2006) Metal Finishes Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2007; AMD 1 2008) National Electrical Code - 2008 Edition

SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)

SAE AMS3611	(1994; Rev D; R 2003) Plastic Sheet, Polycarbonate General Purpose

MUTCD 2009 Edition
MUTCD 2012 Supplemental

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for INFORMATION only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Approved Detail Drawings G

Drawings showing elevations of each type of sign; dimensions, details, and methods of mounting or anchoring; shape and thickness of materials; and details of construction. A schedule showing the location, each sign type, and message shall be included.

SD-03 Product Data

Modular Exterior Signage System

Manufacturer's descriptive data and catalog cuts.

Installation

Manufacturer's installation instructions and cleaning instructions.

Exterior signage schedule in electronic media with spread sheet format. Spread sheet shall include sign location, sign type, and message.

Wind Load Requirements

Design analysis and supporting calculations performed in support of specified signage.

1.3 GENERAL

SCOPE:

1. The work includes the provision of all labor, supplies, materials, equipment, transportation, facilities, utilities, supervision, and management, unless otherwise specified, required for the maintenance, repair and replacement of highway signs, marque signs base information signs, specialty signs and related related work. All traffic regulatory and MUTCD designated signs shall be manufactured in accordance with Federal and Indiana State regulations. All MUTCD designated signs shall be installed with a permanent non corrosive tag on the backside of each sign. The tag shall be pressure sensitive or punch out type of tag that will allow a permanent record of the date of installation to be made. When each sign is installed the tag shall be permanently marked or punched to clearly indicate the month and year when the sign was installed. The tag shall be contain words so that the message of the tag is clearly understood. For example the tag can state “This sign was erected on Jan 2015”, or other such permanent message that conveys the same message.

1.2 New MUTCD signs shall be made from sheet aluminum in accordance with ASTM B 209, alloy 5052-H338 or alloy 6061-T6, with a minimum thickness of .080". Reference Indiana Department of Highways Standard Specification The contractor shall provide the Government with the reflectorized sheeting manufacturer's written ten (10) year field performance warranty for the **high intensity** reflectorized sheeting. All new signs erected shall meet new MUTCD Retroreflectivity 2009 and 2012 supplement

All exterior signage shall be provided by a single manufacturer. Exterior signage shall be of the design, detail, sizes, types, and message content shown on the drawings, shall conform to the requirements specified, and

shall be provided at the locations indicated. Signs shall be complete with lettering, framing as detailed, and related components for a complete installation. Recyclable materials shall conform to EPA requirements in accordance with Section 01 62 35 RECYCLED / RECOVERED MATERIALS.

1.6 QUALIFICATIONS

Signs, plaques, and dimensional letters shall be the standard product of a manufacturer regularly engaged in the manufacture of the products. Items of equipment shall essentially duplicate equipment that has been in satisfactory use at least 2 years prior to bid opening.

1

-- End of Section --

SECTION 31 11 00

CLEARING AND GRUBBING
08/08

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A10.6	(1990; R 1998) Safety Requirements for Demolition Operations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2003) Safety -- Safety and Health Requirements

INDIANA DEPARTMENT OF TRANSPORTATION (INDOT)

Standard Specifications (2014)

1.2 GENERAL REQUIREMENTS

Contractor shall remove all rubbish and debris as indicated and dispose of the materials at a designated site as directed. Do not begin demolition until authorization is received from the Contracting Officer. Remove rubbish and debris from the project site; do not allow accumulations inside or outside the buildings. The work includes demolition, and removal of resulting rubbish and debris. Rubbish and debris shall be removed from Government property daily, unless otherwise directed, to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Contracting Officer. In the interest of occupational safety and health, the work shall be performed in accordance with EM 385-1-1, Section 23, Demolition, and other applicable Sections. In the interest of conservation, salvage shall be pursued to the maximum extent possible.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Demolition plan; G

Notifications; G

Submit proposed demolition and removal procedures to the Contracting Officer for approval before work is started.

1.4 REGULATORY AND SAFETY REQUIREMENTS

Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," safety requirements shall conform with ANSI A10.6.

1.4.1 Notifications

1.4.1.1 Receipts

Submit a shipping receipt or bill of lading for all containers of ozone depleting substance (ODS) shipped to the Defense Depot, Richmond, Virginia.

1.5 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

1.6 PROTECTION

1.6.1 Traffic Control Signs

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify the Contracting Officer prior to beginning such work.

1.6.2 Existing Work

Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government; any damaged items shall be repaired or replaced as approved by the Contracting Officer. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have Contracting Officer approval.

1.6.3 Weather Protection

For portions of the building to remain, protect building interior and materials and equipment from the weather at all times. Where removal of existing roofing is necessary to accomplish work, have materials and workmen ready to provide adequate and temporary covering of exposed areas so as to ensure effectiveness and to prevent displacement.

1.6.4 Trees

Trees within the project site which might be damaged during demolition, and which is indicated to be left in place, shall be protected. Any tree designated to remain that is damaged during the work under this contract shall be replaced in kind or as approved by the Contracting Officer.

1.6.5 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and

are determined to be in stable condition, shall remain standing without additional bracing, shoring, of lateral support until demolished, unless directed otherwise by the Contracting Officer. The Contractor shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.6.6 Protection of Personnel

During the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.7 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted. Adherence to federal, state, and local regulations shall be required.

1.8 RELOCATIONS

Perform the removal and reinstallation of items as indicated with workmen skilled in the trades involved. Repair items to be relocated, which are damaged or replace damaged items with new undamaged items as approved by the Contracting Officer.

1.9 REQUIRED DATA

Demolition plan shall include procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, and a detailed description of methods and equipment to be used for each operation and of the sequence of operations. The procedures shall provide for safe conduct of the work in accordance with EM 385-1-1.

1.10 ENVIRONMENTAL PROTECTION

The work shall comply with the requirements of Section 01575 TEMPORARY ENVIRONMENTAL PROTECTION.

1.11 USE OF EXPLOSIVES

Use of explosives will not be permitted.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

3.1.1 Structures

Existing structures shall be removed as indicated.

3.1.2 Utilities and Related Equipment

Remove existing utilities as indicated. When utility lines are encountered that are not indicated on the drawings, the Contracting Officer shall be notified prior to further work in that area. If utility lines are encountered that are not shown on drawings, contact the Contracting Officer for further instructions.

3.1.3 Concrete

Saw concrete along straight lines to a depth of not less than 2 inches. Make each cut in walls perpendicular to the face and in alignment with the cut in the opposite face. Break out the remainder of the concrete provided that the broken area is concealed in the finished work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or saw cut entirely through the concrete.

3.1.4 Patching

Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish. Patching shall be as specified and indicated, and shall include:

a. Holes and depressions left as a result of removals in existing walls to remain shall be completely filled with an approved masonry patching material, applied in accordance with the manufacturer's printed instructions.

3.2 DISPOSITION OF MATERIAL

3.2.1 Title to Materials

Except where specified in other sections, all materials and equipment removed, and not reused, shall become the property of the Contractor and shall be removed from Government property. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer of the Contractor's demolition and removal procedures, and authorization by the Contracting Officer to begin demolition. The Government will not be responsible for the condition or loss of, or damage to, such property after contract award. Materials shall not be viewed by prospective purchasers or sold on the site.

3.2.2 Reuse of Materials and Equipment

Remove and store materials and equipment indicated to be reused or relocated to prevent damage, and reinstall as the work progresses.

3.2.3 Salvaged Materials and Equipment

Remove materials and equipment that are indicated to be removed by the Contractor and that are to remain the property of the Government, and deliver to a storage site, as directed by the Contracting Officer. Salvaged items to remain the property of the Government shall be removed in a manner to prevent damage.

Material salvaged for the Contractor shall be stored as approved by the Contracting Officer and shall be removed from Government property before completion of the contract.

3.2.4 Unsalvageable Material

Concrete, masonry, and other noncombustible material, except concrete permitted to remain in place, shall be disposed of in the disposal area indicated by the Contracting Officer.

3.3 CLEANUP

Debris and rubbish shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

--End of Section --

SECTION 31 00 00

EARTHWORK
08/08

PART 1 GENERAL

1.1 REFERENCES

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

AASHTO T 180	(2001; R 2004) Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and an 457-mm (18-in) Drop
AASHTO T 224	(2001; R 2004) Correction for Coarse Particles in the Soil Compaction Test

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C600	(2005) Installation of Ductile-Iron Water Mains and Their Appurtenances

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2008) Structural Welding Code - Steel

AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)

AWPA C2	(2003) Lumber, Timber, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes
AWPA P5	(2005) Standard for Waterborne Preservatives

ASTM INTERNATIONAL (ASTM)

ASTM A 139/A 139M	(2004) Standard Specification for Electric-Fusion (ARC)-Welded Steel Pipe (NPS 4 and over)
ASTM A 252	(1998; R 2007) Standard Specification for Welded and Seamless Steel Pipe Piles
ASTM C 136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 33	(2007) Standard Specification for Concrete Aggregates
ASTM D 1140	(2000; R 2006) Amount of Material in Soils Finer than the No. 200 (75-micrometer) Sieve
ASTM D 1556	(2007) Density and Unit Weight of Soil in Place by the Sand-Cone Method

ASTM D 1557	(2007) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)
ASTM D 1883	(2007) CBR (California Bearing Ratio) of Laboratory-Compacted Soils
ASTM D 2167	(2008) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2434	(1968; R 2006) Permeability of Granular Soils (Constant Head)
ASTM D 2487	(2006e1) Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2937	(2004) Density of Soil in Place by the Drive-Cylinder Method
ASTM D 422	(1963; R 2007) Particle-Size Analysis of Soils
ASTM D 4318	(2005) Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 6938	(2007a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D 698	(2007e1) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2008) Safety and Health Requirements Manual

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 600/4-79/020	(1983) Methods for Chemical Analysis of Water and Wastes
EPA SW-846.3-3	(1999, Third Edition, Update III-A) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS A-A-203	(Rev C; Notice 2) Paper, Kraft, Untreated

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation

SD-01 Preconstruction Submittals

Shoring; G

Dewatering Work Plan; G

Submit 15 days prior to starting work.

SD-06 Test Reports

Testing

Within 24 hours of conclusion of physical tests,2 copies of test results, including calibration curves and results of calibration tests. Results of testing at the borrow site.

SD-07 Certificates

Testing

Qualifications of the commercial testing laboratory or Contractor's testing facilities.

1.3 EXCAVATION

In accordance with INDOT section 203, this work shall consist of embankment construction and excavation, hauling, and disposal or compaction of all material not being removed under some other line item which is encountered within the limits of the work in accordance with the specifications in INDOT Section 203 and in reasonably close conformance with the lines, grades, thickness, and typical cross sections shown on the plans or as directed. This line item is to be used for purpose of construction of new roads, parking lots and or general excavation other than ditching or culvert work, which will be described in a latter line item. A site within 3 miles one way will be designated by the OICC for disposal of all excavated material.

1.3.1 Measurement

The unit of measurement for excavation and borrow will be the cubic yard, computed by the average end area method from cross sections taken before and after the excavation and borrow operations, including the excavation for ditches, gutters, and channel changes, when the material is acceptably utilized or disposed of as herein specified. The measurements will include authorized excavation of rock authorized excavation of unsatisfactory subgrade soil, and the volume of loose, scattered rocks and boulders collected within the limits of the work; allowance will be made on the same basis for selected backfill ordered as replacement. The measurement will not include the volume of subgrade material or other material that is scarified or plowed and reused in-place, and will not include the volume excavated without authorization or the volume of any material used for purposes other than directed. The measurement will not include the volume of any excavation performed prior to the taking of elevations and measurements of the undisturbed grade.

1.4 PAYMENT

Payment will constitute full compensation for all labor, equipment, tools, supplies, and incidentals necessary to complete the work.

1.5 DEFINITIONS

1.5.1 Unsatisfactory Materials

Materials, which do not comply with the requirements for satisfactory materials, are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory which contains root and other organic matter or frozen material. The Contracting Officer shall be notified of any contaminated materials.

1.5.2 Cohesionless and Cohesive Materials

Cohesionless materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic. Testing required for classifying materials shall be in accordance with ASTM D 4318, ASTM C 136, ASTM D 422, and ASTM D 1140.

1.6 CLASSIFICATION OF EXCAVATION

Excavation specified shall be done on a classified basis, in accordance with the following designations and classifications.

1.6.1 GENERAL EXCAVATION

The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Grading shall be in conformity with the typical sections shown and the tolerances specified in paragraph FINISHING. Satisfactory excavated materials shall be transported to and placed in fill or embankment within the limits of the work. Unsatisfactory materials encountered within the limits of the work shall be excavated below grade and replaced with satisfactory materials as directed. Such excavated material and the satisfactory material ordered as replacement shall be included in excavation. Surplus satisfactory excavated material not required for fill or embankment shall be disposed of in areas approved for surplus material storage or designated waste areas by contracting officer. Unsatisfactory excavated material shall be disposed of in designated waste or spoil areas. During construction, excavation and fill shall be performed in a manner and sequence that will provide proper drainage at all times. Material required for fill or embankment in excess of that produced by excavation within the grading limits shall be excavated from the borrow areas indicated or from other approved areas selected by the Contractor as specified.

1.6.2 Ditches, Gutters, and Channel Changes

Excavation of ditches, gutters, and channel changes shall be accomplished by cutting accurately to the cross sections, grades, and elevations shown. Ditches and gutters shall not be excavated below grades shown. Excessive open ditch or gutter excavation shall be backfilled with satisfactory, thoroughly compacted, material or with suitable stone or cobble to grades shown. Material excavated shall be disposed of as shown or as directed, except that in no case shall material be deposited less than 4 feet from the edge of a ditch. The Contractor shall maintain excavations free from detrimental quantities of leaves, brush, sticks, trash, and other debris until final acceptance of the work this work will be paid by the cubic yard of measurement.

1.7 TRENTCH EXCAVATION REQUIREMENTS

The trench shall be excavated as recommended by the manufacturer of the pipe to be installed. Trench walls below the top of the pipe shall be sloped, or made vertical, and of such width as recommended in the manufacturer's installation manual. Where no manufacturer's installation manual is available, trench walls shall be made vertical. Trench walls more than 5feet high shall be shored, cut back to a stable slope, or provided with equivalent means of protection for employees who may be exposed to moving ground or cave in. Vertical trench walls more than 5feet high shall be shored. Trench walls, which are cut back, shall be excavated to at least the angle of repose of the soil. Special attention shall be given to slopes, which may be adversely affected, by weather or moisture content. The trench width below the top of pipe shall not exceed 24 inches plus pipe outside diameter (O.D.) for pipes of less than 24 inches inside diameter and shall not exceed 36 inches plus pipe outside diameter for sizes larger than 24 inches inside diameter. Where recommended trench widths are exceeded, redesign, stronger pipe, or special

installation procedures shall be utilized by the Contractor. The cost of redesign, stronger pipe, or special installation procedures shall be borne by the Contractor without any additional cost to the Government.

1.7.1 Bottom Preparation

The bottoms of trenches shall be accurately graded to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Bell holes shall be excavated to the necessary size at each joint or coupling to eliminate point bearing.

1. 8 DRAINAGE STRUCTURES

Excavations shall be made to the lines, grades, and elevations shown, or as directed. Trenches and foundation pits shall be of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Rock or other hard foundation material shall be cleaned of loose debris and cut to a firm, level, stepped, or serrated surface. Loose disintegrated rock and thin strata shall be removed. When concrete or masonry is to be placed in an excavated area, the bottom of the excavation shall not be disturbed. Excavation to the final grade level shall not be made until just before the concrete or masonry is to be placed.

1.8.1 Excavation for Appurtenances

Excavation for manholes, catch-basins, inlets, or similar structures shall be of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Rock shall be cleaned of loose debris and cut to a firm surface either level, stepped, or serrated, as shown or as directed. Loose disintegrated rock and thin strata shall be removed. Removal of unstable material shall be as specified above. When concrete or masonry is to be placed in an excavated area, special care shall be taken not to disturb the bottom of the excavation. Excavation to the final grade level shall not be made until just before the concrete or masonry is to be placed.

1.9 DRAINAGE

Provide for the collection and disposal of surface and subsurface water encountered during construction. Completely drain construction site during periods of construction to keep soil materials sufficiently dry. The Contractor shall establish/construct storm drainage features at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity and/or provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein. It is the responsibility of the Contractor to assess the soil and ground water conditions presented by the plans and specifications and to employ necessary measures to permit construction to proceed. Groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. Control measures shall be taken by the time the excavation reaches the water level in order to maintain the integrity of the in situ material. While the excavation is open, the water level shall be maintained continuously,

1.10 ROCK EXCAVATION

Rock excavation shall be included in the bid price for excavation

1.11 BACKFILLING AND COMPACTION

Backfill adjacent to any and all types of structures shall be placed and compacted to at least 90 percent laboratory maximum density for cohesive materials or 95 percent laboratory maximum density for cohesionless materials to prevent wedging action or eccentric loading upon or against the structure. Compaction requirements for backfill materials shall also conform to the applicable portions of paragraphs Section 02300 EARTHWORK. Sheepsfoot rollers shall accomplish compaction, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment.

1.11.1 Initial Backfill Material

Initial backfill shall consist of select granular material or satisfactory materials free from rocks 8inches or larger in any dimension or free from rocks of such size as recommended by the pipe manufacturer, whichever is smaller.

1.11.2 Final Backfill

The remainder of the trench, except for special materials for roadways, railroads and airfields, shall be filled with satisfactory material. Backfill material shall be placed and compacted as follows:

a. Roadways, Railroads, and Airfields: Backfill shall be placed up to the required elevation as specified. Water flooding or jetting methods of compaction will not be permitted.

b. Sidewalks, Turfed or Seeded Areas and Miscellaneous Areas: Backfill shall be deposited in layers of a maximum of 12 inch loose thickness, and compacted to 85 percent maximum density for cohesive soils and 90 percent maximum density for cohesionless soils.

1.11.3 Trench Backfill

Trenches shall be backfilled to the grade shown. The joints and couplings shall be left uncovered during the pressure test.

1.12 DEGREE OF COMPACTION

Degree of compaction required, except as noted in the second sentence, is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557 abbreviated as a percent of laboratory maximum density. Since ASTM D 1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 3/4 inch sieve, the degree of compaction for material having more than 30 percent by weight of their particles retained on the 3/4 inch sieve shall be expressed as a percentage of the maximum density in accordance with AASHTO T 180 Method D and corrected with AASHTO T 224. This line item shall be for fill or for stone. The material shall be placed on the prepared sub grade or sub base in layers of uniform thickness. No layer shall exceed 6 inches or less than 3 inches when compacted. The layers shall be so placed that when compacted they will be true to the grades or levels required with the least possible surface disturbance. Such adjustments in placing procedures or equipment shall be made as may be directed to obtain true grades, to minimize segregation and degradation, to adjust the water content, and to insure an acceptable aggregate base course. The finished and completed fill shall conform to the lines, grades, and cross sections shown. Each layer shall be compacted as specified with approved compaction equipment. Water content shall be maintained during the compaction procedure to within plus or minus 2 percent of the optimum water content. Rolling shall begin at the outside edge of the surface and proceed to the center, overlapping on successive trips at least one-half the width of the roller. Alternate trips of the roller shall be slightly different lengths. Speed of the roller shall be such that displacement of the aggregate does not occur. In all places not accessible to the rollers, the mixture shall be compacted with hand-operated power tampers. Compaction shall continue until each layer has a degree of compaction that is at least 95 percent of laboratory maximum density through the full depth of the layer. The Contractor shall make such adjustments in compacting or finishing procedures as may be directed to obtain true grades, to minimize segregation and degradation, to reduce or increase water content. Any materials that are found to be unsatisfactory shall be removed and replaced with satisfactory material or reworked, as directed, to meet the requirements of this specification.

1.12.1 Proof Rolling

Proof rolling shall be done on an exposed subgrade free of surface water (wet conditions resulting from rainfall) which would promote degradation of an otherwise acceptable subgrade. After stripping, proof roll the existing subgrade with six passes of a dump truck loaded with 4 cubic yards of soil or a15 ton, pneumatic-tired roller. Operate the roller or truck in a systematic manner to ensure the number of passes over all areas, and at speeds between 2 1/2 to 3 1/2 mph. Notify the Contracting Officer a minimum of 3 days prior to proof rolling. Proof

rolling shall be performed in the presence of the Contracting Officer. Rutting or pumping of material shall be undercut as directed by the Contracting Officer and replaced withm select material.

1.13 Underground Utilities

Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, excavate by hand. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work affected by the contract excavation until approval for backfill is granted by the Contracting Officer. Report damage to utility lines or subsurface construction immediately to the Contracting Officer.

1.13.1 BURIED WARNING AND IDENTIFICATION TAPE

Provide buried utility lines with utility identification tape. Bury tape 12 inches below finished grade; under pavements and slabs, bury tape 6 inches below top of subgrade. Polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, 3 inch minimum width, color coded as specified below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Color and printing shall be permanent, unaffected by moisture or soil.

Warning Tape Color Codes

[Red:]	[Electric]
[Yellow:]	[Gas, Oil; Dangerous Materials]
[Orange:]	[Telephone and Other Communications]
[Blue:]	[Water Systems]
[Green:]	[Sewer Systems]
[Gray:]	[Compressed Air]

1.14 GROUND SURFACE PREPARATION

1.14.1 General Requirements

Unsatisfactory material in surfaces to receive fill or in excavated areas shall be removed and replaced with satisfactory materials as directed by the Contracting Officer. The surface shall be scarified to a depth of 6 inches before the fill is started. Sloped surfaces steeper than 1 vertical to 4 horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When subgrades are less than the specified density, the ground surface shall be broken up to a minimum depth of 6 inches, pulverized, and compacted to the specified density. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

1.15 UTILIZATION OF EXCAVATED MATERIALS

Unsatisfactory materials removed from excavations shall be disposed of in designated waste disposal or spoil areas. Satisfactory material removed from excavations shall be used, insofar as practicable, in the construction of fills, embankments, subgrades, shoulders, bedding (as backfill), and for similar purposes. Coarse rock from excavations shall be stockpiled and used for constructing slopes or embankments adjacent to streams, or sides and bottoms of channels and for protecting against erosion. No excavated material shall be disposed of to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

1.16 CONSTRUCTION

Subgrade shall be shaped to line, grade, and cross section, and compacted as specified. This operation shall include plowing, disking, and any moistening or aerating required to obtain specified compaction. Soft or otherwise unsatisfactory material shall be removed and replaced with satisfactory excavated material or other approved material as directed. Rock encountered in the cut section shall be excavated to a depth of 6 inches below finished grade for the subgrade. Low areas resulting from removal of unsatisfactory material or excavation of rock shall be brought up to required grade with satisfactory materials, and the entire subgrade shall be shaped to line, grade, and cross section and compacted as specified. The elevation of the finish subgrade shall not vary more than 0.05 foot from the established grade and cross section.

1.17 TESTING

Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. If the Contractor elects to establish testing facilities, no work requiring testing will be permitted until the Contractor's facilities have been inspected and approved by the Contracting Officer. Field in-place density shall be determined in accordance with ASTM D 1556 ASTM D 2167 ASTM D 2922. When ASTM D 2922 is used, the calibration curves shall be checked and adjusted using only the sand cone method as described in ASTM D 1556. ASTM D 2922results in a wet unit weight of soil and when using this method ASTM D 3017 shall be used to determine the moisture content of the soil. The calibration curves furnished with the moisture gauges shall also be checked along with density calibration checks as described in ASTM D 3017; the calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed by the Contracting Officer. [ASTM D 2937, Drive Cylinder Method shall be used only for soft, fine-grained, cohesive soils. When test results indicate, as determined by the Contracting Officer, that compaction is not as specified, the material shall be removed, replaced and recompacted to meet specification requirements. Tests on recompacted areas shall be performed to determine conformance with specification requirements. Inspections and test results shall be certified by a registered professional civil engineer. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

1.17.1 Check Tests on In-Place Densities

If ASTM D 2922 is used, in-place densities shall be checked by ASTM D 1556 as follows:

a. One check test per lift for each 2500 square feet, or fraction thereof, of each lift of fill or backfill compacted by other than hand-operated machines.

b. One check test per lift for each 500 square feet, of fill or backfill areas compacted by hand-operated machines.

c. One check test per lift for each 100 linear feet, or fraction thereof, of embankment or backfill for roads.

d. One check test per lift for each 100 linear feet, or fraction thereof, of embankment or backfill for railroads.

1.17.2 Moisture Contents

In the stockpile, excavation, or borrow areas, a minimum of two tests per day per type of material or source of material being placed during stable weather conditions shall be performed. During unstable weather, tests shall be made as dictated by local conditions and approved by the Contracting Officer.

1.17.3 Optimum Moisture and Laboratory Maximum Density

Tests shall be made for each type material or source of material including borrow material to determine the optimum moisture and laboratory maximum density values.

-- End of Section --

SECTION 32 01 16.17

COLD MILLING OF BITUMINOUS PAVEMENTS
08/08

PART 1 GENERAL

1.1 REFERENCES

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

INDOT Indiana Dept of Transportation standard specifications (2014)

1.2 UNIT PRICES

1.2.1 Measurement

The quantity of milled pavement shall be the number of square yards per inch in depth completed and accepted as determined by the Contracting Officer. The number of square yards of milled pavement shall be determined by measuring the length and width of the milled surface within the specified work area

1.2.2 Payment

Payment will be to the nearest square yard. No payment will be made for milling outside the specified area of work.

1.3 EQUIPMENT, TOOLS, AND MACHINES

Equipment, tools, and machines used in the performance of the work shall be maintained in a satisfactory working condition.

1.3.1 Cold-Milling Machine

The cold-milling machine shall be a self-propelled machine capable of milling the pavement to a specified depth and smoothness. Pavement milling machine shall be capable of establishing grade control; shall have means of controlling transverse slope; and shall have effective means of controlling dust produced during the pavement milling operation. The machine shall have the ability to remove the millings or cuttings from the pavement and load them into a truck. The milling machine shall not cause damage to any part of the pavement structure that is not to be removed.

1.3.2 Cleaning Equipment

Cleaning equipment shall be suitable for removing and cleaning loose material from the pavement surface.

1.3.3 Straightedge

The Contractor shall furnish and maintain at the site, in good condition, one 12 foot straightedge or other suitable device for each milling machine, for testing the finished surface. Straightedge shall be made available for Government use. Straightedges shall be constructed of aluminum or other lightweight metal, and shall have blades of box or box-girder cross section with flat bottom reinforced to insure rigidity and accuracy. Straightedges shall have handles to facilitate movement on the pavement.

1.4 WEATHER LIMITATIONS

Milling shall not be performed when there is accumulation of snow or ice on the pavement surface.

1.5 GRADE AND SURFACE-SMOOTHNESS REQUIREMENTS

1.5.1 Grade

The finished milled surfaces shall conform to the lines, grades, and cross sections indicated. The finished milled-pavement surfaces shall vary not more than ¼ inch from the established plan grade line and elevation. Finished surfaces at a juncture with other pavements shall coincide with the finished surfaces of the abutting pavements. The deviations from the plan grade line and elevation will not be permitted in areas of pavements where closer conformance with planned grade and elevation is required for the proper functioning of appurtenant structures involved.

1.5.2 Surface Smoothness

Finished surfaces shall not deviate from the testing edge of a straightedge more than 1/4 inch in the transverse or longitudinal direction.

1.6 TRAFFIC CONTROL

The Contractor shall provide all necessary traffic controls during milling operations.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 PREPARATION OF SURFACE

The pavement surface shall be cleaned of excessive dirt, clay, or other foreign material immediately prior to milling the pavement.

3.2 MILLING OPERATION

A minimum of seven days notice is required, prior to start work, for the Contracting Officer to coordinate the milling operation with other activities at the site. Sufficient passes shall be made so that the designated area is milled to the grades and cross sections indicated. The milling shall proceed with care and in depth increments that will not damage the pavement below the designated finished grade. Items damaged during milling, such as manholes, valve boxes, utility lines, pavement that is torn, cracked, gouged, broken, or undercut, shall be repaired or replaced as directed. The milled material shall be removed from the pavement and loaded into trucks.

3.3 REMOVAL OF MILLED MATERIAL

Material that is removed shall be placed in the disposal area as specified stockpiled as specified and in such a manner to prevent segregation or contamination at a location designated by the contracting officer

3.4 Asphalt Scarification and Profile Preparation

Asphalt scarification and profile preparation shall consist of preparing a base for resurfacing by removing existing asphalt material. The entire existing asphalt surface shall be roughened by the operations. The existing pavement shall be milled to the cross-slope desired and shall have a surface finish that does not vary longitudinally more the 1/4 inch from a 16 foot straightedge.

-- End of Section --

SECTION 32 01 17.16

SEALING OF CRACKS IN BITUMINOUS PAVEMENTS
08/08

PART 1 GENERAL

1.1 REFERENCES

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

ASTM INTERNATIONAL (ASTM)

ASTM D 1190 (1997) Concrete Joint Sealer, Hot-Applied Elastic Type

ASTM D 3405 (1997) Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements

INDOT Indiana Dept of Transportation standard specifications (2014)

1.2 UNIT PRICES

1.2.1 Measurement

The quantity of each sealing item to be paid for shall be determined by actual measurement of the pounds of in-place material that has been approved.

1.2.2 Payment

Payment shall be made at the contract unit bid prices per pounds for the sealing items scheduled. The unit bid prices shall include the cost of all labor including flagging, materials, and the use of all equipment and tools required to complete the work.

1.3 SYSTEM DESCRIPTION

Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and shall be maintained in satisfactory condition at all times.

PART 2 PRODUCTS

2.1 SEALANTS

Sealants shall conform to ASTM D 3405 or ASTM D 1190.

PART 3 EXECUTION

3.1 PREPARATION OF CRACKS TO BE SEALED

Immediately before the installation of the crack sealant, the cracks shall be thoroughly cleaned to remove oxidized pavement, loose aggregate and foreign debris. The ambient air temperature and the pavement temperature within the joint wall shall be a minimum of 50 degrees F and rising at the time of application of the materials. Sealant shall not be applied if moisture is observed in the crack. Cracks that are less than 1/4 inch wide do not need to be sealed.

3.2 CLEANING CRACKS

Cracks that are 1/4 to 3/4 inch wide shall be cleaned to a depth not less than 3/4 inch and shall be cleaned by wire brushed or compressed air.

3.3 PREPARATION OF SEALANT

Hot-poured sealants shall not be heated in excess of the safe heating temperature recommended by the manufacturer as shown on the sealant containers. Sealant that has been overheated or subjected to application temperatures for over 4 hours or that has remained in the applicator at the end of the day's operation shall be withdrawn and wasted.

3.4 TIME OF APPLICATION

Cracks shall be sealed immediately following final cleaning of the crack. Cracks that cannot be sealed under the conditions specified, or when rain interrupts sealing operations, shall be recleaned and allowed to dry prior to installing the sealant.

3.5 SEALING OF CRACK

The cracks shall be filled from the bottom up to 1/8 inch below the pavement surface. Excess or spilled sealant shall be removed from the pavement by approved methods and shall be discarded. The sealant shall be installed in a manner which prevents the formation of voids and entrapped air. Several passes with the applicator wand may be necessary to obtain the specified sealant depth from the pavement surface.

3.6 QUALITY CONTROL PROVISIONS

3.6.1 Crack Cleaning

Quality control provisions shall be provided during the crack cleaning process to correct improper equipment and cleaning techniques that damage the bituminous pavement in any manner. Cleaned cracks shall be approved prior to installation of the crack sealant.

3.6.2 Crack Seal Application Equipment

The application equipment shall be inspected to ensure conformance to temperature requirements and proper installation. Evidences of bubbling, improper installing, and failing to cure or set shall be cause to suspend operations until causes of the deficiencies are determined and corrected.

3.6.3 Crack Sealant

The crack sealant shall be inspected for proper cure and set rating, bonding to the bituminous pavement, cohesive separation within the sealant, reversion to liquid, and entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the crack, wasted, and replaced as specified herein at no additional cost to the Government.

-- End of Section --

SECTION 32 01 17.16

SEALING OF CRACKS IN BITUMINOUS PAVEMENTS
08/08

PART 1 GENERAL

1.1 REFERENCES

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

ASTM INTERNATIONAL (ASTM)

ASTM D 1190 (1997) Concrete Joint Sealer, Hot-Applied Elastic Type

ASTM D 3405 (1997) Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements

INDOT Indiana Dept of Transportation standard specifications (2014)

1.2 UNIT PRICES

1.2.1 Measurement

The quantity of each sealing item to be paid for shall be determined by actual measurement of the pounds of in-place material that has been approved.

1.2.2 Payment

Payment shall be made at the contract unit bid prices per pounds for the sealing items scheduled. The unit bid prices shall include the cost of all labor including flagging, materials, and the use of all equipment and tools required to complete the work.

1.3 SYSTEM DESCRIPTION

Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and shall be maintained in satisfactory condition at all times.

PART 2 PRODUCTS

2.1 SEALANTS

Sealants shall conform to ASTM D 3405 or ASTM D 1190.

PART 3 EXECUTION

3.1 PREPARATION OF CRACKS TO BE SEALED

Immediately before the installation of the crack sealant, the cracks shall be thoroughly cleaned to remove oxidized pavement, loose aggregate and foreign debris. The ambient air temperature and the pavement temperature within the joint wall shall be a minimum of 50 degrees F and rising at the time of application of the materials. Sealant shall not be applied if moisture is observed in the crack. Cracks that are less than 1/4 inch wide do not need to be sealed.

3.2 CLEANING CRACKS

Cracks that are 1/4 to 3/4 inch wide shall be cleaned to a depth not less than 3/4 inch and shall be cleaned by wire brushed or compressed air.

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Hot-poured sealants shall not be heated in excess of the safe heating temperature recommended by the manufacturer as shown on the sealant containers. Sealant that has been overheated or subjected to application temperatures for over 4 hours or that has remained in the applicator at the end of the day's operation shall be withdrawn and wasted.

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Cracks shall be sealed immediately following final cleaning of the crack. Cracks that cannot be sealed under the conditions specified, or when rain interrupts sealing operations, shall be recleaned and allowed to dry prior to installing the sealant.

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The cracks shall be filled from the bottom up to 1/8 inch below the pavement surface. Excess or spilled sealant shall be removed from the pavement by approved methods and shall be discarded. The sealant shall be installed in a manner which prevents the formation of voids and entrapped air. Several passes with the applicator wand may be necessary to obtain the specified sealant depth from the pavement surface.

3.6 QUALITY CONTROL PROVISIONS

3.6.1 Crack Cleaning

Quality control provisions shall be provided during the crack cleaning process to correct improper equipment and cleaning techniques that damage the bituminous pavement in any manner. Cleaned cracks shall be approved prior to installation of the crack sealant.

3.6.2 Crack Seal Application Equipment

The application equipment shall be inspected to ensure conformance to temperature requirements and proper installation. Evidences of bubbling, improper installing, and failing to cure or set shall be cause to suspend operations until causes of the deficiencies are determined and corrected.

3.6.3 Crack Sealant

The crack sealant shall be inspected for proper cure and set rating, bonding to the bituminous pavement, cohesive separation within the sealant, reversion to liquid, and entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the crack, wasted, and replaced as specified herein at no additional cost to the Government.

-- End of Section --

SECTION 32 11 23

AGGREGATE AND/OR GRADED-CRUSHED AGGREGATE BASE COURSE
04/08

1.1 REFERENCES

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

AASHTO T 180	(2001; R 2004) Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and an 457-mm (18-in) Drop
AASHTO T 224	(2001; R 2004) Correction for Coarse Particles in the Soil Compaction Test

ASTM INTERNATIONAL (ASTM)

ASTM C 117	(2004) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 1260	(2007) Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C 127	(2004) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C 128	(2007) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
ASTM C 131	(2006) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 29/C 29M	(1997; R 2003) Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C 88	(2005) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM D 1556	(2000) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2002e1) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using

	Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)
ASTM D 2167	(1994; R 2001) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2487	(2006) Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 422	(1963; R 2002e1) Particle-Size Analysis of Soils
ASTM D 4318	(2005) Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 6938	(2007a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D 75	(2003) Standard Practice for Sampling Aggregates
ASTM E 11	(2004) Wire Cloth and Sieves for Testing Purposes

INDOT	Indiana Dept of Transportation standard specifications (2014)

1.2 DEFINITIONS

For the purposes of this specification, the following definitions apply.

1.2.1 Aggregate Base Course

Aggregate base course (ABC) is well graded, durable aggregate uniformly moistened and mechanically stabilized by compaction.

1.2.2 Graded-crushed Aggregate Base Course

Graded-crushed aggregate GCA base course is well graded, crushed, durable aggregate uniformly moistened and mechanically stabilized by compaction. GCA is similar to ABC, but it has more stringent requirements and it produces a base course with higher strength and stability.

1.2.3 Degree of Compaction

Degree of compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D

1.3 UNIT PRICES

1.3.1 Measurement

1.3.1.1 Area

The quantity of stone completed compacted and accepted, as determined by the Contracting Officer, will be measured in tons.

1.3.1.2 Volume

The quantity of ABC and GCA completed and accepted, as determined by the Contracting Officer, will be measured in cubic yards. The volume of material in-place and accepted will be determined by the average job thickness obtained.

1.3.1.3 Weight

The tonnage of ABC and GCA material will be the number of tons of aggregate, placed and accepted in the completed, compacted in place. Deductions will be made for any material wasted, unused, rejected, or used for convenience of the Contractor, and for water exceeding specified amount at time of weighing.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.][for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Plant, Equipment, and Tools :G

List of proposed equipment to be used in performance of construction work, including descriptive data.

Waybills and Delivery Tickets; G

Copies of waybills and delivery tickets during the progress of the work. Before the final statement is allowed, the Contractor shall file certified waybills and certified delivery tickets for all aggregates actually used.

SD-06 Test Reports: G

Sampling and testing: G

1.5 SAMPLING AND TESTING

Sampling and testing shall be the responsibility of the Contractor. Sampling and testing shall be performed by a testing laboratory approved in accordance with Section 01451A CONTRACTOR QUALITY CONTROL. Work requiring testing will not be permitted until the testing laboratory has been inspected and approved. The materials shall be tested to establish compliance with the specified requirements; testing shall be performed at the specified frequency. The Contracting Officer may specify the time and location of the tests. Copies of test results shall be furnished to the Contracting Officer within 24 hours of completion of the tests.

1.5.1 Sampling

Samples for laboratory testing shall be taken in conformance with ASTM D 75. When deemed necessary, the Contracting Officer will observe the sampling.

1.5.2 Tests

The following tests shall be performed in conformance with the applicable standards listed.

1.5.2.1 Sieve Analysis

Sieve analysis shall be made in conformance with ASTM C 117 and ASTM C 136. Sieves shall conform to ASTM E 11.

1.5.2.2 Liquid Limit and Plasticity Index

Liquid limit and plasticity index shall be determined in accordance with ASTM D 4318.

1.5.2.3 Moisture-Density Determinations

The maximum density and optimum moisture content shall be determined in accordance with ASTM D 1557 AASHTO T 180, Method D and corrected with AASHTO T 224.

1.5.3 Testing Frequency

1.5.3.1 Initial Tests

One of each of the following tests shall be performed on the proposed material prior to commencing construction to demonstrate that the proposed material meets all specified requirements when furnished. If materials from more than one source are going to be utilized, this testing shall be completed for each source.

a. Sieve Analysis.

b. Liquid limit and plasticity index.

c. Moisture-density relationship.

1.6 WEATHER LIMITATIONS

Construction shall be done when the atmospheric temperature is above 35 degrees F. When the temperature falls below 35 degrees F, the Contractor shall protect all completed areas by approved methods against detrimental effects of freezing. Completed areas damaged by freezing, rainfall, or other weather conditions shall be corrected to meet specified requirements.

1.7 PLANT, EQUIPMENT, AND TOOLS

All plant, equipment, and tools used in the performance of the work will be subject to approval before the work is started and shall be maintained in satisfactory working condition at all times. The equipment shall be adequate and shall have the capability of producing the required compaction, meeting grade controls, thickness control, and smoothness requirements as set forth herein.

PART 2 PRODUCTS

2.1 AGGREGATES

Unit price shall be to provide and place crushed stone as ordered. Placement will be in conjunction with asphalt repairs or maintenance. Stone aggregate shall be the application of crushed stone in connection with asphalt repairs, including replacement of unstable subgrade, backfill for deep patch, or establishment of subgrade. Stone shall be of the size ordered and shall be Type O, Class A or B, **in accordance with Section 904 of the INDOT Standard Specifications.**

Washed sand Size No. 24
Washed clean free of dirt and objectionable matter. In accordance with Indiana Department of Transportation State specifications, sizes of fine aggregates (see 904 aggregates):
100% to pass through 3/8” screen
95-100% through No.4 screen
70-100% through No. 8 screen
40-80% through No.16 screen

20-60% through No. 30 screen
7-40% through No.50 screen
1-20% through No.100 screen
0-6% through No. 200 screen

Crushed Limestone Size No. 2
In accordance with Indiana Department of Transportation State specifications size of coarse aggregates (see 904 aggregates):
100% to pass through 2 ½" screen
80-100% through 2" screen
0-25% through 1" screen
0-10% through ¾"screen
0-7% through ½" screen
Decant (Non-PCC) 0-2.5

Crushed Limestone Size No. 8
In accordance with Indiana Department of Transportation State specifications size of coarse aggregates (see 904 aggregates):
100% to pass through 1" screen
75-95% through 3/4" screen
40-70% through 1/2" screen
20-50% through 3/8"screen
0-15% through No. 4 screen
0-10% through No. 8 screen
Decant (PCC) 0-1.5
Decant (Non-PCC) 0-3.0

Crushed Limestone Size No. 11
In accordance with Indiana Department of Transportation State specifications size of coarse aggregates (see 904 aggregates):
100% to pass through ½" screen
75-95% through 3/8" screen
10-30% through No. 4 screen
0-10% through No. 8 screen
Decant (PCC) 0-1.5
Decant (Non-PCC) 0-2.5

Crushed Limestone Size No. 53
In accordance with Indiana Department of Transportation State specifications size of coarse aggregates (see 904 aggregates):
100% to pass through 1½" screen
80-100% through 1" screen
70-90% through ¾" screen
55-80% through ½" screen
35-60% through No. 4 screen
25-50% through No. 8 screen
12-30% through No. 30 screen
5.0-10.0% through No. 200 screen

Stone Revetment Rip-Rap
In accordance with Indiana Department of Transportation State specifications size of coarse aggregates (see 904 aggregates):
100% to pass through 18" sieve
90-100% through 12" sieve
20-40% through 6" sieve
0-10% through 3"sieve
Depth of Rip-Rap minimum 18"

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

When the ABC or GCA is constructed in more than one layer, the previously constructed layer shall be cleaned of loose and foreign matter by sweeping with power sweepers or power brooms, except that hand brooms may be used in areas where power cleaning is not practicable. Adequate drainage shall be provided during the entire period of construction to prevent water from collecting or standing on the working area. Line and grade stakes shall be provided as necessary for control. Grade stakes shall be in lines parallel to the centerline of the area under construction and suitably spaced for string lining.

3.2 OPERATION OF AGGREGATE SOURCES

Aggregates shall be obtained from offsite sources.

3.3 STOCKPILING MATERIAL

Prior to stockpiling of material, storage sites shall be cleared and leveled by the Contractor. All materials, including approved material available from excavation and grading, shall be stockpiled in the manner and at the locations designated. Aggregates shall be stockpiled on the cleared and leveled areas designated by the Contracting Officer to prevent segregation. Materials obtained from different sources shall be stockpiled separately.

3.5 INSTALLATION

3.5.2 Placing

The mixed material shall be placed on the prepared subgrade or subbase in layers of uniform thickness with an approved spreader. When a compacted layer 6 inches or less in thickness is required, the material shall be placed in a single layer. When a compacted layer in excess of 6 inches is required, the material shall be placed in layers of equal thickness. No layer shall exceed 6 inches or less than 3 inches when compacted. The layers shall be so placed that when compacted they will be true to the grades or levels required with the least possible surface disturbance.

3.5.3 Grade Control

The finished and completed stone grade shall conform to the lines, grades, and cross sections shown.

3.5.5 Compaction

Each layer of the stone shall be compacted as specified with approved compaction equipment. Water content shall be maintained during the compaction procedure. Rolling shall begin at the outside edge of the surface and proceed to the center, overlapping on successive trips at least one-half the width of the roller. Alternate trips of the roller shall be slightly different lengths. Speed of the roller shall be such that displacement of the aggregate does not occur. In all places not accessible to the rollers, the mixture shall be compacted with hand-operated power tampers. Compaction shall continue until each layer has a degree of compaction that is at least 98 percent of laboratory maximum density through the full depth of the layer. The Contractor shall make such adjustments in compacting or finishing procedures as may be directed to obtain true grades, to minimize segregation and degradation. Any materials that are found to be unsatisfactory shall be removed and replaced with satisfactory material or reworked, as directed, to meet the requirements of this specification.

Part 4 STONE ROAD AND LOT MAINTENANCE

4.1 Execution

The work includes provision of necessary labor, supervision, materials, and equipment for grading, scarifying, excavating, compacting, addition of crushed stone, use of a maintainer, and rolling of: stone roads, jeep trails,

perimeter trails, magazine drives and stone storage lots. The work includes grading, scarifying, excavating, compacting, maintaining, and rolling of any entire or portion of stone roads or lots at NSA CRANE Crane , IN. The Center has approximately 255 miles of regular stone roads, which are 12 to 18 feet wide and are designated with an "H" or "HR" prefix. The Center has approximately 29 miles of jeep trail roads or perimeter trail roads, which are 10 to 12 feet wide and are designated with a "JT" or "PT". Magazine drives are reflected in the quantities given for the type of road from which the drive originates. The width of the roads that are designated for work shall be extended at intersections, pull-offs, and drives so as to include the entire existing road surface. The Center also has approximately 37 acres of stone lots or miscellaneous stone areas. This work includes grading of all stone surfaces, plus the scarification of pothole areas, washed areas, lightly oiled areas, and soft-yielding spots with motor patrol grader type equipment. The first pass of the patrol grader type equipment shall pull stone in from the outside edges of all listed roads, magazine drives, entrances, turnarounds, and pull-off strips. The middle of the roadway shall then be graded. This is a minimum total of three passes of the patrol grader through any given point. Magazine drives, entrances, turnarounds, and pull-off strips shall be graded before main road is completed. All grading procedures shall result in positive drainage of surface waters into the ditches. Soft subgrade, which results in road base failure, shall be excavated when directed by the Delivery Order. The drives into the magazines, including all stone surfaces inside the retaining wall area, turnarounds, and pull-off strips shall be included. Magazine drives shall transition into other stoned areas (roads, etc.) smoothly without mounds or humps of gravel. Drives in front of the magazine walls shall be graded so that drain holes of the magazines or retaining walls are completely unobstructed and open and positive drainage away from the holes is provided. Also, the magazine drive within the retaining wall area shall drain both ways (if open) or out through the open end (if closed on an end). Immediately following the patrol grading requirements, all roads, and magazine drives, entrances, turnarounds, and pull-off strips shall be smoothed with maintainer-type equipment. Maintaining shall occur within 4 hours of meeting the patrol grading requirements. The maintainer shall be equipped with three blades set to cut from left to right and right to left and level left to right. Blades shall be manually adjusted to cut at various depths. The maintainer shall have four wheels and shall be hydraulically controlled from pull tractor. The maintainer shall be equipped with a side rail on each side for alignment of the road edge. The maintainer shall make one pass on each side of the roadways followed by one pass through the middle. This is a total of three passes through a given point. The roadway shall be left with a 1-1/2 inch crown on 10 to 12 feet wide roads, 2 inches on all other roads with a width over 12 feet. Magazine drives, entrances, turnaround, and pull-off strips shall be maintained and finished before main road is completed. At railroad crossings, clear away all stone that covers the rails and clear stone out of the wheel flange grooves. Gravel fill shall be held to 1 inch to 1-1/4 inch below the top of the rail, between the rails, at all road crossing. The stone shall be level with the track on the outside of the rails at all road crossings.

This work also includes the addition of crushed stone, No. 53, , No. 2, or No. 8 as ordered, to be placed as directed. Crushed stone material shall meet Indiana Department of Highways Standard specifications for Type O, Class A or B, Size as ordered. The Contractor shall provide written verification of compliance if requested by the ROIC. Crushed stone material that is delivered to the work site, or is stockpiled on Center for use at the work site, will be subject to Government inspection and acceptance. Any stone designated as "of questionable quality" by the inspecting representative shall not be used as part of the work performance until Contractor provides written verification of compliance. Delivery tickets for crushed stone delivered and used as specified under this contract shall be submitted to the Contracting Officer or his designated representative. Tickets shall be signed and submitted with Contractor's Daily Report to the Inspector. New aggregate shall be spread from trucks by the tailgate method and shall be graded with patrol type grader in compacted depth gradations of 2 inches maximum. A lift shall be spread on each side with a final lift in the center of all roads specified except for jeep trails where two passes will be sufficient. The newly added stone shall be graded smooth. Excessive deviations in the surface shall be corrected by removing and/or adding material. After placement, the maintainer shall make on pass on each side of the roadways, followed by one pass through the middle. This is a total of three passes through a given point. After grading, maintaining, and application of any additional stone, a minimum of one pass shall be made over the entire road surface by a minimum 10-ton roller. Rolling shall occur within 24 hours of meeting the grading and maintaining requirements. Pneumatic type rollers are not acceptable. Grass and weeds shall be picked up and removed from roadways and disposed of as directed. Grass debris and weeds shall not be disposed of in the side ditches. Excavation of soft subgrade material, including mud fouled aggregate, shall be in accordance with Section 203 of the IDOT Standard Specification. The work shall include the excavation, hauling, and disposal of the material, and the compaction of the top 6 inches of the material remaining. The excavation shall be finished to a reasonably smooth and uniform surface. Disposal, including hauling, of material, shall be designated on the Delivery Order, and will be located on Center. No unsightly piling of

material along roads or edges of stone lots will be permitted unless the area selected is designated a fill site. All pronounced depressions left in the excavated area shall be filled with suitable, well-compacted, aggregate material. Crushed stone aggregate shall be provided in place to the depths indicated on the Delivery Order. Stone shall be placed in 3 inch lifts and compacted to 95% maximum density. Final lift shall match in grade to the existing roadway surface. Maintaining operations shall then be applied over the area, which has been repaired. The Contractor shall repair any damaged property caused by the execution of the work, such as road signs.

-- End of Section --

SECTION 32 12 16

HOT-MIX ASPHALT (HMA) FOR ROADS
08/09

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 320	(2005) Performance-Graded Asphalt Binder

ASPHALT INSTITUTE (AI)

AI MS-02	(6th Edition; 1997) Mix Design Methods for Asphalt
AI MS-22	(2nd Edition; 2001) Construction of Hot-Mix Asphalt Pavements
AI SP-2	(2001e3) Superpave Mix Design

ASTM INTERNATIONAL (ASTM)

ASTM C 117	(2004) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 1252	(2006) Standard Test Methods for Uncompacted Void Content of Fine Aggregate (as Influenced by Particle Shape, Surface Texture, and Grading)
ASTM C 131	(2006)Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 142	(1997; R 2004) Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C 29/C 29M	(2007) Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate

	ASTM C 566	(1997; R 2004) Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
	ASTM C 88	(2005) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
	ASTM D 140	(2001; R 2007) Sampling Bituminous Materials
	ASTM D 1461	(1985; R 2006) Moisture or Volatile Distillates in Bituminous Paving Mixtures
	ASTM D 2041	(2003a) Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
	ASTM D 2172	(2005) Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
	ASTM D 2419	(2002) Sand Equivalent Value of Soils and Fine Aggregate
	ASTM D 242	(2004) Mineral Filler for Bituminous Paving Mixtures
	ASTM D 2489/D 2489M	(2008) Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures
	ASTM D 2726	(2008) Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
	ASTM D 2950	(2005) Density of Bituminous Concrete in Place by Nuclear Methods
	ASTM D 3381	(2005) Viscosity-Graded Asphalt Cement for Use in Pavement Construction
	ASTM D 3665	(2007) Random Sampling of Construction Materials
	ASTM D 3666	(2007e1) Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
	ASTM D 4125	(2005) Asphalt Content of Bituminous Mixtures by the Nuclear Method
	ASTM D 4791	(2005e1) Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
	ASTM D 4867/D 4867M	(2004) Effect of Moisture on Asphalt Concrete Paving Mixtures

ASTM D 5444	(2008) Mechanical Size Analysis of Extracted Aggregate
ASTM D 6307	(2005) Asphalt Content of Hot Mix Asphalt by Ignition Method
ASTM D 6926	(2004) Preparation of Bituminous Specimens Using Marshall Apparatus
ASTM D 6927	(2006) Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
ASTM D 946	(1982; R 2005) Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D 995	(1995b; R 2002) Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE CRD-C 171	(1994) Standard Test Method for Determining Percentage of Crushed Particles in Aggregate

INDOT	Indiana Dept of Transportation standard specifications (2014)
INDOT	Indiana Dept of office of materials management (ITM No 211-11P)

1.1 DESCRIPTION OF WORK

The work shall consist of pavement courses composed of mineral aggregate and asphalt material heated and mixed in a central mixing plant and placed on a prepared course. HMA designed and constructed in accordance with this section shall conform to the lines, grades, thicknesses, and typical cross sections shown on the drawings. Each course shall be constructed to the depth, section, or elevation required by the drawings and shall be rolled, finished, and approved before the placement of the next course. All HMA shall be supplied by a certified HMA plant in accordance with ITM 583, certified HMA producer program

1.2 METHOD OF MEASUREMENT

The amount paid for will be the number of tons of hot-mix asphalt mixture used in the accepted work. Hot-mix asphalt mixture shall be weighed after mixing, and no separate payment will be made for weight of asphalt cement material incorporated herein.

1.3 BASIS OF PAYMENT

Quantities of mixtures, determined as specified above, will be paid for at respective contract unit prices. Payment shall constitute full compensation for furnishing all materials, equipment, plant, and tools; and for all labor, flagging and other incidentals necessary to complete work required by this section of the specification.

1.4 ASPHALT MIXING PLANT

Plants used for the preparation of hot-mix asphalt shall conform to the requirements of ASTM D 995 with the following changes:

a. Truck Scales. The asphalt mixture shall be weighed on approved certified scales at the Contractor's expense. Scales shall be inspected and sealed at least annually by an approved calibration laboratory.

b. Testing Facilities. The Contractor shall provide laboratory facilities at the plant for the use of the Government's acceptance testing and the Contractor's quality control testing.

c. Inspection of Plant. The Contracting Officer shall have access at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant; verifying weights, proportions, and material properties; checking the temperatures maintained in the preparation of the mixtures and for taking samples. The Contractor shall provide assistance as requested, for the Government to procure any desired samples.

d. Storage Bins. Use of storage bins for temporary storage of hot-mix asphalt will be permitted as follows:

(1) The asphalt mixture may be stored in non-insulated storage bins for a period of time not exceeding 3 hours.

(2) The asphalt mixture may be stored in insulated storage bins for a period of time not exceeding 8 hours. The mix drawn from bins shall meet the same requirements as mix loaded directly into trucks.

1.5 HAULING EQUIPMENT

Trucks used for hauling hot-mix asphalt shall have tight, clean, and smooth metal beds. To prevent the mixture from adhering to them, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other approved material. Petroleum based products shall not be used as a release agent. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers (tarps) shall be securely fastened.

1.6 ASPHALT PAVERS

Asphalt pavers shall be self-propelled, with an activated screed, heated as necessary, and shall be capable of spreading and finishing courses of hot-mix asphalt which will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface.

1.6.1 Receiving Hopper

The paver shall have a receiving hopper of sufficient capacity to permit a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed without segregation. The screed shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

1.6.2 Automatic Grade Controls

If an automatic grade control device is used, the paver shall be equipped with a control system capable of automatically maintaining the specified screed elevation. The control system shall be automatically actuated from either a reference line and/or through a system of mechanical sensors or sensor-directed mechanisms or devices, which will maintain the paver screed at a predetermined transverse slope and at the proper elevation to obtain the required surface. The transverse slope controller shall be capable of maintaining the screed at the desired slope within plus or minus 0.1 percent. A transverse slope controller shall not be used to control grade. The controls shall be capable of working in conjunction with any of the following attachments:

1. Ski-type device of not less than 30 feet in length.

2. Taut string line set to grade.

3. Short ski or shoe for joint matching.

4. Laser control.

1.7 ROLLERS

Rollers shall be in good condition and shall be operated at slow speeds to avoid displacement of the asphalt mixture. The number, type, and weight of rollers shall be sufficient to compact the mixture to the required density while it is still in a workable condition. Equipment, which causes excessive crushing of the aggregate, shall not be used.

1.8 WEATHER LIMITATIONS

HMA courses less than 110 lb/syd are to be placed when the ambient and surface temperatures are 60°F or above. HMA courses equal to or greater than 110 lb/syd) but less than 220 lb/syd) are to be placed when the ambient and surface temperatures are 45°F or above. HMA courses equal to or greater than 220 lb/syd and HMA curbing are to be placed when the ambient and surface temperatures are 32°F (or above. Mixture shall not be placed on a frozen subgrade. However, HMA courses may be placed at lower temperatures, provided the density of the HMA course is in accordance with INDOT specifications

PART 2 PRODUCTS

2.1 AGGREGATES

Aggregates shall consist of crushed stone, crushed gravel, crushed slag, screenings, natural sand and mineral filler, as required. All crushed stone and materials shall meet INDOT ITM 203 requirements. The portion of material retained on the No. 4 sieve is coarse aggregate. The portion of material passing the No. 4 sieves and retained on the No. 200 sieve is fine aggregate. The portion passing the No. 200 sieve is defined as mineral filler. All aggregate test results and samples shall be submitted to the Contracting Officer at least 14 days prior to start of construction.

2.1.1 Coarse Aggregate

Coarse aggregate shall consist of sound, tough, durable particles, free from films of material that would prevent thorough coating and bonding with the asphalt material and free from organic matter and other deleterious substances.

2.1.2 Fine Aggregate

Fine aggregate shall consist of clean, sound, tough, durable particles. The aggregate particles shall be free from coatings of clay, silt, or any objectionable material and shall contain no clay balls.

2.1.3 Aggregate Gradation

The combined aggregate gradation shall conform to gradations specified in Table 2, when tested in accordance with ASTM C 136 and ASTM C 117, and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve or vice versa, but grade uniformly from coarse to fine.

Table 2. Aggregate Gradations

Sieve Size, inch	Gradation 1 Percent Passing by Mass	Gradation 2 Percent Passing by Mass	Gradation 3 Percent Passing by Mass

	1	100	---	---
	3/4	76-96	100	---
	1/2	68-88	76-96	100
300	3/8	60-82	69-89	76-96
	No. 4	45-67	53-73	58-78
	No. 8	32-54	38-60	40-60
	No. 16	22-44	26-48	28-48
	No. 30	15-35	18-38	18-38
	No. 50	9-25	11-27	11-27
	No. 100	6-18	6-18	6-18
	No. 200	3-6	3-6	3-6

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2.1.4 Asphalt Materials
Materials shall be in accordance with the following:

Asphalt Materials
PG Binder, PG 58-28*, PG 64-22,
PG 64-28*, PG 70-22, PG 76-22.....INDOT 902.01(a)
Coarse Aggregates INDOT 904
Base Mixtures, – Class D or Higher
Intermediate Mixtures – Class C or Higher
320 Surface Mixtures – Class B or Higher
Fine Aggregates INDOT 904
Only for use in mixtures containing greater than 15% RAP. Refer to INDOT 402.05.
Surface aggregate requirements are listed in INDOT 904.03(d).

2.1.5 Recycled Materials

Recycled materials may consist of reclaimed asphalt pavement, RAP, or asphalt roofing shingles, ARS, or a blend of both. RAP shall be the product resulting from the cold milling or crushing of an existing HMA pavement. The RAP shall be processed so that 100% will pass the 2 in. (50 mm) sieve when entering the
330 HMA plant. ARS shall consist of waste from a shingle manufacturing facility. No tear-off materials from roofs will be allowed. ARS shall be stockpiled separately from other materials. The coarse aggregate in the recycled materials shall pass the maximum size sieve for the mixture being produced.

Recycled materials may be used as a substitute for a portion of the new materials required to produce HMA mixtures. When only RAP is used in the mixture, the **RAP shall not exceed 15.0% by weight (mass) of the total mixture.** When only ARS is used in the mixture, the ARS shall not exceed 5.0% by weight (mass) of the total mixture. For substitution or use, 1.0% of ARS is considered equal to 5.0% RAP. The percentages of recycled materials shall be as specified on the JMF. Recycled materials may be used in all mixtures except type C and type D surface mixtures. The combined aggregate properties of a mixture with
340 recycled materials shall be determined in accordance with ITM 584 and shall be in accordance with 904. Gradations of the combined aggregates shall be in accordance with INDOT 402.03. The binder low temperature classification for mixtures

2.2 MIX DESIGN

The Contractor shall develop the mix design. The asphalt mix shall be composed of a mixture of well-graded aggregate, mineral filler if required, and asphalt material. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF). No hot-mix asphalt for payment shall be produced
350 until a JMF has been approved. The hot-mix asphalt shall be designed using procedures contained in AI MS-02 and the criteria shown in Table 3. If the Tensile Strength Ratio (TSR) of the composite mixture, as determined by ASTM D 4867/D 4867M is less than 75, the aggregates shall be rejected or the asphalt mixture treated with an approved anti-stripping agent. The amount of anti-stripping agent added shall be sufficient to produce a TSR of not less than 75. If an antistrip agent is required, it shall be provided by the

Contractor at no additional cost. Sufficient materials to produce 200 pound of blended mixture shall be provided to the Contracting Officer for verification of mix design at least 14 days prior to construction of test section.

2.2.1 JMF Requirements

The job mix formula shall be submitted in writing by the Contractor for approval at least 14 days prior to the start of the test section and shall include as a minimum:

a. Percent passing each sieve size.

b. Percent of asphalt cement.

c. Percent of each aggregate and mineral filler to be used.

d. Asphalt viscosity grade, penetration grade, or performance grade.

e. Number of blows of hammer per side of molded specimen.

f. Laboratory mixing temperature.

g. Lab compaction temperature.

h. Temperature-viscosity relationship of the asphalt cement.

i. Plot of the combined gradation on the 0.45 power gradation chart, stating the nominal maximum size.

j. Graphical plots of stability, flow, air voids, voids in the mineral aggregate, and unit weight versus asphalt content as shown in AI MS-02.

k. Specific gravity and absorption of each aggregate.

l. Percent natural sand.

m. Percent particles with 2 or more fractured faces (in coarse aggregate).

n. Fine aggregate angularity.

o. Percent flat or elongated particles (in coarse aggregate).

p. Tensile Strength Ratio(TSR).

q. Antistrip agent (if required) and amount.

r. List of all modifiers and amount.

s. Percentage and properties (asphalt content, binder properties, and aggregate properties) of reclaimed asphalt pavement (RAP) in accordance with paragraph RECYCLED HOT-MIX ASPHALT, if RAP is used.

Table 3. Marshall Design Criteria in INDOT

Test Property	75 Blow Mix	50 Blow Mix
Stability, pounds minimum	*1800	*1000

Flow, 0.01 inch	8-16	8-18
Air voids, percent	3-5	3-5
Percent Voids in mineral aggregate VMA, (minimum)		
Gradation 1	13.0	13.0
Gradation 2	14.0	14.0
Gradation 3	15.0	15.0
TSR, minimum percent	75	75

* This is a minimum requirement. The average during construction shall be significantly higher than this number to ensure compliance with the specifications.
** Calculate VMA in accordance with AI MS-02, based on ASTM D 2726-bulk specific gravity for the aggregate.

2.2.2 Adjustments to Field JMF

The Laboratory JMF for each mixture shall be in effect until the Contracting Officer approves a new formula in writing. Should a change in sources of any materials be made, a new laboratory jmf design shall be performed and a new JMF approved before the new material is used. The Contractor will be allowed to adjust the Laboratory JMF within the limits specified below to optimize mix volumetric properties with the approval of the Contracting Officer. Adjustments to the Laboratory JMF shall be applied to the field (plant) established JMF and limited to those values as shown. Adjustments shall be targeted to produce or nearly produce 4 percent voids total mix (VTM).

TABLE 4. Field (Plant) Established JMF Tolerances

Sieves	Adjustments (plus or minus), percent
No. 4	3
No. 8	3
No. 200	1
Binder Content	0.40

If adjustments are needed that exceed these limits, a new mix design shall be developed. Tolerances given above may permit the aggregate grading to be outside the limits shown in Table 2; while not desirable, this is acceptable.

2.3 RECYCLED HOT MIX ASPHALT

Recycled materials may consist of reclaimed asphalt pavement, RAP, or asphalt roofing shingles, ARS, or a blend of both. RAP shall be the product resulting from the cold milling or crushing of an existing HMA pavement. The RAP shall be processed so that 100% will pass the 2 in. sieve when entering the HMA plant. ARS shall consist of waste from a shingle manufacturing facility. No tear-off materials from roofs will be allowed. ARS shall be stockpiled separately from other materials. The coarse aggregate in the recycled materials shall pass the maximum size sieve for the mixture being produced.

Recycled materials may be used as a substitute for a portion of the new materials required to produce HMA mixtures. When only RAP is used in the mixture, **the RAP shall not exceed 15.0% by weight (mass) of the total mixture.** When only ARS is used in the mixture, the ARS shall not exceed 5.0% by weight (mass) of the total mixture. For substitution or use, 1.0% of ARS is considered equal to 5.0% RAP. The percentages of recycled materials shall be as specified on the JMF.

Recycled materials may be used in all mixtures except type C and type D surface mixtures. The combined aggregate properties of a mixture with recycled materials shall be determined in accordance with ITM 584 and shall be in accordance with 904. Gradations of the combined aggregates shall be in accordance with 402.03. Aggregates and Asphalt Cement. The blend of aggregates used in the recycled mix shall meet the requirements of paragraph AGGREGATES. The percentage of asphalt in the RAP shall be established for the mixture design according to ASTM D 2172 using the appropriate dust correction procedure.

PART 3 EXECUTION

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3.1 PREPARATION OF ASPHALT MATERIAL

The asphalt cement material shall be heated avoiding local overheating and providing a continuous supply of the asphalt material to the mixer at a uniform temperature.

3.2 PREPARATION OF HOT-MIX ASPHALT MIXTURE

The aggregates and the asphalt cement shall be weighed or metered and introduced into the mixer in the amount specified by the JMF. The combined materials shall be mixed until the aggregate obtains a uniform
490 coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but no less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in ASTM D 2489, for each individual plant and for each type of aggregate used. The wet mixing time will be set to at least achieve 95 percent of coated particles. The moisture content of all hot-mix asphalt upon discharge from the plant shall not exceed 0.5 percent by total weight of mixture as measured by ASTM D 1461.

3.2.1 ACCEPTANCE of MIXTURES

500 Acceptance of mixtures will be in accordance with the INDOT Frequency Manual on the basis of a type D certification in accordance with INDOT 916. The test results shown on the certification shall be the quality control tests representing the material supplied and include air voids and binder content. Air voids tolerance shall be ±1.5% and binder content tolerance shall be ±0.7% from DMF or JMF. Single test values and averages will be reported to the nearest 0.1%. Rounding will be in accordance with INDOT 109.01(a). Test results exceeding the tolerance limits will be considered as a failed material and adjudicated in accordance with 105.03.

3.3 PREPARATION OF THE UNDERLYING SURFACE

510 Immediately before placing the hot mix asphalt, the underlying course shall be cleaned of dust and debris. tack coat shall be applied in accordance with the contract specifications. Equipment for HMA operations shall be in accordance with INDOT SEC 409. Segregation, flushing or bleeding of HMA mixtures will not be permitted. Corrective action shall be taken to prevent continuation of these conditions. Areas of segregation, flushing or bleeding shall be corrected, if directed. All areas showing an excess or deficiency of asphalt materials shall be removed and replaced. All mixtures that become loose and broken, mixed with dirt, or is in any way defective shall be removed and replaced. The subgrade shall be shaped to the required grade and sections, free from all ruts, corrugations, or other irregularities, and uniformly compacted and approved in accordance with INDOT 207. Milling of an existing surface shall be in accordance with INDOT 306. Surfaces on which a mixture is placed shall be free from objectionable or foreign materials at
520 the time of placement.

3.5 TRANSPORTING

The hot-mix asphalt shall be transported from the mixing plant to the site in clean, tight vehicles. Deliveries shall be scheduled so that placing and compacting of mixture is uniform with minimum stopping and starting of the paver. Adequate artificial lighting shall be provided for night placements. Hauling over freshly placed material will not be permitted until the material has been compacted as specified, and allowed to cool to 140 degrees F. To deliver mix to the paver, the Contractor shall use a material transfer vehicle, which shall be operated to produce continuous forward motion of the paver.

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3.6 PLACING

The mixture shall be placed upon an approved surface by means of laydown equipment in accordance with INDOT 409.03(c). Prior to paving, both the planned quantity and lay rate shall be adjusted by multiplying by the MAF. When mixture is produced from more than one DMF or JMF for a given pay item, the MAF will be applied to the applicable portion of the mixture for each. Mixtures in areas inaccessible to laydown equipment or mechanical devices may be placed by other methods.The temperature of each mixture at the time of spreading shall not be more than 18°F below the minimum mixing temperature as shown on the DMF or JMF. Planned HMA courses greater than 165 lb/syd placed under traffic shall be brought up even with each adjacent lane at the end of each workday. Planned HMA courses less than or equal to 165 lb/syd shall be brought forward concurrently, within practical limits, limiting the work in one lane to not more than one work day of production before moving back to bring forward the adjacent lane. Traffic shall not be allowed on open graded mixtures. Hydraulic extensions on the paver will not be permitted for continuous paving operations. Fixed extensions or extendable screeds shall be used on courses greater than the nominal width of the paver except in areas where the paving widths vary. Hydraulic extensions may be used on approaches, tapers, and added lanes less than 250 ft in length. The speed of the paver shall not exceed 50 ft (15 m) per min when spreading mixtures. Automatic slope and grade controls shall be required except when placing mixtures on roadway approaches, which are less than 200 ft. in length, or on miscellaneous work. The use of automatic controls on other courses where use is impractical due to project conditions may be waived. The finished thickness of each course shall be at least two times but not more than four times the maximum particle size as shown on the DMF or JMF. The finished thickness of wedge and level mixtures shall be at least 1.5 times but not more than six times the maximum particle size as shown on the DMF or JMF. Feathering may be less than the minimum thickness requirements. The mix shall be placed and compacted at a temperature suitable for obtaining density, surface smoothness, and other specified requirements. Upon arrival, the mixture shall be placed to the full width by an asphalt paver; it shall be struck off in a uniform layer of such depth that, when the work is completed, it shall have the required thickness and conform to the grade and contour indicated. Unless otherwise permitted, placement of the mixture shall begin along the centerline of a crowned section or on the high side of areas with a one-way slope. The mixture shall be placed in consecutive adjacent strips having a minimum width of 10 feet. The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least 1 foot; however, the joint in the surface course shall be at the centerline of the pavement. Transverse joints in one course shall be offset by at least 10 feet from transverse joints in the previous course. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet. On isolated areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture may be spread and luted by hand tools.

3.7 COMPACTION OF MIXTURE

The HMA mixture shall be compacted with equipment in accordance with INDOT 409.03(d) immediately after the mixture has been spread and finished. Rollers shall not cause undue displacement, cracking, or shoving. A roller application is defined as one pass of the roller over the entire mat. Compaction operations shall be completed in accordance with one of the following options.

Number of Roller Applications						
Rollers	Courses ≤ 440 lb/syd (240 kg/m^2)				Courses > 440 lb/syd (240 kg/m^2)	
	Option 1	Option 2	Option 3	Option 4	Option 1	Option 2
Three Wheel	2		4		4	
Pneumatic Tire	2	4			4	
Tandem	2	2	2		4	
Vibratory Roller				6		8

A reduced number of applications on a course may be approved if detrimental results are being observed. Compaction equipment s eliminated. Compaction operations shall begin at the low side and proceed to the high side of the mat. The heaviest roller wheel shall overlap its previous pass by a minimum of 6 in. Longitudinal joints shall be compacted in accordance with the following:

(a) For confined edges, the first pass adjacent to the confined edge, the compaction equipment shall be entirely on the hot mat 6 in. from the confined edge.

(b) For unconfined edges, the compaction equipment shall extend 6 in. beyond the edge of the hot mat.

All displacement of the HMA mixture shall be corrected at once by the use of lutes and/or the addition of fresh mixture as required. The line and grade of the edges of the HMA mixture shall not be displaced during rolling. The wheels shall be kept properly moistened with water or water with detergent to prevent adhesion of the materials to the wheels. Areas inaccessible to rollers shall be compacted thoroughly with hand tampers or other mechanical devices in accordance with INDOT 409.03(d)6 to achieve the required compaction. A trench roller, in accordance with 409.03(d) 5, may be used to obtain compaction in depressed areas. The final two roller applications shall be completed at the highest temperature where the mixture does not exhibit any tenderness. Vehicular traffic will not be permitted on a course until the mixture has cooled sufficiently to prevent distortions.

PART 4 CONTRACTOR QUALITY CONTROL

4.1 GENERAL QUALITY CCONTROL REQUIERMENTS

The HMA shall be supplied from a certified HMA plant in accordance with ITM 583; Certified Volumetric Hot Mix Asphalt Producer Program. The HMA shall be transported and placed according to a Quality Control Plan, QCP, prepared and submitted by the Contractor in accordance with ITM 803; Contractor Quality Control Plans for Hot Mix Asphalt Pavements. The QCP shall be submitted to the OICC at least 15 days prior to commencing HMA paving operations. The Contractor shall develop an approved Quality Control Plan. Hot-mix asphalt for payment shall not be produced until the quality control plan has been approved. The plan shall address all elements, which affect the quality of the pavement including, but not limited to:

a. Mix Design

b. Aggregate Grading

c. Quality of Materials

d. Stockpile Management

e. Proportioning

f. Mixing and Transportation

g. Mixture Volumetrics

h. Moisture Content of Mixtures

i. Placing and Finishing

j. Joints

k. Compaction

l. Surface Smoothness

4.2 TESTING LABORATORY

The Contractor shall provide a fully equipped asphalt laboratory located at the plant or job site. The laboratory shall meet the requirements as required in ASTM D 3666. Laboratory facilities shall be kept clean and all equipment shall be maintained in proper working condition. The Contracting Officer shall be permitted unrestricted access to inspect the Contractor's laboratory facility, to witness quality control activities, and to perform any check testing desired. The Contracting Officer will advise the Contractor in writing of any noted deficiencies concerning the laboratory facility, equipment, supplies, or testing

personnel and procedures. When the deficiencies are serious enough to adversely affect test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are corrected.

4.3 QUALITY CONTROL TESTING

The Contractor shall perform all quality control tests applicable to these specifications and as set forth in the Quality Control Program. The testing program shall include, but shall not be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, moisture in the asphalt mixture, laboratory air voids, stability, flow, in-place density, grade and smoothness. A Quality Control Testing Plan shall be developed as part of the Quality Control Program.

4.3.1 Asphalt Content

A minimum of two tests to determine asphalt content will be performed per lot (a lot is defined in paragraph MATERIAL ACCEPTANCE AND PERCENT PAYMENT) by one of the following methods: the extraction method in accordance with ASTM D 2172, Method A or B, the ignition method in accordance with the AASHTO TP53or ASTM D 6307, or the nuclear method in accordance with ASTM D 4125, provided the nuclear gauge is calibrated for the specific mix being used. For the extraction method, the weight of ash, as described in ASTM D 2172, shall be determined as part of the first extraction test performed at the beginning of plant production; and as part of every tenth extraction test performed thereafter, for the duration of plant production. The last weight of ash value obtained shall be used in the calculation of the asphalt content for the mixture.

4.3.2 Gradation

Aggregate gradations shall be determined a minimum of twice per lot from mechanical analysis of recovered aggregate in accordance with ASTM D 5444. When asphalt content is determined by the nuclear method, aggregate gradation shall be determined from hot bin samples on batch plants, or from the cold feed on drum mix plants. For batch plants, aggregates shall be tested in accordance with ASTM C 136 using actual batch weights to determine the combined aggregate gradation of the mixture.

4.3.3 In-Place Density

The Contractor shall conduct any necessary testing to ensure the specified density is achieved. A nuclear gauge may be used to monitor pavement density in accordance with ASTM D 2950.

4.3.4 Grade and Smoothness

The Contractor shall conduct the necessary checks to ensure the grade and smoothness requirements are met in accordance with paragraph MATERIAL ACCEPTANCE AND PERCENT PAYMENT.

4.4 QC MONITORING

The Contractor shall submit all QC test results to the Contracting Officer on a daily basis as the tests are performed. The Contracting Officer reserves the right to monitor any of the Contractor's quality control testing and to perform duplicate testing as a check to the Contractor's quality control testing.

4.4.1 Sampling

When directed by the Contracting Officer, the Contractor shall sample and test any material, which appears inconsistent with similar material being produced, unless such material is voluntarily removed and replaced, or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

4.5 FINAL GRADE

The final wearing surface of pavement shall conform to the elevations and cross sections shown and shall vary not more than 0.05 foot from the plan grade established and approved at site of work.

Finished surfaces at juncture with other pavements shall coincide with finished surfaces of abutting pavements. Deviation from the plan elevation will not be permitted in areas of pavements where closer conformance with planned elevation is required for the proper functioning of drainage and other appurtenant structures involved. The final wearing surface of the pavement will be tested for conformance with specified plan grade requirements. The grade will be determined by running lines of levels at intervals of 25 feet, or less, longitudinally and transversely, to determine the elevation of the completed pavement surface. Within 5 working days, after the completion of a particular lot incorporating the final wearing surface, the Contracting Officer will inform the Contractor in writing, of the results of the grade-conformance tests. When more than 5 percent of all measurements made within a lot are outside the 0.05-foot tolerance, the pay factor based on grade for that lot will be 95 percent. In areas where the grade exceeds the tolerance by more than 50 percent, the Contractor shall remove the surface lift full depth; the Contractor shall then replace the lift with hot-mix asphalt to meet specification requirements, at no additional cost to the Government. Diamond grinding may be used to remove high spots to meet grade requirements. Skin patching for correcting low areas or planing or milling for correcting high areas will not be permitted.

4.5.1 Surface Smoothness

The Contractor shall use one of the following methods to test and evaluate surface smoothness of the pavement. All testing shall be performed in the presence of the Contracting Officer. Detailed notes of the results of the testing shall be kept and a copy furnished to the Government immediately after each day's testing. The profilograph method shall be used for all longitudinal and transverse testing, except where the runs would be less than 200 feet in length and the ends where the straightedge shall be used. Where drawings show required deviations from a plane surface (crowns, drainage inlets, etc.), the surface shall be finished to meet the approval of the Contracting Officer.

4.5.2 Smoothness Requirements

a. Straightedge Testing: The finished surfaces of the pavements shall have no abrupt change of 1/4 inch or more, and all pavements shall be within the tolerances specified in Table 9 when checked with an approved 12 foot straightedge.

Table 9. Straightedge Surface Smoothness--Pavements

Pavement Category	Direction of Testing	Tolerance, inches
All paved areas	Longitudinal	1/4
	Transverse	1/4

b. Profilograph Testing: The finished surfaces of the pavements shall have no abrupt change of 1/8 inch or more, and all pavement shall have a Profile Index not greater than specified in Table 10 when tested with an approved California-type profilograph. If the extent of the pavement in either direction is less than 200 feet, that direction shall be tested by the straightedge method and shall meet requirements specified above.

Table 10. Profilograph Surface Smoothness--Pavements

Pavement Category	Direction of Testing	Maximum Specified Profile Index (inch/mile)
All Paved Areas	Longitudinal	9

4.5.3 Testing Method

After the final rolling, but not later than 24 hours after placement, the surface of the pavement in each entire lot shall be tested by the Contractor in such a manner as to reveal all surface irregularities exceeding the tolerances specified above. Separate testing of individual sublots is not required. If any pavement areas are ground, these areas shall be retested immediately after grinding. The entire area of

the pavement shall be tested in both a longitudinal and a transverse direction on parallel lines. The transverse lines shall be 25 feet or less apart, as directed. The longitudinal lines shall be at the centerline of each paving lane for lines less than 20 feet and at the third points for lanes 20 feet or greater. Other areas having obvious deviations shall also be tested. Longitudinal testing lines shall be continuous across all joints.

a. Straightedge Testing. The straightedge shall be held in contact with the surface and moved ahead one-half the length of the straightedge for each successive measurement. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between these two high points.

PART 5 CHIP AND SEAL

5.1 DESCRIPTION

This work shall consist of one or more applications of asphalt material, each followed by an application of cover aggregate in accordance with INDOT 105.03.

5.2 ASPHALT MATERIAL

The type and grade of asphalt material shall be in accordance with the following: Asphalt Emulsion, RS-2, AE-90, AE-90S, or HFRS-2 902.01(b)

5.3 COVER AGGREGATE

Aggregate shall be in accordance with the following requirements. When slag is used as an alternate to natural aggregate, adjustments will be made in accordance with 904.01, to compensate for differences in specific gravity. Coarse Aggregates, Class B or Higher Size No. 8, 9, 11, or 12INDOT 904 Fine Aggregate Size No. 23 or 24 INDOT 904 the types of seal coats shall be as follows:

TYPE	APPLICATION	COVER AGGREGATE SIZE NO. AND COURSE	RATES OF APPLICATION PER SQUARE YARD (SQUARE METER)	
			AGGREGATE lb (kg)	ASPHALT MATERIAL GALLON (LITER) AT 60°F (16°C)
1*	Single	23, 24	12-15 (5.4-6.8)	0.12-0.16 (0.45-0.61)
2	Single	12	14-17 (6.4-7.7)	0.29-0.33 (1.09-1.25)
3	Single	11	16-20 (7.3-9.1)	0.36-0.40 (1.36-1.51)
4	Single	9	28-32 (12.7-14.5)	0.63-0.68 (2.38-2.57)
5	Double	Top – 12 Bottom – 11	16-19 (7.3-8.6) 16-20 (7.3-9.1)	0.33-0.37 (1.25-1.40) 0.36-0.40 (1.36-1.51)
6	Double	Top – 11 Bottom – 9	18-22 (8.2-10.0) 28-32 (12.7-14.5)	0.41-0.46 (1.55-1.74) 0.63-0.68 (2.38-2.57)
7	Double	Top – 11 Bottom – 8	18-22 (8.2-10.0) 28-32	0.41-0.46 (1.55-1.74) 0.63-0.68

			(12.7-14.5)	(2.38-2.57)

* Only AE-90 or AE-150 shall be used for seal coat, type 1.

5.4 Equipment

A distributor, rotary power broom, pneumatic tire roller, and aggregate spreader in accordance with 409.03 shall be used.

5.5 PREPARATION OF SURFACE

800 Surfaces to be sealed shall be brought to proper section and grade, compacted, cleaned as required, and approved.

5.6 APPLYING ASPHALT MATERIAL

Asphalt material shall be applied in a uniform continuous spread over the section to be treated. The quantity of asphalt material to be applied per square yard (square meter) shall be as directed. ..... The asphalt material shall not be spread over a greater area than that which can be covered with the cover aggregate that is in trucks at the site. It shall not be spread more than 500 ft ahead of the aggregate spreader.

The spread of the asphalt material shall be no wider than the width covered by the cover aggregate from the
810 spreading device. Operations shall not proceed such that asphalt material is allowed to chill, set up, dry, or otherwise impair retention of the cover coat.

5.7 APPLICATION OF COVER AGGREGATE

Immediately following the application of the asphalt material, cover aggregate shall be spread in quantities as directed. Spreading shall be accomplished such that the tires of the trucks or aggregate spreader do not contact the uncovered and newly applied asphalt material.

Rolling shall consist of at least three complete roller coverage's and be completed within 30 min after the
820 cover aggregate is applied. The rollers shall not be operated at speeds that will displace the cover aggregate from the asphalt material. The seal coat shall be protected by the restriction of traffic or by controlling traffic speed until the asphalt material has cured or set sufficiently to hold the cover aggregate without displacement. Excess cover aggregate shall be removed from the pavement surface by light brooming on the day following placement of the seal coat. The brooming shall not displace the imbedded aggregate.

PART 6 TACK COAT

6.1 DESCRIPTION

830 This work shall consist of preparing and treating an existing pavement or concrete surface with asphalt material in accordance with INDOT 105.03.

6.2 MATERIALS

The type and grade of asphalt material shall be in accordance with the following:

Asphalt Emulsion, AE-T, AE-PMT .....INDOT 902.01(b)
PG Asphalt Binder, PG 64-22INDOT 902.01(a)

840 6.3 EQUIPMENT

A distributor in accordance with INDOT 409.03(a) shall be used.

6.4 PREPARATION OF SURFACE

The existing surface to be treated shall be free of foreign materials deemed detrimental by the Engineer.

6.5 APPLICATION OF ASPHALT MATERIAL

The asphalt material shall be uniformly applied at the rate of from 0.03 to 0.08 gal./syd or as otherwise specified or directed. Tack coat shall not be applied to a wet surface. The rate of application, temperature, and areas to be treated shall be approved prior to application. Excessive tack coat shall be corrected to obtain an even distribution.

6.6 MEATHOD OF MEASUREMENT

Asphalt for tack coat will be measured by the square yard

Part 7 SEAL COATING

7.1 Seal Coating shall be for the installation of coal tar emulsion, 3 pounds of silica sand/gal concentrate. All work shall be in accordance with INDOT specifications and shall include cleaning and all prep work before sealing with two coats of sealer.

End of Section

SECTION 32 16 13

CONCRETE SIDEWALKS AND CURBS AND GUTTERS
04/08

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 182	(1991; R 2000) Burlap Cloth Made from Jute or Kenaf

ASTM INTERNATIONAL (ASTM)

ASTM A 185	(2002) Steel Welded Wire Reinforcement, Plain, for Concrete
ASTM A 615/A 615M	(2003a) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM C 143/C 143M	(2003) Slump of Hydraulic Cement Concrete
ASTM C 171	(2003) Sheet Materials for Curing Concrete
ASTM C 172	(1999) Sampling Freshly Mixed Concrete
ASTM C 173	(1994ael) Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 231	(2003) Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 309	(2003) Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 31/C 31M	(2003a) Making and Curing Concrete Test Specimens in the Field
ASTM C 920	(2002) Elastomeric Joint Sealants
ASTM D 1751	(1999) Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752	(1984; R 1996e1) Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D 5893	(1996) Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements

INDIANA DEPARTMENT OF TRANSPORTATION (INDOT)

Standard Specifications (2014)

1.2 MEASUREMENT FOR PAYMENT

1.2.1 Sidewalks

The quantities of sidewalks to be paid for will be the number of cubic yards of each depth of sidewalk constructed as indicated.

1.2.2 Curbs and Gutters

The quantities of curbs and gutters to be paid for will be the number of linear feet of each cross section constructed as indicated, measured along the face of the curb at the gutter line.

1.3 BASIS FOR PAYMENT

1.3.1 Sidewalks

Payment of the quantities of sidewalks measured as specified will be at the contract unit price per square yard of the thickness specified.

1.3.2 Curbs and Gutters

Payment of the quantities of curbs and gutters measured as specified will be at the contract unit price per linear foot of each cross section.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Concrete

Copies of certified delivery tickets for all concrete used in the construction; G

SD-06 Test Reports

Field Quality Control

Copies of all test reports within 24 hours of completion of the test; G

1.5 WEATHER LIMITATIONS

1.5.1 Placing During Cold Weather

Concrete placement shall not take place when the air temperature reaches 40 degrees F and is falling, or is already below that point. Placement may begin when the air temperature reaches 35 degrees F and is rising, or is already above 40 degrees F. Provisions shall be made to protect the concrete from freezing during the specified curing period. If necessary to place concrete when the temperature of the air, aggregates, or water is below 35 degrees F, placement and protection shall be approved in writing. Approval will be contingent upon full conformance with the following provisions. The underlying material shall be prepared and protected so that it is entirely free

of frost when the concrete is deposited. The aggregates shall be free of ice, snow, and frozen lumps before entering the mixer. Covering and other means shall be provided for maintaining the concrete at a temperature of at least 50 degrees F for not less than 72 hours after placing, and at a temperature above freezing for the remainder of the curing period.

1.5.2 Placing During Warm Weather

The temperature of the concrete as placed shall not exceed 85 degrees F except where an approved retarder is used. The mixing water and/or aggregates shall be cooled, if necessary, to maintain a satisfactory placing temperature. The placing temperature shall not exceed 95 degrees F at any time.

1.6 PLANT, EQUIPMENT, MACHINES, AND TOOLS

1.6.1 General Requirements

Plant, equipment, machines, and tools used in the work shall be subject to approval and shall be maintained in a satisfactory working condition at all times. The equipment shall have the capability of producing the required product, meeting grade controls, thickness control and smoothness requirements as specified. Use of the equipment shall be discontinued if it produces unsatisfactory results. The Contracting Officer shall have access at all times to the plant and equipment to ensure proper operation and compliance with specifications.

1.6.2 Slip Form Equipment

Slip form paver or curb forming machine, will be approved based on trial use on the job and shall be self-propelled, automatically controlled, crawler mounted, and capable of spreading, consolidating, and shaping the plastic concrete to the desired cross section in 1 pass.

PART 2 PRODUCTS

2.1 CONCRETE

Concrete shall have a minimum compressive strength of 3500 psi at 28 days. Maximum size of aggregate shall be 1-1/2 inches.

2.1.1 Air Content

Mixtures shall have air content by volume of concrete of 5 to 7 percent, based on measurements made immediately after discharge from the mixer.

2.1.2 Slump

The concrete slump shall be 2 inches plus or minus 1 inch where determined in accordance with ASTM C 143/C 143M.

2.1.3 Reinforcement Steel

Reinforcement bars shall conform to ASTM A 615/A 615M. Wire mesh reinforcement shall conform to ASTM A 185.

2.2 CONCRETE CURING MATERIALS

2.2.1 Impervious Sheet Materials

Impervious sheet materials shall conform to ASTM C 171, type optional, except that polyethylene film, if used, shall be white opaque.

2.2.2 Burlap

Burlap shall conform to AASHTO M 182.

2.2.3 White Pigmented Membrane-Forming Curing Compound

White pigmented membrane-forming curing compound shall conform to ASTM C 309, Type 2.

2.3 CONCRETE PROTECTION MATERIALS

Concrete protection materials shall be a linseed oil mixture of equal parts, by volume, of linseed oil and either mineral spirits, naphtha, or turpentine. At the option of the contractor, commercially prepared linseed oil mixtures, formulated specifically for application to concrete to provide protection against the action of deicing chemicals may be used, except that emulsified mixtures are not acceptable.

2.4 JOINT FILLER STRIPS

2.4.1 Contraction Joint Filler for Curb and Gutter

Contraction joint filler for curb and gutter shall consist of hard-pressed fiberboard.

2.4.2 Expansion Joint Filler, Premolded

Expansion joint filler, premolded, shall conform to ASTM D 1751 or ASTM D 1752, 1/2 inch thick, unless otherwise indicated.

2.5 JOINT SEALANTS

Joint sealant, cold-applied shall conform to ASTM C 920 or ASTM D 5893.

2.6 FORM WORK

Form work shall be designed and constructed to ensure that the finished concrete will conform accurately to the indicated dimensions, lines, and elevations, and within the tolerances specified. Forms shall be of wood or steel, straight, of sufficient strength to resist springing during depositing and consolidating concrete. Wood forms shall be surfaced plank, 2 inches nominal thickness, straight and free from warp, twist, loose knots, splits or other defects. Wood forms shall have a nominal length of 10 feet. Radius bends may be formed with 3/4 inch boards, laminated to the required thickness. Steel forms shall be channel-formed sections with a flat top surface and with welded braces at each end and at not less than two intermediate points. Ends of steel forms shall be interlocking and self-aligning. Steel forms shall include flexible forms for radius forming, corner forms, form spreaders, and fillers. Steel forms shall have a nominal length of 10 feet with a minimum of 3 welded stake pockets per form. Stake pins shall be solid steel rods with chamfered heads and pointed tips designed for use with steel forms.

2.6.1 Sidewalk Forms

Sidewalk forms shall be of a height equal to the full depth of the finished sidewalk.

2.6.2 Curb and Gutter Forms

Curb and gutter outside forms shall have a height equal to the full depth of the curb or gutter. The inside form of curb shall have batter as indicated and shall be securely fastened to and supported by the outside form. Rigid forms shall be provided for curb returns, except that benders or thin plank forms may be used for curb or curb returns with a radius of 10 feet or more, where grade changes occur in the return, or where the central angle is such that a rigid form with a central angle of 90 degrees cannot be used. Back forms for curb returns may be made of 1-1/2 inch benders, for the full height of the curb, cleated together.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

The subgrade shall be constructed to the specified grade and cross section prior to concrete placement.

3.1.1 Sidewalk Subgrade

The subgrade shall be tested for grade and cross section with a template extending the full width of the sidewalk and supported between side forms.

3.1.2 Curb and Gutter Subgrade

The subgrade shall be tested for grade and cross section by means of a template extending the full width of the curb and gutter. The subgrade shall be of materials equal in bearing quality to the subgrade under the adjacent pavement.

3.1.3 Maintenance of Subgrade

The subgrade shall be maintained in a smooth, compacted condition in conformity with the required section and established grade until the concrete is placed. The subgrade shall be in a moist condition when concrete is placed. The subgrade shall be prepared and protected to produce a subgrade free from frost when the concrete is deposited.

3.2 FORM SETTING

Forms shall be set to the indicated alignment, grade and dimensions. Forms shall be held rigidly in place by a minimum of 3 stakes per form placed at intervals not to exceed 4 feet. Corners, deep sections, and radius bends shall have additional stakes and braces, as required. Clamps, spreaders, and braces shall be used where required to ensure rigidity in the forms. Forms shall be removed without injuring the concrete. Bars or heavy tools shall not be used against the concrete in removing the forms. Any concrete found defective after form removal shall be promptly and satisfactorily repaired. Forms shall be cleaned and coated with form oil each time before concrete is placed. Wood forms may, instead, be thoroughly wetted with water before concrete is placed, except that with probable freezing temperatures, oiling is mandatory.

3.2.1 Sidewalks

Forms for sidewalks shall be set with the upper edge true to line and grade with an allowable tolerance of 1/8 inch in any 10 foot long section. After forms are set, grade and alignment shall be checked with a 10 foot straightedge. Side forms shall not be removed for 12 hours after finishing has been completed.

3.2.2 Curbs and Gutters

The forms of the front of the curb shall be removed not less than 2 hours nor more than 6 hours after the concrete has been placed. Forms back of curb shall remain in place until the face and top of the curb have been finished, as specified for concrete finishing. Gutter forms shall not be removed while the concrete is sufficiently plastic to slump in any direction.

3.3 SIDEWALK CONCRETE PLACEMENT AND FINISHING

3.3.1 Formed Sidewalks

Concrete shall be placed in the forms in one layer. When consolidated and finished, the sidewalks shall be of the thickness indicated. After concrete has been placed in the forms, a strike-off guided by side forms shall be used to bring the surface to proper section to be compacted. The concrete shall be consolidated with an approved vibrator, and the surface shall be finished to grade with a strike off.

3.3.2 Concrete Finishing

After straightedging, when most of the water sheen has disappeared, and just before the concrete hardens, the surface shall be finished with a wood float or darby to a smooth and uniformly fine granular or sandy texture free of waves, irregularities, or tool marks. A scored surface shall be produced by brooming with a fiber-bristle brush in a direction transverse to that of the traffic, followed by edging.

3.3.3 Edge and Joint Finishing

All slab edges, including those at formed joints, shall be finished with an edger having a radius of 1/8 inch. Transverse joint shall be edged before brooming, and the brooming shall eliminate the flat surface left by the surface face of the edger. Corners and edges which have crumbled and areas which lack sufficient mortar for proper finishing shall be cleaned and filled solidly with a properly proportioned mortar mixture and then finished.

3.3.4 Surface and Thickness Tolerances

Finished surfaces shall not vary more than 5/16 inch from the testing edge of a 10-foot straightedge. Permissible deficiency in section thickness will be up to 1/4 inch.

3.4 CURB AND GUTTER CONCRETE PLACEMENT AND FINISHING

3.4.1 Formed Curb and Gutter

Concrete shall be placed to the section required in a single lift. Consolidation shall be achieved by using approved mechanical vibrators. Curve shaped gutters shall be finished with a standard curb "mule".

3.4.2 Curb and Gutter Finishing

Approved slipformed curb and gutter machines may be used in lieu of hand placement.

3.4.3 Concrete Finishing

Exposed surfaces shall be floated and finished with a smooth wood float until true to grade and section and uniform in texture. Floated surfaces shall then be brushed with a fine-hair brush with longitudinal strokes. The edges of the gutter and top of the curb shall be rounded with an edging tool to a radius of 1/2 inch. Immediately after removing the front curb form, the face of the curb shall be rubbed with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. The front curb surface, while still wet, shall be brushed in the same manner as the gutter and curb top. The top surface of gutter and entrance shall be finished to grade with a wood float.

3.4.4 Joint Finishing

Curb edges at formed joints shall be finished as indicated.

3.4.5 Surface and Thickness Tolerances

Finished surfaces shall not vary more than 1/4 inch from the testing edge of a 10-foot straightedge. Permissible deficiency in section thickness will be up to 1/4 inch.

3.5 SIDEWALK JOINTS

Sidewalk joints shall be constructed to divide the surface into rectangular areas. Transverse contraction joints shall be spaced at a distance equal to the sidewalk width or 5 feet on centers, whichever is less, and shall be continuous across the slab. Longitudinal contraction joints shall be constructed along the centerline of all sidewalks 10 feet or more in width. Transverse expansion joints shall be installed at sidewalk returns and

opposite expansion joints in adjoining curbs. Where the sidewalk is not in contact with the curb, transverse expansion joints shall be installed as indicated. Expansion joints shall be formed about structures and features which project through or into the sidewalk pavement, using joint filler of the type, thickness, and width indicated. Expansion joints are not required between sidewalks and curb that abut the sidewalk longitudinally.

3.5.1 Sidewalk Contraction Joints

The contraction joints shall be formed in the fresh concrete by cutting a groove in the top portion of the slab to a depth of at least one-fourth of the sidewalk slab thickness, using a jointer to cut the groove, or by sawing a groove in the hardened concrete with a power-driven saw, unless otherwise approved. Sawed joints shall be constructed by sawing a groove in the concrete with a 1/8 inch blade to the depth indicated. An ample supply of saw blades shall be available on the job before concrete placement is started, and at least one standby sawing unit in good working order shall be available at the jobsite at all times during the sawing operations.

3.5.2 Sidewalk Expansion Joints

Expansion joints shall be formed with 1/2 inch joint filler strips. Joint filler in expansion joints surrounding structures and features within the sidewalk may consist of preformed filler material conforming to ASTM D 1752 or building paper. Joint filler shall be held in place with steel pins or other devices to prevent warping of the filler during floating and finishing. Immediately after finishing operations are completed, joint edges shall be rounded with an edging tool having a radius of 1/8 inch, and concrete over the joint filler shall be removed. The joint opening shall be thoroughly cleaned before the sealing material is placed. Sealing material shall not be spilled on exposed surfaces of the concrete. Concrete at the joint shall be surface dry and atmospheric and concrete temperatures shall be above 50 degrees F at the time of application of joint sealing material. Excess material on exposed surfaces of the concrete shall be removed immediately and concrete surfaces cleaned.

3.5.3 Reinforcement Steel Placement

Reinforcement steel shall be accurately and securely fastened in place with suitable supports and ties before the concrete is placed.

3.6 CURB AND GUTTER JOINTS

Curb and gutter joints shall be constructed at right angles to the line of curb and gutter.

3.6.1 Contraction Joints

Contraction joints shall be constructed directly opposite contraction joints in abutting portland cement concrete pavements and spaced so that monolithic sections between curb returns will not be less than 5 feet nor greater than 15 feet in length. Contraction joints shall be constructed by means of 1/8 inch thick separators and of a section conforming to the cross section of the curb and gutter. Separators shall be removed as soon as practicable after concrete has set sufficiently to preserve the width and shape of the joint and prior to finishing.

3.6.2 Expansion Joints

Expansion joints shall be formed by means of preformed expansion joint filler material cut and shaped to the cross section of curb and gutter. Expansion joints shall be provided in curb and gutter directly opposite expansion joints of abutting portland cement concrete pavement, and shall be of the same type and thickness as joints in the pavement. Where curb and gutter do not abut portland cement concrete pavement, expansion joints at least 1/2 inch in width shall be provided at intervals not less than 10 meters (30 feet) nor greater than 120 feet. Expansion joints shall be provided in nonreinforced concrete gutter at locations indicated. Expansion joints shall be sealed immediately following curing of the concrete or as soon thereafter as weather conditions permit. The joint opening shall be thoroughly cleaned before the sealing material is placed. Sealing material shall not be spilled on exposed surfaces of the concrete. Concrete at the joint shall be surface dry and atmospheric and concrete temperatures shall be above 50 degrees F at the time of application of joint sealing material. Excess material on exposed surfaces of the concrete shall be removed immediately and concrete surfaces cleaned.

3.7 CURING AND PROTECTION

3.7.1 General Requirements

Concrete shall be protected against loss of moisture and rapid temperature changes for at least 7 days from the beginning of the curing operation. Unhardened concrete shall be protected from rain and flowing water. All equipment needed for adequate curing and protection of the concrete shall be on hand and ready for use before actual concrete placement begins. Protection shall be provided as necessary to prevent cracking of the pavement due to temperature changes during the curing period.

3.7.1.1 Mat Method

The entire exposed surface shall be covered with 2 or more layers of burlap. Mats shall overlap each other at least 6 inches. The mat shall be thoroughly wetted with water prior to placing on concrete surface and shall be kept continuously in a saturated condition and in intimate contact with concrete for not less than 7 days.

3.7.1.2 Impervious Sheeting Method

The entire exposed surface shall be wetted with a fine spray of water and then covered with impervious sheeting material. Sheets shall be laid directly on the concrete surface with the light-colored side up and overlapped 12 inches when a continuous sheet is not used. The curing medium shall not be less than 18-inches wider than the concrete surface to be cured, and shall be securely weighted down by heavy wood planks, or a bank of moist earth placed along edges and laps in the sheets. Sheets shall be satisfactorily repaired or replaced if torn or otherwise damaged during curing. The curing medium shall remain on the concrete surface to be cured for not less than 7 days.

3.7.1.3 Membrane Curing Method

A uniform coating of white-pigmented membrane-curing compound shall be applied to the entire exposed surface of the concrete as soon after finishing as the free water has disappeared from the finished surface. Formed surfaces shall be coated immediately after the forms are removed and in no case longer than 1 hour after the removal of forms. Concrete shall not be allowed to dry before the application of the membrane. If any drying has occurred, the surface of the concrete shall be moistened with a fine spray of water and the curing compound applied as soon as the free water disappears. Curing compound shall be applied in two coats by hand-operated pressure sprayers at a coverage of approximately 200 square feet per gallon for the total of both coats. The second coat shall be applied in a direction approximately at right angles to the direction of application of the first coat. The compound shall form a uniform, continuous, coherent film that will not check, crack, or peel and shall be free from pinholes or other imperfections. If pinholes, abrasion, or other discontinuities exist, an additional coat shall be applied to the affected areas within 30 minutes. Concrete surfaces that are subjected to heavy rainfall within 3 hours after the curing compound has been applied shall be resprayed by the method and at the coverage specified above. Areas where the curing compound is damaged by subsequent construction operations within the curing period shall be resprayed. Necessary precautions shall be taken to insure that the concrete is properly cured at sawed joints, and that no curing compound enters the joints. The top of the joint opening and the joint groove at exposed edges shall be tightly sealed before the concrete in the region of the joint is resprayed with curing compound. The method used for sealing the joint groove shall prevent loss of moisture from the joint during the entire specified curing period. Approved standby facilities for curing concrete pavement shall be provided at a location accessible to the jobsite for use in the event of mechanical failure of the spraying equipment or other conditions that might prevent correct application of the membrane-curing compound at the proper time. Concrete surfaces to which membrane-curing compounds have been applied shall be adequately protected during the entire curing period from pedestrian and vehicular traffic, except as required for joint-sawing operations and surface tests, and from any other possible damage to the continuity of the membrane.

3.7.2 Backfilling

After curing, debris shall be removed and the area adjoining the concrete shall be backfilled, graded, and compacted to conform to the surrounding area in accordance with lines and grades indicated.

3.7.3 Protection

Completed concrete shall be protected from damage until accepted. The Contractor shall repair damaged concrete and clean concrete discolored during construction. Concrete that is damaged shall be removed and reconstructed for the entire length between regularly scheduled joints. Refinishing the damaged portion will not be acceptable. Removed damaged portions shall be disposed of as directed.

3.7.4 Protective Coating

Protective coating, of linseed oil mixture, shall be applied to the exposed-to-view concrete surface after the curing period, if concrete will be exposed to de-icing chemicals within 6 weeks after placement. Concrete to receive a protective coating shall be moist cured.

3.7.4.1 Application

Curing and backfilling operation shall be completed prior to applying two coats of protective coating. Concrete shall be surface dry and clean before each application. Coverage shall be by spray application at not more than 50 square yards per gallon for first application and not more than 70 square yards per gallon for second application, except that the number of applications and coverage for each application for commercially prepared mixture shall be in accordance with the manufacturer's instructions. Coated surfaces shall be protected from vehicular and pedestrian traffic until dry.

3.7.4.2 Precautions

Protective coating shall not be heated by direct application of flame or electrical heaters and shall be protected from exposure to open flame, sparks, and fire adjacent to open containers or applicators. Material shall not be applied at ambient or material temperatures lower than 50 degrees F.

3.8 FIELD QUALITY CONTROL

3.8.1 General Requirements

The Contractor shall perform the inspection and tests described and meet the specified requirements for inspection details and frequency of testing. Based upon the results of these inspections and tests, the Contractor shall take the action and submit reports as required below, and any additional tests to insure that the requirements of these specifications are met.

3.8.2 Concrete Testing

3.8.2.1 Strength Testing

The Contractor shall provide molded concrete specimens for strength tests. Samples of concrete placed each day shall be taken not less than once a day nor less than once for every 250 cubic yards of concrete. The samples for strength tests shall be taken in accordance with ASTM C 172. Cylinders for acceptance shall be molded in conformance with ASTM C 31/C 31M by an approved testing laboratory. Each strength test result shall be the average of 2 test cylinders from the same concrete sample tested at 28 days, unless otherwise specified or approved. Concrete specified on the basis of compressive strength will be considered satisfactory if the averages of all sets of three consecutive strength test results equal or exceed the specified strength, and no individual strength test result falls below the specified strength by more than 500 psi.

3.8.2.2 Air Content

Air content shall be determined in accordance with ASTM C 173 or ASTM C 231. ASTM C 231 shall be used with concretes and mortars made with relatively dense natural aggregates. Two tests for air content shall be made on randomly selected batches of each class of concrete placed during each shift. Additional tests shall be made when excessive variation in concrete workability is reported by the placing foreman or the Government inspector. If results are out of tolerance, the placing foreman shall be notified and he shall take appropriate action to have the air content corrected at the plant. Additional tests for air content will be performed on each truckload of material until such time as the air content is within the tolerance specified.

3.8.2.3 Slump Test

Two slump tests shall be made on randomly selected batches of each class of concrete for every 250 cubic yards, or fraction thereof, of concrete placed during each shift. Additional tests shall be performed when excessive variation in the workability of the concrete is noted or when excessive crumbling or slumping is noted along the edges of slip-formed concrete.

3.8.3 Thickness Evaluation

The anticipated thickness of the concrete shall be determined prior to placement by passing a template through the formed section or by measuring the depth of opening of the extrusion template of the curb forming machine. If a slip form paver is used for sidewalk placement, the subgrade shall be true to grade prior to concrete placement and the thickness will be determined by measuring each edge of the completed slab.

3.8.4 Surface Evaluation

The finished surface of each category of the completed work shall be uniform in color and free of blemishes and form or tool marks.

3.9 SURFACE DEFICIENCIES AND CORRECTIONS

3.9.1 Thickness Deficiency

When measurements indicate that the completed concrete section is deficient in thickness by more than 1/4 inch the deficient section will be removed, between regularly scheduled joints, and replaced.

3.9.2 High Areas

In areas not meeting surface smoothness and plan grade requirements, high areas shall be reduced either by rubbing the freshly finished concrete with carborundum brick and water when the concrete is less than 36 hours old or by grinding the hardened concrete with an approved surface grinding machine after the concrete is 36 hours old or more. The area corrected by grinding the surface of the hardened concrete shall not exceed 5 percent of the area of any integral slab, and the depth of grinding shall not exceed 1/4 inch. Pavement areas requiring grade or surface smoothness corrections in excess of the limits specified above shall be removed and replaced.

3.9.3 Appearance

Exposed surfaces of the finished work will be inspected by the Government and any deficiencies in appearance will be identified. Areas which exhibit excessive cracking, discoloration, form marks, or tool marks or which are otherwise inconsistent with the overall appearances of the work shall be removed and replaced.

-- End of Section --

SECTION 32 16 13

CONCRETE SIDEWALKS AND CURBS AND GUTTERS
04/08

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 182	(1991; R 2000) Burlap Cloth Made from Jute or Kenaf

ASTM INTERNATIONAL (ASTM)

ASTM A 185	(2002) Steel Welded Wire Reinforcement, Plain, for Concrete
ASTM A 615/A 615M	(2003a) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM C 143/C 143M	(2003) Slump of Hydraulic Cement Concrete
ASTM C 171	(2003) Sheet Materials for Curing Concrete
ASTM C 172	(1999) Sampling Freshly Mixed Concrete
ASTM C 173	(1994ael) Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 231	(2003) Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 309	(2003) Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 31/C 31M	(2003a) Making and Curing Concrete Test Specimens in the Field
ASTM C 920	(2002) Elastomeric Joint Sealants
ASTM D 1751	(1999) Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752	(1984; R 1996e1) Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D 5893	(1996) Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements

INDIANA DEPARTMENT OF TRANSPORTATION (INDOT)

Standard Specifications (2014)

1.2 MEASUREMENT FOR PAYMENT

1.2.1 Sidewalks

The quantities of sidewalks to be paid for will be the number of cubic yards of each depth of sidewalk constructed as indicated.

1.2.2 Curbs and Gutters

The quantities of curbs and gutters to be paid for will be the number of linear feet of each cross section constructed as indicated, measured along the face of the curb at the gutter line.

1.3 BASIS FOR PAYMENT

1.3.1 Sidewalks

Payment of the quantities of sidewalks measured as specified will be at the contract unit price per square yard of the thickness specified.

1.3.2 Curbs and Gutters

Payment of the quantities of curbs and gutters measured as specified will be at the contract unit price per linear foot of each cross section.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Concrete

Copies of certified delivery tickets for all concrete used in the construction; G

SD-06 Test Reports

Field Quality Control

Copies of all test reports within 24 hours of completion of the test; G

1.5 WEATHER LIMITATIONS

1.5.1 Placing During Cold Weather

Concrete placement shall not take place when the air temperature reaches 40 degrees F and is falling, or is already below that point. Placement may begin when the air temperature reaches 35 degrees F and is rising, or is already above 40 degrees F. Provisions shall be made to protect the concrete from freezing during the specified curing period. If necessary to place concrete when the temperature of the air, aggregates, or water is below 35 degrees F, placement and protection shall be approved in writing. Approval will be contingent upon full conformance with the following provisions. The underlying material shall be prepared and protected so that it is entirely free

of frost when the concrete is deposited. The aggregates shall be free of ice, snow, and frozen lumps before entering the mixer. Covering and other means shall be provided for maintaining the concrete at a temperature of at least 50 degrees F for not less than 72 hours after placing, and at a temperature above freezing for the remainder of the curing period.

1.5.2 Placing During Warm Weather

The temperature of the concrete as placed shall not exceed 85 degrees F except where an approved retarder is used. The mixing water and/or aggregates shall be cooled, if necessary, to maintain a satisfactory placing temperature. The placing temperature shall not exceed 95 degrees F at any time.

1.6 PLANT, EQUIPMENT, MACHINES, AND TOOLS

1.6.1 General Requirements

Plant, equipment, machines, and tools used in the work shall be subject to approval and shall be maintained in a satisfactory working condition at all times. The equipment shall have the capability of producing the required product, meeting grade controls, thickness control and smoothness requirements as specified. Use of the equipment shall be discontinued if it produces unsatisfactory results. The Contracting Officer shall have access at all times to the plant and equipment to ensure proper operation and compliance with specifications.

1.6.2 Slip Form Equipment

Slip form paver or curb forming machine, will be approved based on trial use on the job and shall be self-propelled, automatically controlled, crawler mounted, and capable of spreading, consolidating, and shaping the plastic concrete to the desired cross section in 1 pass.

PART 2 PRODUCTS

2.1 CONCRETE

Concrete shall have a minimum compressive strength of 3500 psi at 28 days. Maximum size of aggregate shall be 1-1/2 inches.

2.1.1 Air Content

Mixtures shall have air content by volume of concrete of 5 to 7 percent, based on measurements made immediately after discharge from the mixer.

2.1.2 Slump

The concrete slump shall be 2 inches plus or minus 1 inch where determined in accordance with ASTM C 143/C 143M.

2.1.3 Reinforcement Steel

Reinforcement bars shall conform to ASTM A 615/A 615M. Wire mesh reinforcement shall conform to ASTM A 185.

2.2 CONCRETE CURING MATERIALS

2.2.1 Impervious Sheet Materials

Impervious sheet materials shall conform to ASTM C 171, type optional, except that polyethylene film, if used, shall be white opaque.

2.2.2 Burlap

Burlap shall conform to AASHTO M 182.

2.2.3 White Pigmented Membrane-Forming Curing Compound

White pigmented membrane-forming curing compound shall conform to ASTM C 309, Type 2.

2.3 CONCRETE PROTECTION MATERIALS

Concrete protection materials shall be a linseed oil mixture of equal parts, by volume, of linseed oil and either mineral spirits, naphtha, or turpentine. At the option of the contractor, commercially prepared linseed oil mixtures, formulated specifically for application to concrete to provide protection against the action of deicing chemicals may be used, except that emulsified mixtures are not acceptable.

2.4 JOINT FILLER STRIPS

2.4.1 Contraction Joint Filler for Curb and Gutter

Contraction joint filler for curb and gutter shall consist of hard-pressed fiberboard.

2.4.2 Expansion Joint Filler, Premolded

Expansion joint filler, premolded, shall conform to ASTM D 1751 or ASTM D 1752, 1/2 inch thick, unless otherwise indicated.

2.5 JOINT SEALANTS

Joint sealant, cold-applied shall conform to ASTM C 920 or ASTM D 5893.

2.6 FORM WORK

Form work shall be designed and constructed to ensure that the finished concrete will conform accurately to the indicated dimensions, lines, and elevations, and within the tolerances specified. Forms shall be of wood or steel, straight, of sufficient strength to resist springing during depositing and consolidating concrete. Wood forms shall be surfaced plank, 2 inches nominal thickness, straight and free from warp, twist, loose knots, splits or other defects. Wood forms shall have a nominal length of 10 feet. Radius bends may be formed with 3/4 inch boards, laminated to the required thickness. Steel forms shall be channel-formed sections with a flat top surface and with welded braces at each end and at not less than two intermediate points. Ends of steel forms shall be interlocking and self-aligning. Steel forms shall include flexible forms for radius forming, corner forms, form spreaders, and fillers. Steel forms shall have a nominal length of 10 feet with a minimum of 3 welded stake pockets per form. Stake pins shall be solid steel rods with chamfered heads and pointed tips designed for use with steel forms.

2.6.1 Sidewalk Forms

Sidewalk forms shall be of a height equal to the full depth of the finished sidewalk.

2.6.2 Curb and Gutter Forms

Curb and gutter outside forms shall have a height equal to the full depth of the curb or gutter. The inside form of curb shall have batter as indicated and shall be securely fastened to and supported by the outside form. Rigid forms shall be provided for curb returns, except that benders or thin plank forms may be used for curb or curb returns with a radius of 10 feet or more, where grade changes occur in the return, or where the central angle is such that a rigid form with a central angle of 90 degrees cannot be used. Back forms for curb returns may be made of 1-1/2 inch benders, for the full height of the curb, cleated together.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

The subgrade shall be constructed to the specified grade and cross section prior to concrete placement.

3.1.1 Sidewalk Subgrade

The subgrade shall be tested for grade and cross section with a template extending the full width of the sidewalk and supported between side forms.

3.1.2 Curb and Gutter Subgrade

The subgrade shall be tested for grade and cross section by means of a template extending the full width of the curb and gutter. The subgrade shall be of materials equal in bearing quality to the subgrade under the adjacent pavement.

3.1.3 Maintenance of Subgrade

The subgrade shall be maintained in a smooth, compacted condition in conformity with the required section and established grade until the concrete is placed. The subgrade shall be in a moist condition when concrete is placed. The subgrade shall be prepared and protected to produce a subgrade free from frost when the concrete is deposited.

3.2 FORM SETTING

Forms shall be set to the indicated alignment, grade and dimensions. Forms shall be held rigidly in place by a minimum of 3 stakes per form placed at intervals not to exceed 4 feet. Corners, deep sections, and radius bends shall have additional stakes and braces, as required. Clamps, spreaders, and braces shall be used where required to ensure rigidity in the forms. Forms shall be removed without injuring the concrete. Bars or heavy tools shall not be used against the concrete in removing the forms. Any concrete found defective after form removal shall be promptly and satisfactorily repaired. Forms shall be cleaned and coated with form oil each time before concrete is placed. Wood forms may, instead, be thoroughly wetted with water before concrete is placed, except that with probable freezing temperatures, oiling is mandatory.

3.2.1 Sidewalks

Forms for sidewalks shall be set with the upper edge true to line and grade with an allowable tolerance of 1/8 inch in any 10 foot long section. After forms are set, grade and alignment shall be checked with a 10 foot straightedge. Side forms shall not be removed for 12 hours after finishing has been completed.

3.2.2 Curbs and Gutters

The forms of the front of the curb shall be removed not less than 2 hours nor more than 6 hours after the concrete has been placed. Forms back of curb shall remain in place until the face and top of the curb have been finished, as specified for concrete finishing. Gutter forms shall not be removed while the concrete is sufficiently plastic to slump in any direction.

3.3 SIDEWALK CONCRETE PLACEMENT AND FINISHING

3.3.1 Formed Sidewalks

Concrete shall be placed in the forms in one layer. When consolidated and finished, the sidewalks shall be of the thickness indicated. After concrete has been placed in the forms, a strike-off guided by side forms shall be used to bring the surface to proper section to be compacted. The concrete shall be consolidated with an approved vibrator, and the surface shall be finished to grade with a strike off.

3.3.2 Concrete Finishing

After straightedging, when most of the water sheen has disappeared, and just before the concrete hardens, the surface shall be finished with a wood float or darby to a smooth and uniformly fine granular or sandy texture free of waves, irregularities, or tool marks. A scored surface shall be produced by brooming with a fiber-bristle brush in a direction transverse to that of the traffic, followed by edging.

3.3.3 Edge and Joint Finishing

All slab edges, including those at formed joints, shall be finished with an edger having a radius of 1/8 inch. Transverse joint shall be edged before brooming, and the brooming shall eliminate the flat surface left by the surface face of the edger. Corners and edges which have crumbled and areas which lack sufficient mortar for proper finishing shall be cleaned and filled solidly with a properly proportioned mortar mixture and then finished.

3.3.4 Surface and Thickness Tolerances

Finished surfaces shall not vary more than 5/16 inch from the testing edge of a 10-foot straightedge. Permissible deficiency in section thickness will be up to 1/4 inch.

3.4 CURB AND GUTTER CONCRETE PLACEMENT AND FINISHING

3.4.1 Formed Curb and Gutter

Concrete shall be placed to the section required in a single lift. Consolidation shall be achieved by using approved mechanical vibrators. Curve shaped gutters shall be finished with a standard curb "mule".

3.4.2 Curb and Gutter Finishing

Approved slipformed curb and gutter machines may be used in lieu of hand placement.

3.4.3 Concrete Finishing

Exposed surfaces shall be floated and finished with a smooth wood float until true to grade and section and uniform in texture. Floated surfaces shall then be brushed with a fine-hair brush with longitudinal strokes. The edges of the gutter and top of the curb shall be rounded with an edging tool to a radius of 1/2 inch. Immediately after removing the front curb form, the face of the curb shall be rubbed with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. The front curb surface, while still wet, shall be brushed in the same manner as the gutter and curb top. The top surface of gutter and entrance shall be finished to grade with a wood float.

3.4.4 Joint Finishing

Curb edges at formed joints shall be finished as indicated.

3.4.5 Surface and Thickness Tolerances

Finished surfaces shall not vary more than 1/4 inch from the testing edge of a 10-foot straightedge. Permissible deficiency in section thickness will be up to 1/4 inch.

3.5 SIDEWALK JOINTS

Sidewalk joints shall be constructed to divide the surface into rectangular areas. Transverse contraction joints shall be spaced at a distance equal to the sidewalk width or 5 feet on centers, whichever is less, and shall be continuous across the slab. Longitudinal contraction joints shall be constructed along the centerline of all sidewalks 10 feet or more in width. Transverse expansion joints shall be installed at sidewalk returns and

opposite expansion joints in adjoining curbs. Where the sidewalk is not in contact with the curb, transverse expansion joints shall be installed as indicated. Expansion joints shall be formed about structures and features which project through or into the sidewalk pavement, using joint filler of the type, thickness, and width indicated. Expansion joints are not required between sidewalks and curb that abut the sidewalk longitudinally.

3.5.1 Sidewalk Contraction Joints

The contraction joints shall be formed in the fresh concrete by cutting a groove in the top portion of the slab to a depth of at least one-fourth of the sidewalk slab thickness, using a jointer to cut the groove, or by sawing a groove in the hardened concrete with a power-driven saw, unless otherwise approved. Sawed joints shall be constructed by sawing a groove in the concrete with a 1/8 inch blade to the depth indicated. An ample supply of saw blades shall be available on the job before concrete placement is started, and at least one standby sawing unit in good working order shall be available at the jobsite at all times during the sawing operations.

3.5.2 Sidewalk Expansion Joints

Expansion joints shall be formed with 1/2 inch joint filler strips. Joint filler in expansion joints surrounding structures and features within the sidewalk may consist of preformed filler material conforming to ASTM D 1752 or building paper. Joint filler shall be held in place with steel pins or other devices to prevent warping of the filler during floating and finishing. Immediately after finishing operations are completed, joint edges shall be rounded with an edging tool having a radius of 1/8 inch, and concrete over the joint filler shall be removed. The joint opening shall be thoroughly cleaned before the sealing material is placed. Sealing material shall not be spilled on exposed surfaces of the concrete. Concrete at the joint shall be surface dry and atmospheric and concrete temperatures shall be above 50 degrees F at the time of application of joint sealing material. Excess material on exposed surfaces of the concrete shall be removed immediately and concrete surfaces cleaned.

3.5.3 Reinforcement Steel Placement

Reinforcement steel shall be accurately and securely fastened in place with suitable supports and ties before the concrete is placed.

3.6 CURB AND GUTTER JOINTS

Curb and gutter joints shall be constructed at right angles to the line of curb and gutter.

3.6.1 Contraction Joints

Contraction joints shall be constructed directly opposite contraction joints in abutting portland cement concrete pavements and spaced so that monolithic sections between curb returns will not be less than 5 feet nor greater than 15 feet in length. Contraction joints shall be constructed by means of 1/8 inch thick separators and of a section conforming to the cross section of the curb and gutter. Separators shall be removed as soon as practicable after concrete has set sufficiently to preserve the width and shape of the joint and prior to finishing.

3.6.2 Expansion Joints

Expansion joints shall be formed by means of preformed expansion joint filler material cut and shaped to the cross section of curb and gutter. Expansion joints shall be provided in curb and gutter directly opposite expansion joints of abutting portland cement concrete pavement, and shall be of the same type and thickness as joints in the pavement. Where curb and gutter do not abut portland cement concrete pavement, expansion joints at least 1/2 inch in width shall be provided at intervals not less than 10 meters (30 feet) nor greater than 120 feet. Expansion joints shall be provided in nonreinforced concrete gutter at locations indicated. Expansion joints shall be sealed immediately following curing of the concrete or as soon thereafter as weather conditions permit. The joint opening shall be thoroughly cleaned before the sealing material is placed. Sealing material shall not be spilled on exposed surfaces of the concrete. Concrete at the joint shall be surface dry and atmospheric and concrete temperatures shall be above 50 degrees F at the time of application of joint sealing material. Excess material on exposed surfaces of the concrete shall be removed immediately and concrete surfaces cleaned.

3.7 CURING AND PROTECTION

3.7.1 General Requirements

Concrete shall be protected against loss of moisture and rapid temperature changes for at least 7 days from the beginning of the curing operation. Unhardened concrete shall be protected from rain and flowing water. All equipment needed for adequate curing and protection of the concrete shall be on hand and ready for use before actual concrete placement begins. Protection shall be provided as necessary to prevent cracking of the pavement due to temperature changes during the curing period.

3.7.1.1 Mat Method

The entire exposed surface shall be covered with 2 or more layers of burlap. Mats shall overlap each other at least 6 inches. The mat shall be thoroughly wetted with water prior to placing on concrete surface and shall be kept continuously in a saturated condition and in intimate contact with concrete for not less than 7 days.

3.7.1.2 Impervious Sheeting Method

The entire exposed surface shall be wetted with a fine spray of water and then covered with impervious sheeting material. Sheets shall be laid directly on the concrete surface with the light-colored side up and overlapped 12 inches when a continuous sheet is not used. The curing medium shall not be less than 18-inches wider than the concrete surface to be cured, and shall be securely weighted down by heavy wood planks, or a bank of moist earth placed along edges and laps in the sheets. Sheets shall be satisfactorily repaired or replaced if torn or otherwise damaged during curing. The curing medium shall remain on the concrete surface to be cured for not less than 7 days.

3.7.1.3 Membrane Curing Method

A uniform coating of white-pigmented membrane-curing compound shall be applied to the entire exposed surface of the concrete as soon after finishing as the free water has disappeared from the finished surface. Formed surfaces shall be coated immediately after the forms are removed and in no case longer than 1 hour after the removal of forms. Concrete shall not be allowed to dry before the application of the membrane. If any drying has occurred, the surface of the concrete shall be moistened with a fine spray of water and the curing compound applied as soon as the free water disappears. Curing compound shall be applied in two coats by hand-operated pressure sprayers at a coverage of approximately 200 square feet per gallon for the total of both coats. The second coat shall be applied in a direction approximately at right angles to the direction of application of the first coat. The compound shall form a uniform, continuous, coherent film that will not check, crack, or peel and shall be free from pinholes or other imperfections. If pinholes, abrasion, or other discontinuities exist, an additional coat shall be applied to the affected areas within 30 minutes. Concrete surfaces that are subjected to heavy rainfall within 3 hours after the curing compound has been applied shall be resprayed by the method and at the coverage specified above. Areas where the curing compound is damaged by subsequent construction operations within the curing period shall be resprayed. Necessary precautions shall be taken to insure that the concrete is properly cured at sawed joints, and that no curing compound enters the joints. The top of the joint opening and the joint groove at exposed edges shall be tightly sealed before the concrete in the region of the joint is resprayed with curing compound. The method used for sealing the joint groove shall prevent loss of moisture from the joint during the entire specified curing period. Approved standby facilities for curing concrete pavement shall be provided at a location accessible to the jobsite for use in the event of mechanical failure of the spraying equipment or other conditions that might prevent correct application of the membrane-curing compound at the proper time. Concrete surfaces to which membrane-curing compounds have been applied shall be adequately protected during the entire curing period from pedestrian and vehicular traffic, except as required for joint-sawing operations and surface tests, and from any other possible damage to the continuity of the membrane.

3.7.2 Backfilling

After curing, debris shall be removed and the area adjoining the concrete shall be backfilled, graded, and compacted to conform to the surrounding area in accordance with lines and grades indicated.

3.7.3 Protection

Completed concrete shall be protected from damage until accepted. The Contractor shall repair damaged concrete and clean concrete discolored during construction. Concrete that is damaged shall be removed and reconstructed for the entire length between regularly scheduled joints. Refinishing the damaged portion will not be acceptable. Removed damaged portions shall be disposed of as directed.

3.7.4 Protective Coating

Protective coating, of linseed oil mixture, shall be applied to the exposed-to-view concrete surface after the curing period, if concrete will be exposed to de-icing chemicals within 6 weeks after placement. Concrete to receive a protective coating shall be moist cured.

3.7.4.1 Application

Curing and backfilling operation shall be completed prior to applying two coats of protective coating. Concrete shall be surface dry and clean before each application. Coverage shall be by spray application at not more than 50 square yards per gallon for first application and not more than 70 square yards per gallon for second application, except that the number of applications and coverage for each application for commercially prepared mixture shall be in accordance with the manufacturer's instructions. Coated surfaces shall be protected from vehicular and pedestrian traffic until dry.

3.7.4.2 Precautions

Protective coating shall not be heated by direct application of flame or electrical heaters and shall be protected from exposure to open flame, sparks, and fire adjacent to open containers or applicators. Material shall not be applied at ambient or material temperatures lower than 50 degrees F.

3.8 FIELD QUALITY CONTROL

3.8.1 General Requirements

The Contractor shall perform the inspection and tests described and meet the specified requirements for inspection details and frequency of testing. Based upon the results of these inspections and tests, the Contractor shall take the action and submit reports as required below, and any additional tests to insure that the requirements of these specifications are met.

3.8.2 Concrete Testing

3.8.2.1 Strength Testing

The Contractor shall provide molded concrete specimens for strength tests. Samples of concrete placed each day shall be taken not less than once a day nor less than once for every 250 cubic yards of concrete. The samples for strength tests shall be taken in accordance with ASTM C 172. Cylinders for acceptance shall be molded in conformance with ASTM C 31/C 31M by an approved testing laboratory. Each strength test result shall be the average of 2 test cylinders from the same concrete sample tested at 28 days, unless otherwise specified or approved. Concrete specified on the basis of compressive strength will be considered satisfactory if the averages of all sets of three consecutive strength test results equal or exceed the specified strength, and no individual strength test result falls below the specified strength by more than 500 psi.

3.8.2.2 Air Content

Air content shall be determined in accordance with ASTM C 173 or ASTM C 231. ASTM C 231 shall be used with concretes and mortars made with relatively dense natural aggregates. Two tests for air content shall be made on randomly selected batches of each class of concrete placed during each shift. Additional tests shall be made when excessive variation in concrete workability is reported by the placing foreman or the Government inspector. If results are out of tolerance, the placing foreman shall be notified and he shall take appropriate action to have the air content corrected at the plant. Additional tests for air content will be performed on each truckload of material until such time as the air content is within the tolerance specified.

3.8.2.3 Slump Test

Two slump tests shall be made on randomly selected batches of each class of concrete for every 250 cubic yards, or fraction thereof, of concrete placed during each shift. Additional tests shall be performed when excessive variation in the workability of the concrete is noted or when excessive crumbling or slumping is noted along the edges of slip-formed concrete.

3.8.3 Thickness Evaluation

The anticipated thickness of the concrete shall be determined prior to placement by passing a template through the formed section or by measuring the depth of opening of the extrusion template of the curb forming machine. If a slip form paver is used for sidewalk placement, the subgrade shall be true to grade prior to concrete placement and the thickness will be determined by measuring each edge of the completed slab.

3.8.4 Surface Evaluation

The finished surface of each category of the completed work shall be uniform in color and free of blemishes and form or tool marks.

3.9 SURFACE DEFICIENCIES AND CORRECTIONS

3.9.1 Thickness Deficiency

When measurements indicate that the completed concrete section is deficient in thickness by more than 1/4 inch the deficient section will be removed, between regularly scheduled joints, and replaced.

3.9.2 High Areas

In areas not meeting surface smoothness and plan grade requirements, high areas shall be reduced either by rubbing the freshly finished concrete with carborundum brick and water when the concrete is less than 36 hours old or by grinding the hardened concrete with an approved surface grinding machine after the concrete is 36 hours old or more. The area corrected by grinding the surface of the hardened concrete shall not exceed 5 percent of the area of any integral slab, and the depth of grinding shall not exceed 1/4 inch. Pavement areas requiring grade or surface smoothness corrections in excess of the limits specified above shall be removed and replaced.

3.9.3 Appearance

Exposed surfaces of the finished work will be inspected by the Government and any deficiencies in appearance will be identified. Areas which exhibit excessive cracking, discoloration, form marks, or tool marks or which are otherwise inconsistent with the overall appearances of the work shall be removed and replaced.

-- End of Section --

SECTION 32 17 23.00 20

PAVEMENT MARKINGS
04/08

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 247	(2002) Glass Beads Used in Traffic Paint

ASTM INTERNATIONAL (ASTM)

ASTM D 4280	(2003) Extended Life Type, Nonplowable, Raised, Retroreflective Pavement Markers
ASTM D 4505	(2001a) Preformed Retroflective Pavement Marking Tape for Extended Service Life
ASTM D 792	(2000) Density and Specific Gravity (Relative Density) of Plastics by Displacement
ASTM E 28	(1999) Softening Point of Resins Derived from Naval Stores by Ring and Ball Apparatus

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS TT-B-1325	(Rev C) Beads (Glass Spheres) Retro-Reflective (Metric)
FS TT-P-1952	(Rev D) Paint, Traffic and Airfield Markings, Waterborne
INDOT	Indiana Dept of Transportation standard specifications (2014)

1.2 UNIT PRICES

1.2.1 Measurement

1.2.2 Pavement Striping and Markings

The unit of measurement for pavement striping and markings will be the linear foot of waterborne Traffic Paint, Epoxy, and Thermoplastic striping completed and accepted by the Contracting Officer.

1.2.2.3 Raised Pavement Markers

The unit of measurement for raised pavement markers will be the number each specific color required. Payment will be for the total number actually placed and approved by the Contracting Officer.

1.2.2.4 Removal of Pavement Markings

The unit of measurement for removal of pavement markings shall be the number of square feet of pavement markings actually removed and accepted by the Contracting Officer.

1.3 PAYMENT

Basis of pavement shall be actual length of line not length of roadway. A solid line shall be continuous. A broken line shall consist of 10 ft line segments with 30 ft gaps. New broken line placed over an existing broken line shall laterally match the existing broken line, and the new line segments shall not extend longitudinally more than 10% beyond either end of the existing line segments. The centerline of a multi-lane roadway shall be marked with a double solid line. The two lines forming the double solid line shall be spaced 8 in. apart and shall be equally offset on opposite sides of the geometric centerline. Edge lines shall be used to outline and separate the edge of pavement from the shoulder. Edge line markings shall be 4 in. in width and shall be placed such that the edge of the marking nearest the edge of the pavement shall be offset 4 in. from the edge of the pavement except as otherwise directed. Pavement message marking shall be used as specified or directed for railroad crossing approaches, intersection approaches, crosswalk approaches, handicap parking spaces, and other messages applied to the pavement with pavement marking material. The markings shall consist of all necessary lines, words, and symbols as specified or directed, and shall be in accordance with the MUTCD. All double line markings, such as a no passing zone or the centerline of an undivided multi-lane roadway, shall be applied in one pass.

1.4 EQUIPMENT

All machines, tools and equipment used in the performance of the work shall be approved and maintained in satisfactory operating condition. Equipment operating on roads and runways shall display low speed traffic markings and traffic warning lights.

1.4.1 Paint Application Equipment

1.4.1.1 Self-Propelled or Mobile-Drawn Pneumatic Spraying Machines

The equipment to apply paint to pavements shall be a self-propelled or mobile-drawn pneumatic spraying machine with suitable arrangements of atomizing nozzles and controls to obtain the specified results. The machine shall have a speed during application not less than 5 mph, and shall be capable of applying the stripe widths indicated, at the paint coverage rate specified in paragraph APPLICATION, and of even uniform thickness with clear-cut edges. The paint applicator shall have paint reservoirs or tanks of sufficient capacity and suitable gauges to apply paint in accordance with requirements specified. Tanks shall be equipped with suitable air-driven mechanical agitators. The spray mechanism shall be equipped with quick-action valves conveniently located, and shall include necessary pressure regulators and gauges in full view and reach of the operator. Paint strainers shall be installed in paint supply lines to ensure freedom from residue and foreign matter that may cause malfunction of the spray guns. The paint applicator shall be readily adaptable for attachment of an air-actuated dispenser for the reflective media approved for use. Pneumatic spray guns shall be provided for hand application of paint in areas where the mobile paint applicator cannot be used.

1.4.1.2 Hand-Operated, Push-Type Machines

All machines, tools, and equipment used in performance of the work shall be approved and maintained in satisfactory operating condition. Hand-operated push-type machines of a type commonly used for application of paint to pavement surfaces will be acceptable for marking small streets and parking areas. Applicator machine shall be equipped with the necessary paint tanks and spraying nozzles, and shall be capable of applying paint uniformly at coverage specified. Hand-operated spray guns shall be provided for use in areas where push-type machines cannot be used.

1.4.2 Thermoplastic Application Equipment

1.4.2.1 Thermoplastic Material

Thermoplastic material shall be applied to the pavement surface with suitable equipment capable of providing continuous uniformity in the dimensions of the stripe.

1.4.2.2 Application Equipment

a. Application equipment shall provide continuous mixing and agitation of the material. Conveying parts of the equipment between the main material reservoir and the extrusion shoe or spray gun shall prevent accumulation and clogging. All mixing and conveying parts up to and including the extrusion shoes and spray guns shall maintain the material at the required temperature with heat-transfer oil or electrical-element-controlled heat.

b. The application equipment shall be constructed to ensure continuous uniformity in the dimensions of the stripe. The applicator shall provide a means for cleanly cutting off stripe ends squarely and shall provide a method of applying "skip lines". The equipment shall be capable of applying varying widths of traffic markings.

c. The applicator shall be equipped with a drop-on type bead dispenser capable of uniformly dispensing reflective glass spheres at controlled rates of flow. The bead dispenser shall be automatically operated and shall begin flow prior to the flow of composition to assure that the strip is fully reflectorized.

1.4.2.3 Mobile and Maneuverable

Application equipment shall be mobile and maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. The equipment used for the placement of thermoplastic pavement markings shall be of two general types: mobile applicator and portable applicator.

a. Mobile Application Equipment: The mobile applicator shall be defined as a truck-mounted, self-contained pavement marking machine that is capable of hot applying thermoplastic by either the extrusion or spray method. The unit shall be equipped to apply the thermoplastic marking material at temperatures exceeding 375 degrees F, at widths varying from 3 to 12 inches and in thicknesses varying from 0.020 to 0.190 inch and shall have an automatic drop-on bead system. The mobile unit shall be capable of operating continuously and of installing a minimum of 20,000 lineal feet of longitudinal markings in an 8-hour day.

b. Portable Application Equipment: The portable applicator shall be defined as hand-operated equipment, specifically designed for placing special markings such as crosswalks, stop bars, legends, arrows, and short lengths of lane, edge and centerlines. The portable applicator shall be capable of applying thermoplastic pavement markings by the extrusion method. The portable applicator shall be loaded with hot thermoplastic composition from the melting kettles on the mobile applicator. The portable applicator shall be equipped with all the necessary components, including a materials storage reservoir, bead dispenser, extrusion shoe, and heating accessories, so as to be capable of holding the molten thermoplastic at a temperature of 375 to 425 degrees F, of extruding a line of 3 to 12 inches in width, and in thicknesses of not less than 0.125 inch nor more than 0.190 inch and of generally uniform cross section.

1.4.3 Epoxy Application Equipment

The machine used to apply the epoxy marking material shall precisely meter the two components, produce and maintain the necessary mixing head temperature within the required tolerances, all in accordance with the manufacturer’s recommendations. The machine shall be equipped with a high pressure water blast device ahead of a high pressure air blast device, both as an integral part of the gun carriage, for cleaning the pavement ahead of the marking application. The machine shall also be equipped with the following: a guide pointer to keep the machine on an accurate line; at least two spray guns which can be operated individually or simultaneously; an automatic device

which will provide a broken line of the required length; and automatic glass bead dispensers which is synchronized with the marking application.

1.4.3.1 Reflective Media Dispenser

The dispenser for applying the reflective media shall be attached to the paint dispenser and shall operate automatically and simultaneously with the applicator through the same control mechanism. The dispenser shall be capable of adjustment and designed to provide uniform flow of reflective media over the full length and width of the stripe at the rate of coverage specified in paragraph APPLICATION, at all operating speeds of the applicator to which it is attached.

1.4.3.2 Marking Removal Equipment

Equipment shall be mounted on rubber tires and shall be capable of removing markings from the pavement without damaging the pavement surface or joint sealant. Water blasting equipment shall be capable of producing an adjustable, pressurized stream of water. Sandblasting equipment shall include an air compressor, hoses, and nozzles. The compressor shall be equipped with traps to maintain the air free of oil and water.

1.4.3.3 Shot blasting Equipment

Shot blasting equipment shall be capable of producing an adjustable depth of removal of marking and pavement. Each unit shall be self-cleaning and self-contained, shall be able to confine dust and debris from the operation, and shall be capable of recycling the abrasive for reuse.

1.4.3.4 Chemical Equipment

Chemical equipment shall be capable of application and removal of chemicals from the pavement surface, and shall leave only non-toxic biodegradeable residue.

1.5 TRAFFIC CONTROLS

Suitable warning signs shall be placed near the beginning of the worksite and well ahead of the worksite for alerting approaching traffic from both directions. Small markers shall be placed along newly painted lines or freshly placed raised markers to control traffic and prevent damage to newly painted surfaces or displacement of raised pavement markers. Painting equipment shall be marked with large warning signs indicating slow-moving painting equipment in operation.

1.6 MAINTENANCE OF TRAFFIC

1.6.1 Roads, Streets, and Parking Areas

When traffic must be rerouted or controlled to accomplish the work, the necessary warning signs, flag persons, and related equipment for the safe passage of vehicles shall be provided.

1.7 WEATHER LIMITATIONS FOR REMOVAL

Pavement surface shall be free of snow, ice, or slush. Surface temperature shall be at least 40 degrees F and rising at the beginning of operations, except those involving shot or sand blasting. Operation shall cease during thunderstorms. Operation shall cease during rainfall, except for water blasting and removal of previously applied chemicals. Water blasting shall cease where surface water accumulation alters the effectiveness of material removal.

PART 2 PRODUCTS

2.1 PAINT

The paint shall be homogeneous, easily stirred to smooth consistency, and shall show no hard settlement or other objectionable characteristics during a storage period of 6 months. Paints for roads, parking areas, and streets shall conform to FS TT-P-1952, color as selected. Pavement marking paints shall comply with applicable state and local laws enacted to ensure compliance with Federal Clean Air Standards. Paint materials shall conform to the restrictions of the local Air Pollution Control District.

2.2 THERMOPLASTIC COMPOUNDS

The thermoplastic reflectorized pavement-marking compound shall be extruded or sprayed in a molten state onto a primed pavement surface. Following a surface application of glass beads and upon cooling to normal pavement temperatures, the marking shall be an adherent reflectorized strip of the specified thickness and width that is capable of resisting deformation by traffic in accordance with INDOT SECTION 808.

2.3 EPOXY PAINT

This material shall be applied only when the pavement temperature is 40°F or above. The wet film thickness of the epoxy marking material shall be a minimum of 15 mils. Immediately following the application of the epoxy markings, additional reflectorization shall be provided by applying glass beads to the surface of the wet marking at a uniform rate of 20 lb/100 sq ft (9.8 kg/10 m^2) of marking.

2.4 PHISICAL PROPERTIES

2.4.1 Color

The color shall be as indicated.

2.4.2 Drying Time

When installed at 70 degrees F and in thicknesses between 1/8 and 3/16 inch, after curing 15 minutes.

2.4.3 Softening Point

The composition shall have a softening point of not less than 194 degrees F when tested in accordance with ASTM E 28.

2.4.4 Specific Gravity

The specific gravity of the composition shall be between 1.9 and 2.2 as determined in accordance with ASTM D 792.

2.5 RAISED REFLECTIVE MARKERS

Either metallic or nonmetallic markers of the button or prismatic reflector type may be used. Markers shall be of permanent colors, as specified for pavement marking, and shall retain the color and brightness under the action of traffic. Markers shall have rounded surfaces presenting a smooth contour to traffic and shall not project more than 3/4 inch above level of pavement. Pavement markers and adhesive epoxy shall conform to ASTM D 4280 and INDOT SECTION 808,.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

Surfaces to be marked shall be thoroughly cleaned before application of the pavement marking material. Dust, dirt, and other granular surface deposits shall be removed by sweeping, blowing with compressed air, rinsing with water or a combination of these methods as required. Rubber deposits, surface laitance, existing paint markings,

and other coatings adhering to the pavement shall be completely removed with scrapers, wire brushes, sandblasting, approved chemicals, or mechanical abrasion as directed.

3.2 APPLICATION

All pavement markings and patterns shall be placed as shown on the plans.

3.2.1 Paint

Paint shall be applied to clean, dry surfaces, and only when air and pavement temperatures are above 40 degrees F and less than 95 degrees F. Paint temperature shall be maintained within these same limits Paint shall be applied pneumatically with approved equipment at rate of coverage specified. The Contractor shall provide guide lines and templates as necessary to control paint application. Special precautions shall be taken in marking numbers, letters, and symbols. Edges of markings shall be sharply outlined.

3.2.1.1 Rate of Application

A. The wet film thickness of the traffic paint shall be a minimum of 15 mils (380 µm).

B. Reflective Markings: Pigmented binder shall be applied evenly to the pavement area to be coated at a rate of 105 plus or minus 5 square feet per gallon. Glass spheres shall be applied uniformly to the wet paint on road and street pavement at a rate of 6 plus or minus 0.5 pounds of glass spheres per gallon of paint.

3.2.1.2 Drying

The maximum drying time requirements of the paint specifications will be strictly enforced to prevent undue softening of bitumen, and pickup, displacement, or discoloration by tires of traffic. If there is a delay in drying of the markings, painting operations shall be discontinued until cause of the slow drying is determined and corrected.

3.2.2 Thermoplastic Compounds

Thermoplastic pavement markings shall be placed upon dry pavement; surface dry only will not be considered an acceptable condition. At the time of installation, the pavement surface temperature shall be a minimum of 40 degrees F and rising. Thermoplastics, as placed, shall be free from dirt or tint.

3.2.2.1 Longitudinal Markings

All centerline, skipline, edgeline, and other longitudinal type markings shall be applied with a mobile applicator. All special markings, crosswalks, stop bars, legends, arrows, and similar patterns shall be placed with a portable applicator, using the extrusion method.

3.2.3 Raised Reflective Markers

Snowplowable raised pavement markers shall be used as supplemental delineation at the locations shown on the plans or as directed. The pavement or bridge deck surface shall be cleaned of dirt, dust, oil, grease, moisture, curing compound, and loose or unsound layers of all materials, which would interfere with the proper bonding of the marker to the pavement or bridge deck. Marker locations shall be accurately laid out and approved prior to the installation operation. Markers shall not be located on surfaces that show visible evidence of cracking, checking, spall or failure of underlying materials. Markers shall not be located within the intersection of a public road. Marker installation shall be in accordance with the manufacturer's recommendations. The pavement surface temperature and the ambient temperature shall be at least 50 degrees Fahrenheit. The pavement surface shall be dry at the time of marker installation. The installation slot shall be clean and dry before the adhesive is applied. The slot shall be filled with sufficient adhesive to provide a watertight seal between the marker base and the pavement, and to fill all voids between the marker base and the surfaces of the slot. The marker shall be placed in the slot so that the tips of the snowplow deflecting surfaces are below the pavement surface. If the pavement surface is newly

placed HMA, the pavement shall be allowed to cure for two days prior to installing the markers. The number of slots cut in one day shall not exceed the number of markers, which will be installed in that day. No slots shall be left open overnight.

3.3 MARKING REMOVAL

Pavement marking, including plastic tape, shall be removed in the areas shown on the drawings. Removal of marking shall be as complete as possible without damage to the surface. The removal process shall not expose aggregate. After the markings are removed, the cleaned pavement surfaces shall exhibit adequate texture for remarking as specified in paragraph SURFACE PREPARATION. Contractor shall demonstrate removal of pavement marking in an area designated by the Contracting Officer. The demonstration area will become the standard for the remainder of the work.

3.3.1 Equipment Operation

Equipment shall be controlled and operated to remove markings from the pavement surface, prevent dilution or removal of binder from underlying pavement, and prevent emission of blue smoke from asphalt or tar surfaces.

3.3.2 Cleanup and Waste Disposal

The worksite shall be kept clean of debris and waste from the removal operations. Cleanup shall immediately follow removal operations in areas subject to air traffic. Debris shall be disposed of at approved sites.

-- End of Section --

SECTION 32 31 00.00 10

FENCING
04/08

PART 1 GENERAL

1.1 REFERENCES

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

AWPA C1	(2003) All Timber Products - Preservative Treatment by Pressure Processes
AWPA C4	(2003) Poles - Preservative Treatment by Pressure Processes

ASTM INTERNATIONAL (ASTM)

ASTM A 116	(2005) Standard Specification for Metallic-Coated, Steel Woven Wire Fence Fabric
ASTM A 121	(1999; R 2004) Standard Specification for Metallic-Coated Carbon Steel Barbed Wire
ASTM A 153/A 153M	(2005) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 176	(1999; R 2004) Standard Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip
ASTM A 392	(2007) Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A 478	(1997; R 2002) Standard Specification for Chromium-Nickel Stainless Steel Weaving and Knitting Wire
ASTM A 491	(2003) Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric
ASTM A 666	(2003) Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate and Flat Bar
ASTM A 702	(1989; R 2006) Standard Specification for Steel Fence Posts and Assemblies, Hot Wrought
ASTM A 780	(2001; R 2006) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A 824	(2001; R 2007) Standard Specification for Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence

ASTM C 94/C 94M	(2007) Standard Specification for Ready-Mixed Concrete
ASTM D 4541	(2002) Pull-Off Strength of Coatings Using Portable Adhesion Testers
ASTM F 1043	(2006) Strength and Protective Coatings on Metal Industrial Chain-Link Fence Framework
ASTM F 1083	(2006) Standard Specification for Pipe, Steel, Hot-Dipped Zinc Coated (Galvanized) Welded, for Fence Structures
ASTM F 1184	(2005) Industrial and Commercial Horizontal Slide Gates
ASTM F 626	(1996a; R 2003) Standard Specification for Fence Fittings
ASTM F 668	(2006) Poly(Vinyl Chloride) (PVC) and other Organic Polymer-Coated Steel Chain-Link Fence Fabric
ASTM F 883	(2004) Padlocks
ASTM F 900	(2005) Industrial and Commercial Swing Gates
INDOT	(Indiana Dept of Transportation 2014

1.2 UNIT PRICES

1.2.1 Measurement

The quantity of each fencing item to be paid for shall be determined by actual measurement of the number of linear feet of in-place material that has been approved.

1.2.2 Payment

Payment shall be made at the contract unit bid prices per linear foot for the fencing items scheduled. The unit bid prices shall include the cost of all labor, materials, and the use of all equipment and tools required to complete the work.

PART 2 PRODUCTS

2.1 FENCE FABRIC

Fence fabric shall conform to the following:

2.1.1 Chain Link Fence Fabric

Provide Class 1 zinc-coated steel wire with minimum coating weight of 1.2 ounces of zinc per square foot of coated surface. Fabric shall be fabricated of 9-gauge wire woven in 2-inch mesh. Fabric shall be twisted and barbed on the top selvage and knuckled on the bottom selvage. Fabric shall be twisted and barbed on the top selvage and knuckled on the bottom selvage.

2.1.2 Woven Wire

The fence shall meet Section 603 of INDOT Specifications**.** Woven wire shall conform to ASTM A 116 No. 9 farm fence.

2.2 GATES

Shall be a Type I, single swing. Shape and size of gate frame shall be rectangular, 6 feet high by 12 feet wide. Framing and bracing members shall be round zinc-coated steel. Each end member of gate frames shall be extended sufficiently above the top member to carry three strands of barbed wire in horizontal alignment with barbed wire strands on the fence. Gate fabric shall be as specified for fencing fabric. Attach gate fabric to gate in accordance with manufacturer's standards, except that welding will not be permitted. Arrange padlocking latches to be accessible from both sides of gate, regardless of latching arrangement. Stops shall be provided for holding the gates in the open position. Gates shall be installed at the locations shown. Hinged gates shall be mounted to swing through 90 degrees from closed to open. Latches, stops, and keepers shall be installed as required. Hinge pins, and hardware shall be welded or otherwise secured to prevent removal.

2.3 POSTS

2.3.1 Metal Posts for Chain Link Fence

Line posts, end posts, and pull posts shall be Class 1, zinc-coated steel pipe, ASTM F 1083.

2.3.2 Posts for Farm Style Fence

Posts for field type fence shall be set on 12 feet maximum centers alternating one wood post then one steel galvanized coated post and so on. All wood posts shall be pressure treated with creosote with a minimum diameter of 5" on small end and shall be a minimum 6-1/2 feet long. Posts shall be treated in accordance with AWPA C1 or AWPA C4 as applicable. Wooden brace posts shall be 8" minimum diameter and 7 feet long. Corner posts shall have a minimum diameter of 10" and shall be 7 feet long. Steel posts shall be galvanized steel T posts 7 feet long.

2.4 BRACES AND RAILS

ASTM F 1083, Grade A. Top rails and braces shall be Group IA, zinc-coated steel pipe, size NPS 1-1/4".

2.5 TENSION WIRE

Tension wire shall be Type I or Type II, Class 4 coating, in accordance with ASTM A 824.

2.6 BARBED WIRE FOR FARM STYLE FENCE

Barbed wire shall conform to ASTM A 121 zinc-coated, Type Z, Class 3, or aluminum-coated, Type A, with 12.5 gauge wire with 14 gauge, round, 4-point barbs spaced no more than 5 inches apart.

2.7 BARBED WIRE FOR CHAIN LINK

Barbed wire shall be 2 strands, 12-1/2-gauge wire, zinc-coated, Class 3 in accordance with ASTM A 121. Barbed wire shall be four-point barbed type steel wire. Barbed wire support arms shall be the single arm type and of the design required for the post furnished

2.8 ACCESSORIES

ASTM F 626. Ferrous accessories shall be zinc or aluminum coated. minimum thickness of 0.006 inch, maximum thickness of 0.015 inch. Color coating of fittings shall match the color coating of the fabric. Truss rods shall be furnished for each terminal post. Truss rods shall be provided with turnbuckles or other equivalent provisions for adjustment. Barbed wire support arms shall be the single arm type and of the design required for the post furnished.

Tie wire for attaching fabric to rails, braces, and posts shall be 9 gauge steel wire and match the coating of the fence fabric. The tie wires shall be a double loop and 6.5 inches in length

PART 3 EXECUTION

3.1 INSTALLATION

Fence shall be installed to the lines and grades indicated. The area on either side of the fence line shall be cleared to the extent indicated. Line posts shall be spaced equidistant at intervals not exceeding 10 feet. Terminal (corner, gate, and pull) posts shall be set at abrupt changes in vertical and horizontal alignment. Fabric shall be continuous between terminal posts; however, runs between terminal posts shall not exceed 500 feet. Any damage to galvanized surfaces, including welding, shall be repaired with paint containing zinc dust in accordance with ASTM A 780.

3.2 EXCAVATION

Post holes shall be cleared of loose material. Waste material shall be spread where directed. Rock encountered while excavating the post holes shall be included in the cost of the line items. The ground surface irregularities along the fence line shall be eliminated to the extent necessary to maintain a 3inch clearance between the bottom of the fabric and finish grade.

3.3 POST FOR CHAIN LINK FENCE

Posts shall be set plumb and in alignment. Except where solid rock is encountered, posts shall be set in concrete to the depth indicated on the drawings. Where solid rock is encountered posts shall be set to a minimum depth of 18 inches in rock. Before reaching the indicated depth, in which case depth of penetration shall terminate. All portions of posts set in rock shall be grouted. Portions of posts not set in rock shall be set in concrete from the rock to ground level. Posts set in concrete shall be set in holes not less than the diameter shown on the drawings. Diameters of holes in solid rock shall be at least 1 inch greater than the largest cross section of the post. Concrete and grout shall be thoroughly consolidated around each post, shall be free of voids and finished to form a dome. Concrete and grout shall be allowed to cure for 72 hours prior to attachment of any item to the posts. Group II line posts may be mechanically driven, for temporary fence construction only, if rock is not encountered. Driven posts shall be set to a minimum depth of 3 feet and shall be protected with drive caps when being set. For high security fences, fence post rigidity shall be tested by applying a 50 pound force on the post, perpendicular to the fabric, at 5 feet above ground; post movement measured at the point where the force is applied shall be less than or equal to 3/4 inch from the relaxed position; every tenth post shall be tested for rigidity; when a post fails this test, further tests on the next four posts on either side of the failed post shall be made; all failed posts shall be removed, replaced, and retested at the Contractor's expense.

3.4 TOP RAIL

Top rail shall be supported at each post to form a continuous brace between terminal posts. Where required, sections of top rail shall be joined using sleeves or couplings that will allow expansion or contraction of the rail. Top rail, if required for high security fence, shall be installed as indicated on the drawings.

3.4.1 Bottom Rail

The bottom rail shall be bolted to double rail ends and double rail ends shall be securely fastened to the posts. Bolts shall be peened to prevent easy removal. Bottom rail shall be installed before chain link fabric.

3.5 TENSION WIRES

Tension wires shall be installed along the top and bottom of the fence line and attached to the terminal posts of each stretch of the fence. Top tension wires shall be installed within the top 1 foot of the installed fabric. Bottom tension wire shall be installed within the bottom 6 inches of the installed fabric. Tension wire shall be pulled taut and shall be free of sag.

3.6 CHAIN LINK FABRIC

Tie wire for attaching fabric to rails, braces, and posts shall be 9-gauge steel wire and match the coating of the fence fabric. Tie wires for attaching fabric to tension wires shall be 16-gauge stainless steel. The tie wires shall be a double loop and 6.5 inches in length. Install fence on prepared surface to the line and grade indicated. Install fence in accordance with fence manufacturer's written installation instructions. Provide line posts spaced equidistantly apart, not exceeding 10 feet on center. Provide gateposts spaced as necessary for size of gate openings. Do not exceed 500 feet on straight runs between braced posts. Provide corner or pull posts, with bracing in both directions, for changes in direction of 15 degrees or more, or for abrupt changes in grade. Set posts plumb and in alignment. Allow concrete to cure a minimum of 72 hours before performing other work on posts. All portions of posts set in rock shall be grouted. Portions of posts not set in rock shall be set in concrete from the rock to ground level. Concrete and grout shall be thoroughly consolidated around each post, shall be free of voids and finished to form a dome.

Braces and truss rods shall be installed as indicated and in conformance with the standard practice for the fence furnished. Horizontal (compression) braces and diagonal truss (tension) rods shall be installed. Diagonal braces shall form an angle of approximately 40 to 50 degrees with the horizontal. No bracing is required on fences 6 feet high or less if a top rail is installed. Top and bottom rails or tension wires (or combination of the two) shall be installed at the top and bottom of the fence fabric to prevent the fence fabric from being pulled out. If rails are installed, rails shall be installed before installing chain-link fabric. Pass top rail through intermediate post caps. Provide expansion coupling spaced as indicated. If tension wires are installed, tension wires shall be attached to the terminal posts of each stretch of fence. Top tension wire shall be installed within the top 4 inches of the installed fabric. Bottom tension wire shall be installed within the bottom 6 inches of the installed fabric. Tension wire shall be pulled taut and shall be free of sag.

Chain link fabric shall be installed on the exterior side of the posts. Fabric shall be attached to terminal posts with stretcher bars and tension bands. Bands shall be spaced at approximately 15-inch intervals. The fabric shall be installed and pulled taut to provide a smooth and uniform appearance free from sag, without permanently distorting the fabric diamond or reducing the fabric height. Fabric shall be fastened to line posts at approximately 15-inch intervals and fastened to all rails and tension wires at approximately 24-inch intervals. Fabric shall be cut by untwisting the removing pickets. Splicing shall be accomplished by weaving a single picket into the ends of the rolls to be joined. The bottom of the installed fabric shall be 2 inches maximum above the ground. After the fabric installation is complete, the fabric shall be exercised by applying a 50 pound push-pull force at the center of the fabric between posts; the use of a 30 pound pull at the center of the panel shall cause fabric deflection of not more than 2-1/2 inches when pulling fabric from the post side of the fence; every second fence panel shall meet this requirement; all failed panels shall be re-secured and re-tested at the Contractor's expense.

Barbed wire supporting arms shall accommodate a top rail and three strands of barbed wire. Install supporting arms as recommended by manufacturer. In addition to manufacturer's standard connections, permanently secure supporting arms to posts. Supporting arms shall be oriented towards the outside of the fence line. Install three strands of barbed wire on supporting arms above fence posts. Extend each end member of gate frames sufficiently above top member to carry three strands of barbed wire in horizontal alignment with barbed wire strands on the fence. Pull each strand taut and securely fasten each strand to each supporting arm or extended member. Secure wires in accordance with fence manufacturer's recommendations. Fences shall be grounded on each side of all gates, at each corner, at the closest approach to each building located within 50 feet of the fence, and where the fence alignment changes more than 15 degrees. Grounding locations shall not exceed 150 feet. Each gate panel shall be bonded with a flexible bond strap to its gatepost. Fences crossed by power lines of 600 volts or more shall be grounded at or near the point of crossing and at distances not exceeding 150 feet on each side of crossing. Ground conductor shall consist of No. 8 AWG solid copper wire. Grounding electrodes shall be ¾ inch by 10-foot long copper-clad steel rod. Electrodes shall be driven into the earth so that the top of the electrode is at least 6 inches below the grade. Where driving is impracticable, electrodes shall be buried a minimum of 12 inches deep and radially from the fence. The top of the electrode shall be not less than 2 feet or more than 8 feet from the fence. Ground conductor shall be clamped to the fence and electrodes with bronze grounding clamps to create electrical continuity between fence posts, fence fabric, and ground rods. After installation the total resistance of fence to ground shall not be greater than 25 ohms. Chain link fabric shall be installed on the side of the post indicated. Fabric shall be attached to terminal posts with stretcher bars and tension bands. Bands shall be spaced at

approximately 15 inch intervals. The fabric shall be installed and pulled taut to provide a smooth and uniform appearance free from sag, without permanently distorting the fabric diamond or reducing the fabric height. Fabric shall be fastened to line posts at approximately 15 inch intervals and fastened to all rails and tension wires at approximately inch intervals. Fabric shall be cut by untwisting and removing pickets. Splicing shall be accomplished by weaving a single picket into the ends of the rolls to be joined.

3.7 CHAIN LINK FENCE GATES

shall be installed at the locations shown. Hinged gates shall be mounted to swing as indicated. Latches, stops, and keepers shall be installed as required. Gates shall be installed as recommended by the manufacturer. Hinge pins, and hardware shall be welded or otherwise secured to prevent removal.

3.8. FARM STYLE FENCE

The fence shall meet Section 603 of INDOT Specifications**.** Unless otherwise directed, posts shall be set so that the entire fence is inside the right-of-way and such that the fence can be placed on the side of the post facing the other landowner. Posts for field type fence shall be set on 12 feet maximum centers alternating one wood post then one steel post and so on. Spacing of these posts shall be as uniform as practicable under the existing conditions. However, additional posts shall be set at each abrupt change in grade. The tops of all posts shall be set to the required grade and alignment. Pull posts or brace post shall be set at 500 feet maximum intervals. Extra length posts shall be required at stream crossings as shown on the plans or as directed and also at small ground depressions where it is not practical for the fencing to follow closely the contour of the ground. The bottom of the fabric shall be placed above the ground line as shown on the plans. Over irregular ground, a minimum of 3” and a maximum of 6”. All fence fabric and barbed wire shall be fastened with 1-½” staples. All necessary excavation and backfilling required shall be performed in accordance with these provisions. All splices in the fabric and wire shall be securely made in accordance with the best practice and the manufacturer's recommendations, and by the use of tools designed for that purpose. One strand of bar wire shall be placed at the top of fence fabric 3” above woven wire.

3.9 BARBED WIRE FOR FARM STYL FENCE

Wire shall be installed on the side of the post indicated. Wire shall be pulled taut to provide a smooth uniform appearance, free from sag.

3.10 WATER GATES INSTALLED

The contractor shall construct and install water gates where required. Varying site conditions may result in changed design of water gates. This item will be by the LF. These gates shall be constructed by CCA pressure treated lumber. A typical water gate is shown in sketch attachment B.

3.11 GROUNDING

Fences shall be grounded on each side of all gates, at each corner, at the closest approach to each building located within 50 feet of the fence, and where the fence alignment changes more than 15 degrees. Grounding locations shall not exceed 650 feet. Each gate panel shall be bonded with a flexible bond strap to its gate post. Fences crossed by powerlines of 600 volts or more shall be grounded at or near the point of crossing and at distances not exceeding 150 feet on each side of crossing. Ground conductor shall consist of No. 8 AWG solid copper wire. Grounding electrodes shall be 3/4 inch by 10 foot long copper-clad steel rod. Electrodes shall be driven into the earth so that the top of the electrode is at least 6 inches below the grade. Where driving is impracticable, electrodes shall be buried a minimum of 12 inches deep and radially from the fence. The top of the electrode shall be not less than 2 feet or more than 8 feet from the fence. Ground conductor shall be clamped to the fence and electrodes with bronze grounding clamps to create electrical continuity between fence posts, fence fabric, and ground rods. After installation the total resistance of fence to ground shall not be greater than 25 ohms.

3.12 REMOVAL OF FIELD AND CHAIN LINK FENCE

The contractor shall remove and dispose of all existing fence and posts, level ground back to original grade, and seed and mulch repaired areas. These existing materials shall become property of the Contractor and may be removed from center or disposed of on Center at a site designated by the Contracting Officer.

-- End of Section --