

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE _____ PAGE _____ OF _____ PAGES

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. <i>(If applicable)</i>
6. ISSUED BY _____ CODE _____	7. ADMINISTERED BY <i>(If other than Item 6)</i> _____ CODE _____		

8. NAME AND ADDRESS OF CONTRACTOR <i>(No., street, county, State and ZIP Code)</i>	(X)	9A. AMENDMENT OF SOLICIATION NO.
		9B. DATED <i>(SEE ITEM 11)</i>
		10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED <i>(SEE ITEM 11)</i>
CODE _____ FACILITY CODE _____		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
 (a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: <i>(Specify authority)</i> THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES <i>(such as changes in paying office, appropriation date, etc.)</i> SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER <i>(Specify type of modification and authority)</i>

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER <i>(Type or print)</i>	16A. NAME AND TITLE OF CONTRACTING OFFICER <i>(Type or print)</i>
15B. CONTRACTOR/OFFEROR	16B. UNITED STATES OF AMERICA
15C. DATE SIGNED	16C. DATE SIGNED
<i>(Signature of person authorized to sign)</i>	<i>(Signature of Contracting Officer)</i>

Item 14. Continued.

AMENDMENT NO. 0003 erroneously stated the following listed drawings were amended and reissued as part of AMENDMENT NO. 0003, **These drawings were not part of the Amendment package.**

sd04_3.cal Seq 555 SD-4 INTERMEDIATE & FIFTH LEVEL PLANS

sd05_3.cal Seq 556 SD-5 SIXTH & SEVENTH LEVEL PLANS

CHANGES TO BIDDING SCHEDULE

Replace the Bidding Schedule, pages 00010-3 through 00010-7, with the accompanying new Bidding Schedule, bearing the notation "ACCOMPANYING AMENDMENT NO. 0004 TO SOLICITATION NO. DACA63-00-B-0013."

CHANGES TO THE SPECIFICATIONS

Replacement Sections - Replace the following sections with the accompanying new sections of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0004 TO SOLICITATION NO. DACA63-00-B-0013:"

01420 Basic Stormwater Pollution Prevention Plan (SWPPP)
01451 Contractor Quality Control
01500 Temporary Construction Facilities
02115 Hydrant Fueling System Removal
02220 Demolition
02556 Gas Distribution Systems
02933 Establishment of Turf
08700 Builders' Hardware
10880 Scales

CHANGES TO THE DRAWINGS

1) Delete reference to Bid option #4 in the title from the following drawings:

Seq 8 C-8
Seq 9 C-9
Seq 10 C-10
Seq 11 C-11
Seq 12 C-12
Seq 13 C-13
Seq 15 C-15
Seq 16 C-16
Seq 17 C-17
Seq 18 C-18
Seq 19 C-19
Seq 21 C-21
Seq 22 C-22
Seq 23 C-23
Seq 24 C-24
Seq 25 C-25

2) Insert the line "(Base Bid + Option #4)" to the title of following drawings:

Seq 178 CA17A
Seq 179 CA18
Seq 183A CA22A
Seq 184 CA23
Seq 205 CA44
Seq 210 CA49

3) Insert the line "The Warehouse is a Bid Option #4 in Amendment #0004" to the following drawings:

Seq 356 AB-0
Seq 357 AB-01
Seq 358 AB-02
Seq 359 AB-03
Seq 360 AB-04
Seq 361 AB-05
Seq 362 AB-06
Seq 363 AB-07
Seq 364 AB-08
Seq 365 AB-09
Seq 366 AB-10
Seq 367 AB-11
Seq 368 AB-12
Seq 369 AB-13
Seq 370 AB-14
Seq 371 AB-15
Seq 372 AB-16
Seq 373 AB-17
Seq 374 AB-18
Seq 375 AB-19
Seq 376 AB-20
Seq 515 AD-2.5

Seq 382 SB-1
Seq 383 SB-2
Seq 384 SB-3
Seq 385 SB-4
Seq 386 SB-5
Seq 387 SB-6
Seq 388 SB-7
Seq 389 SB-8

4) Replacement Drawings.- Replace the drawings listed below with the attached new drawings(s) of the same number, bearing the notation "AM #0004":

g02_4.cal G-2 INDEX OF DRAWINGS VOLUME ONE
g03_4.cal G-3 INDEX OF DRAWINGS VOLUME TWO
g06_4.cal G-6 INDEX OF DRAWINGS VOLUME FIVE
c17_4.cal Seq 17 C-17 AMMO LOAD APRON & TAXIWAY - CROSS-SECTION SHT. 6
c17a_4.cal Seq 17A C-17A AMMO LOAD APRON & TAXIWAY - PROFILE -NEW FENCE ROAD
c17b_4.cal Seq 17B C-17B AMMO LOAD APRON & TAXIWAY - PROFILE -NEW FENCE ROAD

c26_4.cal Seq 26 C-26 PAVEMENT SECTIONS SHT. 1
c39a_4.cal Seq 39A C-39A TIRE SHAKER DETAILS
c41_4.cal Seq 41 C-41 UTILITY DETAILS 2
h09_4.cal Seq 66 H-9 EROSION AND SEDIMENT CONTROL PLAN 6
h09a_4.cal Seq 66A H-9A EROSION AND SEDIMENT CONTROL PLAN 6A
h11_4.cal Seq 68 H-11 EROSION AND SEDIMENT CONTROL PLAN 8
h12a_4.cal Seq 69A H-12A EROSION AND SEDIMENT CONTROL PLAN 9A
sn02_4.cal Seq 73 SN-2 STRUCTURAL NOTES AND MISC. DETAILS 2
sn03_4.cal Seq 74 SN-3 STRUCTURAL NOTES AND MISC. DETAILS 3
eu02_4.cal Seq 76 EU2 EXTERIOR LEGEND & SCHEDULES
eu03_4.cal Seq 77 EU3 AIRFIELD LIGHTING CIRCUIT & DUCT RUN SCHEDULES
eu50_4.cal Seq 124 EU50 ELECTRICAL SITE PLAN AREA 21
eu51_4.cal Seq 125 EU51 ELECTRICAL SITE PLAN AREA 22
eu54_4.cal Seq 128 EU54 ELECTRICAL SITE PLAN AREA 25
eu56_4.cal Seq 130 EU56 ELECTRICAL SITE PLAN AREA 27
eu60_4.cal Seq 134 EU60 ELECTRICAL SITE PLAN AREA 31
eu64_4.cal Seq 138 EU64 EXTERIOR LIGHTING DETAILS 2
eu81_4.cal Seq 155 EU81 CATHODIC PROTECTION DETAILS
eu82_4.cal Seq 156 EU82 POLE DETAILS 1
eu83_4.cal Seq 157 EU83 POLE DETAIL G & AMMO UPLOAD ELECTRICAL DETAILS
ca06_4.cal Seq 165 CA-6 SOUTH APRON - CLEARING PLAN 5
ca16_4.cal Seq 176 CA-16 SOUTH APRON - LAYOUT PLAN 4
ca17ab_4.cal Seq 178AB CA-17AB SOUTH APRON - LAYOUT PLAN 5 ENLARGED VIEWS (base bid)
ca18a_4.cal Seq 179A CA-18A SOUTH APRON - LAYOUT PLAN 6 (base bid)
ca22ab_4.cal Seq 183AB CA-22AB SOUTH APRON - GRADING PLAN 5 ENLARGED VIEW (Base Bid)
ca23a_4.cal Seq 184A CA-23A SOUTH APRON - GRADING PLAN 6 (Base Bid)
ca24_4.cal Seq 185 CA-24 SOUTH APRON - GRADING PLAN 7
ca32_4.cal Seq 193 CA-32 SOUTH APRON - PROFILE SHT. 8 STORM DRAIN LINES E2, E3, F
ca42_4.cal Seq 203 CA-42 SOUTH APRON - PAVING & JOINT PATTERN PLAN 4
ca44a_4.cal Seq 205A CA-44A SOUTH APRON - PAVING & JOINT PATTERN PLAN 6 (Base Bid)
ca49a_4.cal Seq 210A CA-49A SOUTH APRON - PAVEMENT MARKING PLAN 6 (Base Bid)
ca53_4.cal Seq 214 CA-53 SOUTH APRON - UTILITY PLAN 5 (Base Bid + Option 4)
ca53a_4.cal Seq 214A CA-53A SOUTH APRON - UTILITY PLAN 5 (Base Bid)
ca54a_4.cal Seq 215A CA-54A SOUTH APRON - COMPOSITE UTILITY PLAN
ia01_4.cal Seq 270 IA-1 FURNITURE FLOOR PLAN
sa01_4.cal Seq 281 SA-1 FOUNDATION SCHEDULES/DETAILS - 1
sa02_4.cal Seq 282 SA-2 FOUNDATION SCHEDULES/DETAILS - 2
sa03_4.cal Seq 283 SA-3 FOUND. PLAN- TROOP AREA "B"
sa04_4.cal Seq 284 SA-4 FOUND. PLAN- SUPPORT AREA
sa05_4.cal Seq 285 SA-5 FOUND. PLAN- TROOP AREA "A" AND ADMINISTRATION AREA
sa06_4.cal Seq 286 SA-6 FOUNDATION SECTIONS I
ea09_4.cal Seq 341 EA9 AIR PASSENGER TERMINAL POWER PLAN TROOP AREA B
ea10_4.cal Seq 342 EA10 AIR PASSENGER TERMINAL POWER PLAN SUPPORT AREA
ea11_4.cal Seq 343 EA11 AIR PASSENGER TERMINAL POWER PLAN TROOP AREA A
ea12_4.cal Seq 344 EA12 AIR PASSENGER TERMINAL POWER PLAN ADMIN/CAB
ea17_4.cal Seq 349 EA17 AIR PASSENGER TERMINAL TELEPHONE/DATA/TV DIAGRAMS 1
ea18_4.cal Seq 350 EA18 AIR PASSENGER TERMINAL TELEPHONE/DATA/TV DIAGRAMS 2
ea22_4.cal Seq 354 EA22 AIR PASSENGER TERMINAL PANEL SCHEDULES 1
ea23_4.cal Seq 355 EA23 AIR PASSENGER TERMINAL PANEL SCHEDULES 2
eb07_4.cal Seq 405 EB7 WAREHOUSE TELE/DATA RISER DIAGRAMS
ec10_4.cal Seq 492 EC10 FIRE STATION TELEPHONE/DATA/TV RISER
ec12_4.cal Seq 494 EC12 FIRE STATION POWER RISER
cd01_4.cal Seq 497 CD-1 DEMOLITION PLAN 1
ad23_4.cal Seq 513 AD2.3 AIR TRAFFIC CONTROL TOWER - FLOOR PLAN – LEVEL FOUR & FIVE
ad24_4.cal Seq 514 AD2.4 AIR TRAFFIC CONTROL TOWER - FLOOR PLAN – LEVEL SIX
ad31_4.cal Seq 516 AD3.1 AIR TRAFFIC CONTROL TOWER - LOBBY ROOF PLAN & CAB ROOF PLAN
ad53_4.cal Seq 520 AD5.3 AIR TRAFFIC CONTROL TOWER - BUILDING ELEVATIONS III
ad61_4.cal Seq 521 AD6.1 AIR TRAFFIC CONTROL TOWER – BUILDING SECTIONS I

ad63_4.cal	Seq 523	AD6.3	AIR TRAFFIC CONTROL TOWER – BUILDING SECTIONS III
ad64_4.cal	Seq 524	AD6.4	AIR TRAFFIC CONTROL TOWER – BUILDING SECTIONS IV
ad65_4.cal	Seq 525	AD6.5	AIR TRAFFIC CONTROL TOWER – BUILDING SECTIONS V
ad71_4.cal	Seq 526	AD7.1	AIR TRAFFIC CONTROL TOWER – WALL SECTIONS I
ad72_4.cal	Seq 527	AD7.2	AIR TRAFFIC CONTROL TOWER – WALL SECTIONS II
ad81_4.cal	Seq 528	AD8.1	AIR TRAFFIC CONTROL TOWER – STAIR PLANS
ad83_4.cal	Seq 529	AD8.3	AIR TRAFFIC CONTROL TOWER – STAIR DETAILS
ad84_4.cal	Seq 530	AD8.4	AIR TRAFFIC CONTROL TOWER – STAIR DETAILS
ad91_4.cal	Seq 531	AD9.1	AIR TRAFFIC CONTROL TOWER – ENLARGED CAB CONSOLE PLAN
ad92_4.cal	Seq 532	AD9.2	AIR TRAFFIC CONTROL TOWER – CAB CONSOLE INTERIOR DETAILS I
ad93_4.cal	Seq 533	AD9.3	AIR TRAFFIC CONTROL TOWER – CAB CONSOLE INTERIOR DETAILS II
ad94_4.cal	Seq 534	AD9.4	AIR TRAFFIC CONTROL TOWER – CAB CONSOLE INTERIOR DETAILS III
ad101_4.cal	Seq 535	AD10.1	AIR TRAFFIC CONTROL TOWER – INTERIOR ELEVATIONS
ad121_4.cal	Seq 537	AD12.1	AIR TRAFFIC CONTROL TOWER – DOOR & WINDOW SCHEDULES
ad122_4.cal	Seq 538	AD12.2	AIR TRAFFIC CONTROL TOWER – DOOR & WINDOW DETAILS
ad131_4.cal	Seq 539	AD13.1	AIR TRAFFIC CONTROL TOWER – ROOF DETAILS
ad132_4.cal	Seq 540	AD13.2	AIR TRAFFIC CONTROL TOWER – ROOF DETAILS
ad143_4.cal	Seq 543	AD14.3	AIR TRAFFIC CONTROL TOWER – MISCELLANEOUS DETAILS III
id03_4.cal	Seq 546	ID-3	AIR TRAFFIC CONTROL TOWER-ROOM FINISH SCHEDULE
id04_4.cal	Seq 547	ID-4	AIR TRAFFIC CONTROL TOWER-SIGNAGE DETAILS
id05_4.cal	Seq 548	ID-5	AIR TRAFFIC CONTROL TOWER-SIGNAGE PLACEMENT
sd01_4.cal	Seq 550	SD-1	ELEVATION PLAN
sd04_4.cal	Seq 555	SD-4	INTERMEDIATE & FIFTH LEVEL PLANS
sd05_4.cal	Seq 556	SD-5	SIXTH & SEVENTH LEVEL PLANS
sd06a_4.cal	Seq 557A	SD-6.1	CONTROL TOWER INTERMEDIATE FLOOR SECTIONS - 2
ed04_4.cal	Seq 569	ED4	CONTROL TOWER LIGHTING PLAN LEVELS 1 AND 2
ed09_4.cal	Seq 574	ED9	CONTROL TOWER POWER PLAN LEVELS 1 THRU 4
ed15_4.cal	Seq 580	ED15	CONTROL TOWER GROUNDING
ed16_4.cal	Seq 581	ED16	CONTROL TOWER ROOF ELECTRICAL PLAN
ed17_4.cal	Seq 582	ED17	CONTROL TOWER TELE/DATA/TV RISER
ed19_4.cal	Seq 584	ED19	CONTROL TOWER POWER RISER
ed20_4.cal	Seq 585	ED20	CONTROL TOWER PANEL SCHEDULES
ee01_4.cal	Seq 593	EE1	SCALE HOUSE LEGEND SCHEDULES & DETAILS
ee02_4.cal	Seq 594	EE2	SCALE HOUSE ELECTRICAL PLANS & RISERS
sf0_4.cal	Seq 599A	SF-0	PALLET BLDG STRUC. NOTES & MISC. DETAILS
sf01_4.cal	Seq 600	SF-1	FOUNDATION PLAN
sf02_4.cal	Seq 601	SF-2	ROOF FRAMING
sf03_4.cal	Seq 602	SF-3	ROOF FRAMING SECTIONS
eg02_4.cal	Seq 621	EG2	FUELS BUILDING ELECTRICAL PLANS & RISERS
eh08_4.cal	Seq 644	EH8	LIGHTING VAULT TELE/DATA RISER DIAGRAM
eh09_4.cal	Seq 645	EH9	LIGHTING VAULT POWER RISER DIAGRAM

END OF AMENDMENT

Fixed Wing Aircraft Park (Title)
Fort Hood, Texas Location)

Solicitation No. DACA63-00-B-0013

BIDDING SCHEDULE
 (To be attached to SF 1442)

Item No.	Description	Estimated Quantity	Unit	Unit Cost	Estimated Amount
BASE BID: All work required by the plans and specifications for the construction of the Fixed Wing Airfield Park <u>excluding</u> all Options.					
0001	Air Passenger Terminal; complete (Including all utilities to the 1524mm (five foot) line exclusive of all work listed separately)	Job	Sum	***	\$_____
0002	Fire Station; complete (Including all utilities to the 1524mm (five foot) line exclusive of all work listed separately)	Job	Sum	***	\$_____
0003	Pallet Shed; complete (Including all utilities to the 1524mm (five foot) line exclusive of all work listed separately)	Job	Sum	***	\$_____
0004	Scale House; complete (Including all utilities to the 1524mm (five foot) line exclusive of all work listed separately)	Job	Sum	***	\$_____
0005	Fuel Shut-off House; complete (Including all utilities to the 1524mm (five foot) line exclusive of all work listed separately)	Job	Sum	***	\$_____
0006	Air Craft Control Tower; complete (Including all utilities to the 1524mm (five foot) line exclusive of all work listed separately)	Job	Sum	***	\$_____

BIDDING SCHEDULE (Cont)

Item No.	Description	Estimated Quantity	Unit	Unit Cost	Estimated Amount
0007	Lighting Vault; complete (Including all utilities to the 1524 (five foot) line exclusive of all work listed separately.	Job	Sum	***	\$_____
0008	Runway and Taxiway Lighting, Guidance Signs and Distance Markers; <u>excluding</u> All work in Option No. 3.	Job	Sum	***	\$_____
0009	PCB Abatement	Job	Sum	***	\$_____
0010	Mercury Abatement	Job	Sum	***	\$_____
0011	CDC Abatement	Job	Sum	***	\$_____
0012	Drilled Piers				
0012AA	457mm (18-In) Drilled Piers	1343	M	\$_____	\$_____
0012AB	610mm (24-In) Drilled Piers	2136	M	\$_____	\$_____
0012AC	762mm (30-In) Drilled Piers	110	M	\$_____	\$_____
0012AD	914mm (36-In) Drilled Piers	297	M	\$_____	\$_____
0012AE	1067mm (42-In) Drilled Piers	90	M	\$_____	\$_____
0013	76mm High Stability HMSC(<u>excluding</u> all subgrade and base)	97	MT	\$_____	\$_____
0014	90mm High Stability HMSC(<u>excluding</u> all subgrade and base)	161	MT	\$_____	\$_____
0015	101mm High Stability HMSC(<u>excluding</u> all subgrade and base)	1506	MT	\$_____	\$_____
0016	180mm Concrete Pavement(<u>excluding</u> all subgrade and base)	37	M3	\$_____	\$_____
0017	190mm Concrete Pavement(<u>excluding</u> all subgrade and base)	1,132	M3	\$_____	\$_____

BIDDING SCHEDULE (Cont)

Item No.	Description	Estimated Quantity	Unit	Unit Cost	Estimated Amount
0018	205mm Concrete Pavement(<u>excluding</u> all subgrade and base)	3,424	M3	\$_____	\$_____
0019	230mm Concrete Pavement(<u>excluding</u> all subgrade and base)	6,846	M3	\$_____	\$_____
0020	368mm Concrete Pavement(<u>excluding</u> all subgrade and base)	36,165	M3	\$_____	\$_____
0021	All Exterior Work outside the building's five foot line (Including of all utilities, earthwork, paving, subgrade and bases for concrete paving and high stability asphalt paving, sidewalk, curb and gutter, demolition, turfing and all other work not listed separately	Job	Sum	***	\$_____
0022	Final Record Drawings	Job	Sum	***	\$100,000.00
				TOTAL BASE BID	\$_____
0023	OPTION NO. 1: All work required by the plans and specifications for the Demolition of the Fire Station.				
0023AA	Hazardous Waste Abatement	Job	Sum	***	\$_____
0023AB	Building and All Other Demolition	Job	Sum	***	\$_____
				TOTAL OPTION NO 1.	\$_____
0024	OPTION NO. 2: All work required by the plans and specifications for the Demolition of the Control Tower.				
0024AA	Hazardous Waste Abatement	Job	Sum	***	\$_____
0024AB	Building and All Other Demolition	Job	Sum	***	\$_____
				TOTAL OPTION NO 2.	\$_____

BIDDING SCHEDULE (Cont)

Item No.	Description	Estimated Quantity	Unit	Unit Cost	Estimated Amount
0025	OPTION NO. 3: All work required by the plans and specifications for the Approach Lighting				
		Job	Sum	***	\$_____
0026	OPTION NO. 4: All work required by the plans and specifications for the construction of the Warehouse and Loading Dock.				
		Job	Sum	***	\$_____

TOTAL BASE BID PLUS OPTIONS 1 THRU 4 \$_____

NOTES:

- 1 (a) For the purpose of initial evaluations of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the bidding schedule as submitted by bidders:
 - (1) Obviously misplaced decimal points will be corrected;
 - (2) Discrepancy between unit price and extended price, the unit price will govern;
 - (3) Apparent errors in extension of unit prices will be corrected; and
 - (4) Apparent errors in addition of lump-sum and extended prices will be corrected.
 - (b) For the purposes of bid evaluation, the Government will proceed on the assumption that the bidder intends his bid to be evaluated on the basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.
 - (c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.
2. If a modification to a bid based on unit prices is submitted, which provides for a lump sum adjustment to the total estimated cost, the application of the lump sum adjustment to each unit price in the bid schedule must be stated. If it is not stated, the bidder agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the bid schedule.
 3. Bidders must bid on all items.

NOTES: (cont)

4. Costs attributable to Division 01 - General Requirements are assumed to be prorated among bid items listed.

5. Responders are advised that this requirement may be delayed, canceled or revised at any time during the solicitation, selection, evaluation, negotiation and/or final award process based on decisions related to DOD changes in force structure and disposition of the Armed Services.

6. For the purpose of this solicitation, the word "item" shall be considered to mean "schedule" as used in Provision 52.214-0019, CONTRACT AWARD--SEALED BIDDING--CONSTRUCTION, in Section 00100 INSTRUCTIONS, CONDITIONS, AND NOTICES TO BIDDERS, excluding additives, deductives or options

7. The Government reserves the right to exercise the option(s) for up to 90 calendar days after award of the Base Bid without an increase in the Offeror's Bid Price. Completion of added options shall continue at the same schedule as the Base Bid unless otherwise noted in the CONSTRUCTION SCHEDULE, paragraph 1.1 entitled SCHEDULE.

8. Abbreviations

For the purposes of this solicitation, the units of measure are represented as follows:

M (Meters)
M2 (Square Meters)
M3 (Cubic Meters)
mm (Millimeter)
In (Inches)
MT (Metric Ton)

SECTION 01420

BASIC STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

Amend #0002 and #0004

PART 1 GENERAL

1.1 SUMMARY

This Section provides a basic Stormwater Pollution Prevention Plan (SWPPP) for a National Pollutant Discharge Elimination System (NPDES) General Permit.

1.2 PROJECT IDENTIFICATION AND NOTES

PROJECT TITLE: Fixed Wing Aircraft Park

LOCATION: Fort Hood, TEXAS

NOTE 1: General Permit for Storm Water Discharges from Construction Sites is authorized by the Clean Water Act and is regulated by guidance published in the Federal Register, Volume 63, Number 128, July 6, 1998.

NOTE 2: Under the National Pollutant Discharge Elimination System (NPDES), all construction sites 2.0 hectares (5.0 acres) in size or larger are required to obtain a General Permit for Storm Water Discharges from Construction Sites. Detailed guidance to Storm Water Pollution Prevention Plans (SWPPP) and Best Management Practices (BMP) is available in the Environmental Protection Agency document EPA-832-R-92-005 titled "Storm Water Management for Construction Activities." **[Amend #0002]** _____.

NOTE 3: To fully comply with the regulation, the Fort Worth District (or A/E) project designer and the construction Contractor will each prepare a SWPPP, and file for a separate Notice of Intent (NOI). The construction Contractor shall file the Notice of Termination (NOT) after final site stabilization **[Amend #0002]** and provide a copy of the NOT to Fort Worth District (EV-EE) for filing with EPA. The Contractor shall use the basic SWPPP to prepare the Contractor's detailed SWPPP.

1.3 PROJECT DESCRIPTION

This project is located at the Robert Gray Army Airfield, West Fort Hood. Base Bid construction work includes new south airfield parking apron, support buildings and associated site utilities, electrical utilities including manholes for airfield lighting, hydrant fueling system including fuel pipes, fuel drains, leak detection system, etc. The new support facilities include Lighting Vault Building (90048), Air Traffic Control Tower (90140), Fire Station (90145), Fuel Control Building (90150) and Passenger Terminal Building (90155), pallet warehouse, pallet building & scale, high dock, vehicle scales & house, hardstand for vehicle alert holding area, hardstand for ready load area, fuel/purge station and wash rack, helicopter landing pad, and ammunition loading apron and taxiway.

Construction activities involve establishing storm drainage control; clearing and grubbing; site demolition; grading; concrete and asphalt pavement; fencing; landscaping; excavation, trenching and backfill for utilities; abatement of regulated materials prior to demolition of buildings.

Base Bid includes demolition of Buildings 90079 and 90080, and vehicle scale 90071. Building 90050 will be demolished in Bid Option No.1, and Building 90049 will be demolished in Bid Option No.2. Construction of **[AM #0004]** Warehouse and Loading Dock will be in Bid Option No.4. Clearance of trees to a minimal extent is necessary for construction of ammunition loading apron, associated taxiway and access road, and alert holding area.

The total disturbed areas for Base Bid is approximately **[AM #0004]** 246,175 square meters (sm) or 25 hectares (ha).

The construction areas in the Base Bid are listed in the following: Lighting Vault Building (90048) is approximately 2,250 sm; Air Traffic Control Tower (90140) is approximately 4,800 sm; Fire Station (90145) is approximately 29,400 sm; South Aircraft Apron, Passenger Terminal, high dock, ready load area, and Fuel Control Building are approximately 140,800 sm; **[AM #0004]** _____, pallet building & scale, vehicle scales and house are approximately **[AM #0004]** 23,825 sm; alert holding area, fuel/purge station and wash rack are approximately 37,000 sm. Base Bid also includes construction of new electrical utilities (i.e. trenches and manholes) along the runway and taxiways, and mechanical fuel pipes at the existing apron and to the south of it. The total disturbed area is approximately 8,100 sm. The disturbed areas for building demolition (Buildings 90079, 90080, and vehicle scale 90071) are included as one of the construction areas under Base Bid.

The total disturbed area for Bid Option No.1 (Building 90050, Fire Station) is approximately 1,048 sm (or 11,646 square feet). The total disturbed area for Bid Option No.2 (Building 90049, Control Tower and Ops Building) is approximately 2,143 sm (or 23,812 square feet). The total disturbed area for Bid Option No.3 (Runway Approach Lighting System, extending from both ends of the runway) is approximately 1296 sm. The total disturbed area for Bid Option No.4 **[AM #0004]** (Warehouse and Loading Dock) is approximately 3,675 sm.

The project sites are shown on Project Location Map & Haul Route (sheet no. C-1); Project Location, Haul Route Map II (sheet no. C-2); TOPO SURVEY SHEET 1 (sheet C-4), TOPO **[Amend #0002]** SURVEY SHEET 2 (sheet C-5), and TOPO SURVEY SHEET 3 (sheet C-6).

1.4 STANDARD INDUSTRIAL CLASSIFICATION (SIC)

The construction activities associated with this project have the following Standard Industrial Classification (SIC) codes.

A. 1542 General Contractors - Non-Residential Building, other than Industrial Buildings and warehouses

B. 1771 Concrete Work (includes asphalt, i.e. access drives and parking lots, culvert construction)

C. 4581 Airports, Flying Fields, and Airport Terminal Services

D. 9711 National Security (a general category for military facilities)

1.5 LOCATION

The overall project site is located in west Fort Hood, Bell County, Texas. The central location for all new construction (Robert Gray Army Airfield) is at latitude of 31 degrees 02 minutes 15 seconds, and longitude of 97 degrees 48 minutes and 15 seconds. The project site is west of the **[Amend #0002]** cantonment area, south of U.S. Highway 190, northeast of Clarke Road (or renamed as New Robert Gray Drive).

The new Lighting Vault Bldg. (90048) is north of Gray Drive, east of **[Amend #0002]** existing Bldg. 90051, and west of **[Amend #0002]** existing Bldg. 90047. The new Air Traffic Control Tower (90140) is south New Robert Gray Drive and Gray Drive intersection and **[Amend #0002]** existing Bldg. 90067. The new Fire Station (90145) is southeast of Gray Drive, west of the existing taxiway and aircraft parking apron. All other new construction discussed in paragraph 1.3 under the Base Bid is at the existing airfield parking apron, and on the west and south sides of the apron. The Base Bid demolition site (buildings 90079, 90080 and vehicle scale 90071) is at the end of Clarke Road (or renamed as New Robert Gray Drive, west of the existing apron).

The demolition sites for Bid Option No.1 (B/90050) and Bid Option No.2 (B/90049) are east of the New Robert Gray Drive and Gray Drive intersection. The Bid Option No.3 construction site is new add-on at both ends of the runway. The Bid Option No.4 **[AM #0004]** (Warehouse and Loading Dock) construction site is at the south apron.

1.6 RECEIVING WATERS

Storm drainage from the airfield will outfall to tributaries of Reese Creek, west of the site. They flow east and southeast to Reese Creek, then south to Lampasas River, and eventually into Stillhouse Hollow Lake.

PART 2 SITE DESCRIPTION

2.1 EXISTING CONDITIONS

The existing conditions of each project areas are depicted in TOPO SURVEY SHEET 1 (sheet C-4), TOPO **[Amend #0002]** SURVEY SHEET 2 (sheet C-5, and TOPO SURVEY SHEET 3 (sheet C-6).

The new Lighting Vault Bldg. site is adjacent to asphalt areas. It slopes at a 1.5 percent grade to the southeast. A concrete ditch is located southeast of the site. **[Amend #0002]** This area has a runoff coefficient (C) of approximately 0.99.

The new Air Traffic Control Tower site has a jogging path, trees and brush and is enclosed by a security fence located to the south. The site has approximately 8 to 9 percent grade. South of the site and away from the security fence, it rises at a 38 percent grade. Site drainage flows north with a runoff coefficient (C) value of approximately 0.60.

An unpaved ditch drains southeast in the middle of the new Fire Station site. The west side and east side of the site slopes at a 4 to 8 percent

grade towards the ditch. The site is relatively undeveloped, the runoff coefficient (C) is approximately 0.58.

There are small tributaries of Reese Creek [**Amend #0002**] flowing south and southeast in close proximity to the west side of the existing airfield parking apron. The [**Amend #0002**] paved apron drops at a 16 percent grade at the edge and slopes at a 10 percent grade towards the creek. [**Amend #0002**] _____. [**Amend #0002**] This area has a runoff coefficient (C) of approximately 0.21.

The new ammunition loading pad and taxiway site is undeveloped; [**Amend #0002**] trees and vegetation occupy this area. Two creeks flow east and southeast through the site. [**Amend #0002**] This area has a runoff coefficient (C) of approximately 0.60.

2.2 FUTURE CONDITIONS

After construction, storm runoff from the new Lighting Vault Bldg. site will drain southeast at a 5 percent grade around the facility and then east at a 1.7 percent grade to the existing concrete ditch. The C value at the new site Lighting Vault Bldg. will remain at 0.99.

The new Air Traffic Control Tower site will have a 4 percent grade in the north side and 17 to 25 percent grade in the south side of the facility. Access road to the facility will be constructed from the New Robert Gray Drive. Sidewalks will be constructed on the north and east side of the facility. A new storm surface inlet will be constructed west of the facility. Storm runoff is diverted into storm drain pipes to flow north. A portion of the storm runoff is flowing east. The C value at the new Air Traffic Control Tower site will be roughly 0.66.

The new Fire Station site will be 70 percent paved. A significant quantity of fill material is needed for this site. Slope of the paved area will range from 1 to 2 percent grade. Drainage ditches, culverts, storm grates and pipes will be constructed to channel storm flow across the site and outfall to the southeast side. A portion of site runoff will drain southwest and then east in unpaved ditches. The C value at the new Fire Station site will be roughly 0.88.

[**Amend #0002**] The new paved apron will have a minimum of 0.5 percent and a maximum of 1.5 percent grade. Apron shoulders will be at 2 to 4 percent grade. Sheet flow on the apron will be intercepted by surface inlets and underground storm drain pipes located on the west side of the apron. Storm runoff from the west portion of the apron will drain into a storm pipe, a paved channel and culverts, then outfall through a concrete [**Amend #0002**] impact basin south of the Alert Holding Area, and discharge to the creek. Storm runoff from the east side of the apron will sheet flow into surface inlet, storm drain pipe, and outfall to a concrete basin and weir at the east edge of the apron. New construction south of the apron (i.e. Alert Holding Area) will have drainage ditches on both north and south sides of the Alert Holding Area. Storm runoff will drain east and southeast, then outfall through a concrete [**Amend #0002**] impact basin located south of the Alert Holding Area, and discharge into the creek. Runoff from the paved area of new construction south of the apron (i.e. fuel control bldg., high dock, ready load area, passenger terminal bldg., pallet warehouse, pallet building and scale, vehicle scales & house) will flow into surface inlets and storm drainage pipes or sheet flow to paved channels, then outfall via

culverts on the south or southwest sides to the creek. [Amend #0002] This area shall have a runoff coefficient (C) remain at approximately 0.21.

The new ammunition loading pad and taxiway site will be paved. A significant quantity of fill material is needed for this site. Longitudinal grades will not exceed 3 percent and the transverse grades will crown in the middle with 1.3 percent cross slope. Culverts and storm drain pipe will be constructed to channel the creek flow across the site. [Amend #0002] This area shall have a runoff coefficient (C) remain at approximately 0.21.

[Amend #0002] The concrete impact basins prevent soil erosion. These are sampling locations to monitor storm water from future operation as required in the base National Pollutant Discharge elimination System (NPDES) permit.

2.3 CONSTRUCTION PHASING

[Amend #0002] The new construction is projected to begin [AM #0004] August 2000, and is anticipated to be completed [AM #0004] February 2002.

The sequence of major activities associated with this project are as follows:

- A. Establishment of erosion and sediment structural controls for Base Bid.
- B. Clearing and Grubbing.
- C. Removal, Recycling, or disposal of asbestos, lead-based paint and other regulated material from Base Bid, prior to demolition.
- D. Base Bid Demolition - The Contractor shall review all demolition activities and minimize waste disposal by recycling metallic, glass, [Amend #0002] wood, refrigerants, and other regulated materials, etc.
- E. Grading and Drainage.
- F. Establishment of erosion and sediment structural controls (i.e. perimeter of disturbed areas, new and existing storm grates, excavated trenched materials, etc.) when executing Bid Option No.1 (B/90050, Fire Station), Bid Option No.2 (B/90049, Control Towers & Ops Buildings), Bid Option No.3 (Runway Approach Lighting System), and Bid Option No.4 [Amend #0004] (Warehouse and Loading Dock).
- G. Clearing and Grubbing For Bid Options.
- H. Grading and Drainage for Bid Options.
- I. Removal, Recycling, or disposal of asbestos, lead-based paint and other regulated material from Base Bid items, prior to demolition for Bid Options.
- J. Demolition in Bid Options - The Contractor shall review all demolition activities and minimize waste disposal by recycling metallic, glass, [Amend #0002] wood, refrigerants, and other regulated materials, etc.
- K. Site Stabilization - Temporary and permanent stabilization shall be established. The structural controls shall be removed only after

establishment of permanent stabilization and approval of the Contracting Officer Representative (COR).

The Contractor's detailed SWPPP shall identify all construction phasing activities and demolition activities for Base Bid and Bid Options.

2.4 SOILS DATA

The following soils data are from the Soil Survey of Coryell County, Texas, issued in March 1977, by the United States Department of Agriculture, Soil Conservation Service.

This site contains one soil type. The Topsy-Urban land complex association is characterized by deep and gently sloping land with slopes ranging from 3 to 8 percent, with an average of 4 percent. Typically, the surface layer is dark grayish brown clay loam and is approximately 178 millimeters (mm or 7 inches) deep. The subsoil measures approximately 559 mm (or 22 inches) and is grayish brown clay loam containing calcium carbonate [**Amend #0002**] _____ and shale fragments. The underlying material consists of stratified layers of marl and shale. This soil type is generally well drained; however, permeability is moderately slow and occurs at the rate of 15 to 51 mm (0.6 to 2.0 inches) per hour. Availability of water is medium. Runoff is medium to rapid, and erosion is severe. The root zone is easily penetrated by plant roots. Unified Soil Classification of this soil type is C. Potential for shrink-swell is moderate. Soil reaction (pH) ranges from 7.9 to 8.4.

2.5 DRAWINGS

The [**Amend #0002**] drawing sheet nos. H-4 through H-13 are Erosion and Sediment Control Plans 1 through 10. Structural control details are shown on sheet no. H-14. Base Bid structural controls are depicted on Plans 1 through 7. However, structural controls for electrical and mechanical utilities to be constructed under Base Bid (including electrical utilities on the runway and taxiways, and mechanical hydrant fueling system), and Bid Option No.3 are discussed in the general notes on sheet no. H-5. Structural controls for Bid Options No.1 and No.2 are depicted on Plan 10, and Bid Option No.4 is depicted on Plans 8 and 9.

PART 3 EROSION AND SEDIMENT CONTROLS

3.1 TEMPORARY STABILIZATION

[**Amend #0002**] When construction activities cease for periods longer than 14 days, or when there are contract delays in turfing operation, or when seasonal conditions preclude immediate permanent stabilization, a quick cover is required to prevent erosion, as soon as practicable, for the unpaved, graded and disturbed portions of the site. Section 02940 - MULCHING FOR EROSION CONTROL provides a recommended method which consists of the following: till the soil to a depth of 101.6 mm (or 4 inches), spread straw or hay mulch at a rate of 0.68 kilograms (kg) per square meter [**Amend #0002**] (sm) (or 3 tons per acre), and anchor the mulch into place using a mulch anchoring machine equivalent to a disk harrow with cupped disks removed and replaced with straight rolling coulters spaced not more than 203.2 mm (or 8 inches) apart.

3.2 PERMANENT STABILIZATION

The Contractor shall provide permanent stabilization on disturbed and graded areas in no more than 14 days after construction activities have ceased. All unpaved and graded areas within the approximate limit of erosion and sediment control, and disturbed areas resulting from the Contractor's operations shall receive turbing treatment as specified in specification Section 02933 - ESTABLISHMENT OF TURF. The structural controls shall be removed by the Contractor after project completion, final stabilization and approval of COR.

3.3 TEMPORARY SEDIMENT BASINS

A temporary sediment basin is not feasible for this project **[Amend #0002]** because the various construction sites are at separate locations and adequate erosion control is provided by other structural control methods.

3.4 STRUCTURAL CONTROLS

The Contractor shall use structural control details on sheet no. H-14 and other applicable structural controls approved by the Contracting Officer Representative (COR) to minimize erosion at each construction area. The Contractor's detailed SWPPP shall identify erosion and sediment control locations and type of structural controls required at each construction **[Amend #0002]** area, including material borrow (both on-site and off-site), **[Amend #0002]** material stockpile, construction entrance and egress, staging, and disposal areas.

PART 4 STORM WATER MANAGEMENT CONTROLS

4.1 RUNOFF COMPUTATIONS

The changes in site conditions after construction will increase storm runoff. Runoff computation shall be based on 10-year storm return frequency, storm duration of 30 minutes, and rainfall intensity of 107 mm (4.2 inches) per hour. The runoff coefficient (C) values of each site are discussed in paragraph 2.2 FUTURE CONDITIONS. Permanent structures such as curbs and gutters, storm drains, drainage ditches, culverts, concrete **[Amend #0002]** impact basin, and concrete and grass-lined channels will be used in this project to control erosion.

4.2 OUTFALL VELOCITY DISSIPATION DEVICES

Velocity dissipation devices (concrete **[Amend #0002]** impact basin with outfall and rip-rap) shall ___ provide non-erosive flow conditions at the south side of the Alert Holding Area and east edge of the new airfield apron. Concrete head walls will be constructed at the end of the storm drainage pipes along the new construction sites, south of the airfield apron. Culverts will be constructed at the ammunition loading pad, the Air Traffic Control Tower, and the Fire Station Alert Holding Area sites to minimize erosion.

PART 5 BEST MANAGEMENT PRACTICES (BMP) DURING CONSTRUCTION

The Contractor, or its subcontractors, shall be responsible for minimizing pollution of storm runoff. The Contractor shall discuss BMP in **[Amend #0002]** the detailed SWPPP. They shall comply with the BMP to minimize stormwater pollution.

5.1 WASTE MATERIALS

Solid waste materials (trash and construction debris) shall be placed in covered and appropriate waste containers. Waste containers shall be emptied regularly; they shall not be allowed to overflow. The disposal area of excavated material from project construction shall not be utilized for waste disposal. Routine janitorial service shall be provided for all construction buildings and surrounding grounds. No construction waste materials, including concrete, shall be buried **[Amend #0002]** _____. Locations of non-contaminated concrete rubble and asphalt or compound material disposal pits are on-base (see civil sheet C-2). All site personnel shall be briefed on the correct procedures for solid waste disposal.

5.2 HAZARDOUS WASTE

All hazardous waste shall be handled, stored, and disposed in accordance with all Federal, State, and local regulations and prior to all other construction activities. Chemical waste shall be stored in clearly labeled, corrosion-resistant containers, and stored in designated areas before removal from the site. Materials in excess of job requirements shall not be stored on-site. All site personnel shall be briefed on the correct procedures for hazardous waste disposal. All buildings to be demolished under Base Bid, Bid Options No.1, No.2, and No.3 shall require removal of regulated materials. Worker and environmental protection shall be implemented for lead and asbestos abatement per specifications.

5.3 SANITARY WASTE

On-site sanitary facilities shall be established. Facility location, design, maintenance, and waste collection practices shall be in accordance with local regulations. **[Amend #0002]**_____.

Amend #0001

5.4 OFF-SITE VEHICLE TRACKING AND DUST

The Contractor shall describe practices to keep vehicles from tracking soils from the disturbed areas (i.e. construction entrance /egress, borrow, disposal, stockpiled, excavated trenches and manholes). The Contractor shall describe practices for dust control; **[Amend #0001]**(light bituminous treatment in accordance with Section 01410, para 1.3.6.). The Contractor shall describe practices in hauling construction material or debris to avoid loss in the transport (i.e. open-bed vehicles shall be covered or otherwise stabilized. **[Amend #0002]** Temporary parking area(s) to be used 30 calendar days or more for the Contractor's equipment or personal vehicles shall be paved with temporary asphalt per specification and it shall be removed by the Contractor and followed by permanent stabilization upon project completion.

5.5 FERTILIZERS

If fertilizers are required by the this project, **[Amend #0002]** they shall be applied in accordance with the manufacturer's recommendations, in the stated amounts and only when weather conditions are appropriate.

5.6 CONSTRUCTION VEHICLE MAINTENANCE AND REPAIR

Specific areas shall be designated for equipment maintenance and repair to minimize potential impact on storm runoff. Locations shall be chosen to minimize potential impacts on receiving streams and waterways. These locations shall be approved by the Contracting Officer, and structural controls shall be provided. All construction vehicles shall be regularly inspected for leaks and receive regularly scheduled maintenance to reduce the potential for leaks.

5.7 VEHICLE FUELING

Vehicle fueling activities shall be conducted in accordance with good safety practices to reduce the potential for leaks and spills. Only properly constructed fuel containers shall be used on-site and shall be labeled and stored in accordance with applicable Federal, state, and local regulations. If the Contractor constructs a retention basin for storing washing and curing waters, it is the Contractor's responsibility to cleanup and dispose of the contents in the retention basin after project completion.

PART 6 TIMING OF CONTROLS AND ACTIVITIES.

Temporary and permanent stabilization shall be established as indicated in PART 3 EROSION AND SEDIMENT CONTROLS. The structural controls are required to be in-place prior to start of construction work. Major activities are identified in paragraph 2.3 CONSTRUCTION PHASING. The Contractor shall provide a detailed schedule to implement erosion and sediment control for each construction area.

PART 7 COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

[Amend #0002] The Contractor shall verify the following information in the detailed SWPPP to be submitted. This project is in compliance with the National Environmental Policy Act of 1969, as amended. The proposed site is located at a traditional non-hazardous location and is classified as Category 1, in accordance with Section 15, Environmental Analysis of DD Form 1391, document No.16496 P, prepared on 25 March 1987 and revised on 19 June 1997. Fort Hood has conducted an historical records search and review including aerial photography, planning, construction documents. Findings have revealed no evidence of environmental contamination. Physical inspection of the site and the vicinity also resulted in negative findings. Findings from the Record of Environmental Consideration (REC) shall be obtained from Fort Hood DPW-Environmental (POC Nancy Niemann, 254/287-9718) and included in this section of the detailed Contractor's SWPPP.

The construction activities renovating the existing runway, taxiways and expanding the current airfield apron will have no impacts to any state or federally listed threatened or endangered species and their habitats. Based on comments from Fort Hood DPW-Environmental at final design review, [Amend #0002] the site layout has been rearranged to minimize impacts to bird habitats because of demolishing trees at the Alert Holding Area site.

This project site has been further evaluated for historical properties and cultural resources by Dr. Cheryl Huckerby (phone: 254/287-1092 or Dr. [Amend #0002] Allan Walton, phone: -2633), Fort Hood in February 2000, as a part of the final design review process. Based on the area of potential effect (APE) identified from the project final design document, there are

[Amend #0002] 9 archaeological sites (2 are standing historic structures) potentially affected. The 2 historic buildings are within the APE but [Amend #0002] are not scheduled for demolition. [Amend #0002] Fort Hood is awaiting comments on the Report on Archeological Sites Affecting Fixed wing Aircraft Park Project from SHPO. It is not anticipated that these sites are eligible for Federal Register. The Contractor shall contact Dr. Huckerby or Dr. Walton to finalize this issue on historical properties and cultural resources in the Contractor's detailed SWPPP.

Army Regulation 200-1 requires that all Department of Defense installations and Contractors shall comply with Federal environmental protection statutes, which include a provision to observe [Amend #0002] state, and local environmental regulations.

In compliance with the Clean Water Act, this project is above 5.0 acres in size and is required to obtain a National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Construction Activities. The Federal Register Notice is published in Volume 63, Number 128, July 6, 1998.

PART 8 MAINTENANCE AND INSPECTION PROCEDURES

The Contractor shall conduct routine inspection of erosion and sediment controls established at each construction area. All pollution prevention structural control measures shall be inspected at least once every seven (7) days and within twenty-four (24) hours following any storm producing 150 millimeters (0.5 inches) or more of rainfall. The inspector shall thoroughly understand the requirements of the Contractor's SWPPP and shall have a basic knowledge of the engineering principles for reducing runoff pollution.

Temporary stabilization or grading shall be inspected for erosion and soil loss from the site. Temporary erosion control measures shall be inspected for bare spots and washouts. Discharge points shall be inspected for signs of erosion or sediment. Locations where vehicles enter and leave the site shall be checked for signs of off-site sediment tracking, including erosion control structure at material borrow, disposal, excavated, and stockpiled areas. The Best Management Practices and pollution control maintenance procedures shall be reviewed for adequate erosion control by the Contractor during construction. All deficiencies shall be recorded in the Inspection and Maintenance Report appended herein. The report shall be posted at the project bulletin board and submit to the COR after each inspection. The Contractor shall implement corrections to these problems within seven (7) calendar days and revise the SWPPP as deemed necessary. After final stabilization has been achieved, the Contractor shall inspect the disturbed site once a month until final inspection and project acceptance by the COR.

PART 9 MATERIAL INVENTORY

All materials or substances brought on-site during construction shall have a Material Safety Data Sheet (MSDS) available to the COR. These materials include concrete, paints, sealants, petroleum-based products, cleaning solvents, fertilizers, tar, asphalt, and steel reinforcing bars. The list of materials shall be stated in the Contractor's detailed SWPPP. Project's phase of work awarded separately will require a separate list of materials.

PART 10 NON-STORM WATER DISCHARGE

Non-storm water discharge shall not be allowed during construction of the project except for emergency fire-fighting flows and other flows permitted in accordance with 63 FR 128, July 6, 1998. In addition, any spill of a hazardous substance in excess of reporting quantities shall be reported as required under 40 CFR 110. Spill containment, notification, and clean-up in accordance with applicable Federal, state, and local regulations, and to the satisfaction of the COR, shall be required.

PART 11 CONTRACTOR COMPLIANCE

The Contractor shall use this basic SWPPP to prepare a detailed SWPPP that includes both narrative and drawings (Erosion and Sediment Control Plans). The detailed SWPPP shall state the following as a minimum: (1) the project start and completion dates, (2) bid options to be executed with the project, (3) construction phasing requirements, sequence of construction activities and pollution control measures, (4) discussion of the Best Management Practices (BMP) and implementation during project execution, (5) identify the list of materials brought on-site, (6) runoff computation of each drainage area (see paragraph 4.1), (7) [Amend #0002] findings of the revised REC completed in 2000 by Fort Hood DPW-Environmental, date of preparation, and SHPO comments to the Report on Archeological Sites Affecting Fixed Wing Project (provide revision to PART 7), and (8) revised stormwater control plans to include all locations that required structural controls (i.e. construction entrance and egress to each site, staging, stockpiled, borrow and disposal areas, concrete basins and outfalls, etc.) and the type of storm control structures for each bid option to be executed.

[Amend #0002] The Contractor shall be responsible for the daily operations at the construction site and inspection of the established controls in accordance with the NPDES permit requirements. The Contractor shall submit the detailed SWPPP (including the revised Stormwater Control Plans), and a Notice of Intent (NOI) for the Stormwater Discharges Associated with Industrial Activity under NPDES General Permit to EPA. The NOI (EPA Form 3510-6) shall be submitted no later than 48 hours before start of construction. A separate NOI is required for each construction contract or each phase of the construction activities. The mailing address for NOI submittal is:

Stormwater Notice of Intent (4203),
USEPA, 401 M Street, SW
Washington, D. C. 20460

The Contractor's detailed SWPPP (including the revised Stormwater Control Plans) and a copy of submitted NOI shall be provided to the Contracting Officer before start of construction. A copy of the U.S. Army Corps of Engineers NOI (obtained from the Contracting Officer), the Contractor's NOI, and a brief project description shall be posted on the project bulletin board. The Contractor's detailed SWPPP shall be kept on-site at all times. During construction, the Contractor shall perform work as required per paragraph, MAINTENANCE AND INSPECTION PROCEDURES in this section.

No later than 10 working days after acceptance of final stabilization, the Contractor shall submit the Notice of Termination (NOT), EPA Form 3510-7 to

EPA. Two copies of the submitted NOT shall be provided to the Contracting Officer's project file. EPA Forms are available on web site at <http://www.epa.gov/earthlr6/6en/w/forms.htm>. It is not required but the Contractor may choose to provide the NOT to the Environmental Division of the Fort Worth District. The Environmental Division shall file both the USACE and Contractor's NOT to EPA to facilitate project closeout. The mailing address for the Contractor's prepared and signed NOT is:

U.S.Army Corps of Engineers
Attn: CESWF-EV-EE (Dr. H. Jarboe)
RM 3A14
819 Taylor Street
Fort Worth, TX 76102-0300

PART 12 ATTACHMENTS

12.1 OWNER CERTIFICATION

OWNER CERTIFICATION
FOR
FIXED WING AIRCRAFT PARK, FORT HOOD, TEXAS

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

MICHAEL J. MOCEK, P.E.
DEPUTY DISTRICT ENGINEER

Date Certified: _____

Attachments:

Sheet No.	Title
C-1	PROJECT LOCATION MAP & HAUL ROUTE
C-2	PROJECT LOCATION HAUL ROUTE MAP II
H-4	EROSION AND SEDIMENT CONTROL PLAN 1
H-5	EROSION AND SEDIMENT CONTROL PLAN 2
H-6	EROSION AND SEDIMENT CONTROL PLAN 3
H-7	EROSION AND SEDIMENT CONTROL PLAN 4
H-8	EROSION AND SEDIMENT CONTROL PLAN 5
H-9	EROSION AND SEDIMENT CONTROL PLAN 6
H-10	EROSION AND SEDIMENT CONTROL PLAN 7
H-11	EROSION AND SEDIMENT CONTROL PLAN 8
H-12	EROSION AND SEDIMENT CONTROL PLAN 9
H-13	EROSION AND SEDIMENT CONTROL PLAN 10
H-14	EROSION AND SEDIMENT CONTROL STRUCTURAL DETAILS

12.2 STORMWATER POLLUTION PREVENTION PLAN

STORMWATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT

INSPECTOR: _____ DATE: _____

INSPECTOR'S
QUALIFICATION: _____

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL: _____ INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBANCE	DATE OF NEXT DISTURBANCE	STABILIZED? (YES/NO?)	STABILIZED WITH	CONDITION

STABILIZATION REQUIRED:

TO BE PERFORMED BY: _____ ON or BEFORE: _____

STORMWATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT

OTHER CONTROLS - STABILIZED CONSTRUCTION ENTRANCE

IS MUCH SEDIMENT TRACKED ONTO THE ROAD?	ARE DUST AND SEDIMENT CONTROL MEASURES WORKING?	DOES ALL TRAFFIC USE THE STABILIZED ENTRANCE TO THE SITE?	ARE ASSOCIATED DRAINAGE STRUCTURES WORKING?
---	--	--	--

MAINTENANCE REQUIRED FOR CONSTRUCTION ENTRANCE:

TO PERFORMED BY: _____ ON OR BEFORE: _____

OTHER CONTROLS - DEVELOP SITE SPECIFIC TABLES AS NEEDED

FOR ALL STABILIZATION MEASURES, STRUCTURAL, AND NON-STRUCTURAL CONTROLS
CHANGES/CORRECTIONS REQUIRED IN POLLUTION PREVENTION PLAN:

REASONS FOR CHANGES:

INSPECTOR'S SIGNATURE: _____ DATE: _____

STORMWATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT

MAINTENANCE REQUIRED FOR CONCRETE BASIN(S)& OUTFALLS:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

STRUCTURAL CONTROLS - SILT FENCE(S)

FROM	TO	IS THE BOTTOM OF THE FABRIC STILL BURIED?	IS THE FABRIC IN GOOD CONDITION?	HOW DEEP IS THE SEDIMENT?
<hr/>				

MAINTENANCE REQUIRED FOR THE SILT FENCE (S):

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

STORMWATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT

STRUCTURAL CONTROLS - EARTH DIKES(S)

FROM	TO	IS DIKED STABILIZED?	IS THERE EVIDENCE OF WASH-OUT OR OVERTOPPING?

MAINTENANCE REQUIRED FOR THE EARTH DIKE(S):

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

-- End of Section --

SECTION 01451

CONTRACTOR QUALITY CONTROL
Amend #0004

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 basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (1994a) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329 (1995b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

3.2 QUALITY CONTROL PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 5 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

Amend #0001

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer. In addition to the CQC System Manager and the Submittals Clerk, the CQC organization shall consist of no less than three full time quality control personnel for the entire life of the contract . Their responsibility is to provide continuous inspection of the work and insure compliance with the contract plans and specifications. These individuals shall not perform other duties other than quality control duties as described in the Quality Control Plan.

Amend #0001

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 10 years construction experience on construction similar to this contract or a construction person with a minimum of fifteen (15) years in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

Amend #0001

3.4.3.1 CQC Staff

A staff shall be maintained under the direction of the CQC system manager to perform all QC activities. The staff must be of sufficient size to ensure adequate QC coverage of all work phases, work shifts and work crews involved with the construction. These personnel shall NOT perform other duties and must be fully qualified by experience and technical training to perform their assigned QC responsibilities and must be allowed sufficient time to carry out these responsibilities.

Amend #0001

3.4.3.2 Specialized CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the

Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: Mechanical, electrical, submittal clerk, fire alarm, and fire sprinkler systems. These individuals shall be directly employed by the Prime Contractor; be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience.

a. Mechanical - Graduate Mechanical Engineer with 4 years experience or a highly qualified technician with 8 years related mechanical installation experience in HVAC, Controls, HVAC Commissioning, Plumbing and Fuel Piping Systems. The specialized mechanical QC shall commence duties full time (40 hrs/week) at the Notice to Proceed date and continue until final completion date or until correction of the all mechanical deficiencies, whichever is later.

(1) The mechanical QC shall be responsible for all mechanical inspections, startups and commissioning of all buildings.

(2) An additional supplemental fuel piping QC may be required in addition to the QC mechanical for the duration of the fuel piping work.

b. Submittal Clerk - Experience with RMS and 1 year previous experience as submittal clerk. The Submittal Clerk shall commence duties full time (40 hrs/week) at the Notice to Proceed date and continue until the submittal register is completely cleared after final submission and approval of all submittals.

c. Fire Alarm - NICET Level III fire alarm certificate or person with 5 years experience in the installation of fire alarm systems in buildings. The specialized fire alarm QC shall not have been employed by the fire alarm subcontractor in the previous two years. The specialized fire alarm QC shall submit a report before the QC test showing that he has tested the system in accordance with all requirements of NFPA 72, and that the fire alarm system meets all contract requirements.

d. Fire Sprinkler Systems - Graduate Mechanical Engineer with 2 years experience or NICET Level III, fire sprinkler certificate. The specialized fire sprinkler QC shall not have been employed by the fire sprinkler subcontractor in the previous two years. The specialized fire sprinkler QC shall perform three tests of the fire sprinkler systems fully connected to the fire alarm system. Each test shall be conducted per NFPA 13 and NFPA 72, shall not have any deficiencies and shall be conducted in the presence of the Contracting Officer, and finally shall be conducted as scheduled by the Contracting Officer.

e. The electrical QC person shall be a licensed electrical engineer with 4 years verifiable construction experience or a highly qualified technician with 8 years experience in electronic building controls, interior and exterior electrical power systems and with at least 2 years experience specifically with runway lighting and controls. The electrical QC person shall be responsible for the interior and exterior electrical inspections and commissioning for all phases of construction. The specialized electrical QC person shall commence duties full time (40 hrs/week) at the Notice to Proceed

date and continue until final completion date or until correction of the all electrical deficiencies, whichever is later.

f. The site work QC person shall be ACI Level I certified. The site work must be a licensed civil engineer with 6 years verifiable construction experience or QC person shall be a highly a qualified technician with 10 years of verifiable construction experience of roads, parking areas, and the installation of earth fills. The site work QC person shall have experience in the construction of underground storm drainage and in the installation of gas and water underground utilities. The site work QC shall be responsible for all inspections of the offsite underground utilities and road and airfield concrete and asphalt paving work. The specialized site work QC person shall commence duties full time (40 hrs/week) at the Notice to Proceed date and continue until final completion date or until correction of the all site work deficiencies, whichever is later.

Amend #0001

3.4.3.3 QC Personnel

Except for the submittals clerk, all Quality Control personnel shall be paid a weekly salary not less than a 40-hour work week for the highest paid skilled craft plus benefits shown on the wage rate schedule.

[Amend #4]

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered at the Fort Worth District, Corps of Engineers Office, Federal Building, Room 1A03, 819 Taylor Street, Fort Worth, Texas. Attendees must be fluent in the English language (able to read and write) at the high school level.

Registration is required; call (817) 978-9998 or (817) 978-3870 for times and reservations. Each class will be limited to 30 students. If the demand is greater than what is currently scheduled, additional classes will be scheduled.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERIES

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved. (Only coded A or B shop drawing submittals will be considered "as approved." Submittals other than those coded A or B required to be resubmitted will delay the preparatory phase meeting until they have been resubmitted and approved.)
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 72 hours in advance of

beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

Amend #0001

1. The contractor shall ensure that all FIO Submittals have been submitted no less than 14 calendar days prior to scheduling a Preparatory inspection. GA Submittals must be submitted and approved in accordance with Specification Section 01330 prior to scheduling a Preparatory Inspection.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to

the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if : the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$2,000 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

Amend #0001

The Contractor shall provide a separate on-site full time testing laboratory capable of performing and reporting all specified tests called for in Division 2 - Site Work and Division 2 - Concrete. The testing laboratory shall be under the direction of the CQC System Manager.

Full time testing and control will be provided at the concrete batch plant for testing required in Divisions 2 and 3. The Contractor shall submit laboratory personnel qualifications for approval prior to start of any work. A minimum of 3 laboratory technicians shall be in the field taking tests at the construction peak. (These technicians are not considered in the minimum number of Quality Control staff addressed in paragraph 3.4.1 above.) The laboratory will be inspected prior to any work to insure necessary equipment items are provided in good working order. Commercial laboratories involved in testing will meet appropriate requirements as stated in ASTM E329, ASTM D3740 and ASTM C1077. The sole purpose of said laboratory will be to monitor and perform all necessary tests and re-tests for this contract to insure contract compliance.

3.7.4 Furnishing of Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Government-contract laboratory designated by the Area Office.

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the Special Contract Requirement Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following

information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

Amend #0001

k. An RFI log with the following information minimum: number, date submitted, short description, suspense date, poc, spec reference, location/area/building, and date answered.

l. Master Deficiency list with the following minimum information: deficiency number, description of deficiency, date reported, contractor poc, date cleared, QA who cleared it, and synopsis of correction.

m. Preparatory & Initial Inspection Tracking Log with the following minimum information for each activity/phase of construction: Specification Section, subcontractor, inspection date notice to the Government, date of Preparatory inspection, date of Initial inspection

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered

by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

a. Minimum construction quality control report and the required preparatory and initial inspection documentation.

b. All tests of piping systems or portions thereof shall be recorded on the "Piping System Test Report".

c. Built-up roofing operations, including materials used, shall be reported on "CONTRACTOR'S INSPECTOR ROOFING CHECK LIST AND TEST REPORT."

d. Maintain current records of drilled pier construction and furnish to the Contracting Officer on a weekly basis detailed reports recorded on SWF Form 1175-J, "Construction Record Drilled Piers".

e. When operation and maintenance instructions for equipment are furnished to Government representatives by the Contractor, the Contractor's representative shall record on a form similar to that attached hereto the applicable data, including the name, organization, and signature of each person attending the instructions.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

SAMPLE FORMS

Sample QC forms follow this page.

(Sample of typical Contractor Quality Control Report)

CONTRACTOR'S NAME
(Address)

DAILY CONSTRUCTION QUALITY CONTROL REPORT

Date: _____ Report No. _____

Contract

No.: _____

Description and Location of work:

WEATHER: (Clear) (P. Cloudy) (Cloudy);
Temperature: _____ Min. _____ Max;
Rainfall _____ inches.

Contractor/Subcontractors and Area of Responsibility with Labor Count for Each

- a. _____
- b. _____
- c. _____
- d. _____

Equipment Data: (Indicate items of construction equipment, other than hand tools, at the job site, and whether or not used.)

1. Work Performed Today: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in Table above. If no work is performed, report the reason.)

2. Results of Surveillance: (Include satisfactory work completed, or deficiencies with action to be taken.)

a. Preparatory Inspection:

b. Initial Inspection:

c. Follow-up Inspections:

3. Test Required by Plans and/or Specifications performed and Results of Tests:

4. Verbal Instructions Received: (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

5. Remarks: (Cover any conflicts in plans, specifications, or instructions or any delay to the job.)

6. Results of Safety Inspection: (Include safety violations and corrective actions taken.)

Contractor's Inspector

Page 1

CONTRACTOR'S VERIFICATION: The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Contractor's Chief of Quality Control

NOTE:

DO NOT LEAVE REPORT ITEMS BLANK

Items 1. through 6. must be reported every day. If there is no other report on an item, enter the work "none" in the reporting space. Reports with items left blank will be returned as incomplete.

Page 2

PREPARATORY PHASE CHECKLIST

Contract No. _____ Date: _____

Definable Feature: _____ Spec Section: _____

Gov't Rep Notified _____ Hours in Advance Yes _____ No _____

I. Personnel Present:

Name	Position	Company/Government
1. _____		
2. _____		
3. _____		
4. _____		
5. _____		
6. _____		
7. _____		
8. _____		
9. _____		
10. _____		

(List additional personnel on reverse side)

II. Submittals

1. Review submittals and/or submittal log 4288.
Have all submittals been approved? Yes _____ No _____

If no, what items have not been submitted?

- a. _____
- b. _____
- c. _____

2. Are all materials on hand? Yes _____ No _____

If no, what items are missing?

a. _____

b. _____

c. _____

3. Check approved submittals against delivered materials. (This should be done as material arrives.)

Comments _____

III. Material storage

Are materials stored properly? Yes _____ No _____

If No, what action is taken? _____

IV. Specifications

1. Review each paragraph of specifications.

2. Discuss procedure for accomplishing the work.

3. Clarify any differences.

V. Preliminary Work and Permits

Ensure preliminary work is correct and permits are on file.

If not, what action is taken? _____

VI. Testing

1. Identify test to be performed, frequency, and by whom.

2. When required?

3. Where required?

4. Reviewing Testing Plan.

5. Have test facilities been approved?

VII. Safety

1. Review applicable portion of EM 385-1-1.

2. Activity Hazard Analysis approved? Yes _____ No _____

VIII. Corps of Engineers comments during meeting.

CQC REP

PPC Page 3

INITIAL PHASE CHECKLIST

Contract No. _____ Date: _____

Definable Feature: _____

Gov't Rep Notified _____ Hours in Advance Yes _____ No _____

I. Personnel Present:

Name	Position	Company/Government
1. _____		
2. _____		
3. _____		
4. _____		
5. _____		
6. _____		
7. _____		
8. _____		
9. _____		
10. _____		

(List additional personnel on reverse side)

II.

Identify full compliance with procedures identified at preparatory.
Coordinate plans, specifications, and submittals.

Comments

III. Preliminary Work. Ensure preliminary work is complete and correct.
If not, what action is taken?

IV. Establish Level of Workmanship.

1. Where is work located? _____

2. Is a sample panel required? Yes _____ No _____

3. Will the initial work be considered as a sample?

Yes _____ No _____

(If yes, maintain in present condition as long as possible.)

V. Resolve any differences.

Comments

VI. Check Safety

Review job conditions using EM 385-1-1 and job hazard analysis.

Comments _____

CQC REP

IC Page 3

PIPING SYSTEM TEST REPORT

STRUCTURE OR BUILDING _____

CONTRACT NO. _____

DESCRIPTION OF SYSTEM OR PART OF SYSTEM TESTED: _____

DESCRIPTION OF TEST: _____

NAME AND TITLE OF PERSON IN CHARGE OF PERFORMING TESTS FOR CONTRACTOR:

NAME _____

TITLE _____

SIGNATURE _____

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED SYSTEM HAS BEEN TESTED AS
INDICATED ABOVE AND FOUND TO BE ENTIRELY SATISFACTORY AS REQUIRED IN
THE CONTRACT SPECIFICATIONS.

SIGNATURE OF INSPECTOR _____

DATE _____

REMARKS: _____

CONTRACTOR'S INSPECTOR ROOFING CHECK LIST AND TEST REPORT
(For each day of roofing operations)

Date _____ Weather _____

Contract No. _____

All data required to be taken from labels on container:

1. Type of bitumen used with underlayment or insulation and area covered _____

2. Type of bitumen used with base sheet and area covered _____

3. Type of bitumen used for mopping 4-plyes _____

4. Type of bitumen used for flood coat or surfacing gravel _____

5. Type of thickness of insulation or underlayment used _____

6. Type of base sheet used _____

7. Type of felt used _____

8. Source of surface gravel and condition, wet, dry, clean _____

9. Roofing sample(s), location and weight _____

10. Bitumen sample furnished to the Government, quantity and type _____

11. Bitumen temperature checks, type of asphalt, time taken, maximum
temperature specified _____

12. Are brooms being used? Yes _____ No _____

13. Bituminous cement used, type and usage _____

14. Area covered _____

Contractor's Approved Authorized
Representative

Quality Control Inspector

Roofing Checklist Page 1

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES
Amend #4

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Site Plan

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

1.1.2 Identification of Employees

The Contractor shall be responsible for furnishing to each employee, and for requiring each employee engaged on the work to display, identification as approved and directed by the Contracting Officer. Prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

1.1.3 Employee Parking

Contractor employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established parking requirements of the military installation.

1.2 SANITATION

The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer. Government toilet facilities will not be available to Contractor's personnel.

1.3 TELEPHONE

The Contractor shall make arrangements and pay all costs for telephone facilities desired.

1.4 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

1.4.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads designated by the Contracting Officer shall be removed.

1.4.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.5 CONTRACTOR'S TEMPORARY FACILITIES

1.5.1 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

1.5.2 Storage Area

The Contractor shall construct a temporary 1.8 m high chain link fence around trailers and materials. The fence shall include plastic strip inserts, colored green or brown, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the military boundaries. Trailers, equipment, or materials shall not be open to public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

1.5.3 Supplemental Storage Area

Upon Contractor's request, the Contracting Officer will designate another or supplemental area for the Contractor's use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but shall be within the military boundaries. Fencing of materials or equipment will not be required at this site; however, the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.

1.5.4 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the military property.

1.5.5 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion. Grass located within the boundaries of the construction site shall be mowed for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers shall be edged or trimmed neatly.

1.5.6 Not Used

1.5.7 Security Provisions

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security

of its own equipment; in addition, the Contractor shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

1.6 NOT USED

1.7 PLANT COMMUNICATION

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. The devices shall be made available for use by Government personnel.

1.8 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 1.1 m high, supported and tightly secured to steel posts located on maximum 3 m centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

1.9 TEMPORARY HAZARD SAFETY FENCING

The Contractor shall furnish and erect safety fencing at temporary hazards and work site areas considered to be hazardous to the public. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 1.1 m high, supported and tightly secured to steel posts located on maximum 3 m centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the hazard and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

1.10 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.11 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor

for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

1.12 MOWING

Grass and weedy vegetation within the areas utilized by the Contractor, including work areas, administrative areas, and storage areas, shall be kept mowed to control vegetative growth.

[Amend #4]

1.12.1 Mowing

Vegetation shall be mowed when it reaches a height of 150 mm. Mowing shall be to a height of 75 mm. Mowing shall be accomplished with a rotary mower that leaves the clippings evenly distributed on the soil surface. Mowing shall be accomplished during periods and in such manner that the soil and grass will not be damaged. Towed or self-propelled riding mowers shall not be operated within 1 meter of trees or shrubs. Areas adjacent to trees and shrubs shall be mowed with hand-propelled mowers.

[Amend #4]

1.12.2 Areas Not Mowed

Government may immediately after notice to the Contractor and at the discretion of the Contracting Officer mow the Contractor's areas at any time the vegetation height exceeds 150 mm.

1.12.3 Payment

No separate payment will be made for mowing as required under this section and all costs incurred by the Government for performing such work shall be deducted from the contract.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

SECTION 02115

HYDRANT FUELING SYSTEM REMOVAL

Amend #0004

PART 1 GENERAL

The section covers work for removal of the existing hydrant fueling system at the Robert Gray Army Airfield, Fort Hood, Texas. The hydrant fueling system is indicated on the civil drawings as supply and return fuel lines (majority of fuel lines are 150 mm or 200 mm in diameter, with one portion of fuel line in 300 mm diameter), fuel hydrants (or hydrant fuel pits, approx. 2 feet in depth), fuel vaults (or valve boxes, less than 2 feet in depth), fuel manholes, fuel surge suppressors, etc.

Work to be performed for the portion of hydrant fueling system beneath the airfield apron (see civil drawings titled, Fuel Pipe Demolition Plan 3, Plan 5, Plan 6 and Plan 7) shall include purging, cleaning, and inerting of fuel lines; testing and disposal of fluid (including liquid in the hydrant fueling pits, valve boxes, and manholes, etc.); visual examination, screening, sampling and testing of soil, (and disposal of limited quantity of contaminated soil).

Work to be performed for the portion of hydrant fueling system, not beneath the airfield apron (see civil drawings titled, Fuel Pipe Demolition Plan 6 and Plan 7). These fuel lines are identified as "cap and abandon in-place" and they shall be purged, cleaned, inerted, and contents generated shall be analyzed and disposed (but soil screening, sampling, testing and disposal is not required).

In addition, this section also covers work for testing, and disposal of the wastewater contaminated with JP-8 Fuel from flushing the new hydrant fueling system (i.e. product recovery tank, sump pits and drains, valve boxes and drains) in Section 015899 - SYSTEM START-UP, FUELING SYSTEM. If wastewater generated from this activity is uncontaminated, it shall be disposed of through an oil water separator (and/or) into the base sanitary sewer system. The Contractor shall provide analytical data and identify point of discharge for approval from the Contracting Officer Representative (COR).

The initially purged fuel (or product) shall be salvaged and placed in a retrievable container and turn-in to DPW-Supply. The estimated quantity for disposal is shown on environmental drawing Sheet No. H-1. The Contractor shall review airfield demolition drawings from all design disciplines and verify conditions. The Contractor is responsible for necessary licenses, permits, manifest, removal, disposal, required worker's training, and any associated fees or other cost incurred in this section.

The Contractor shall phase work of testing contaminated water from flushing the new hydrant fueling system.

The Contractor shall notify contamination (of the excavated soil, water and soil in the excavation) to the Contracting Officer Representative (COR) immediately (and the COR shall notify the DPW-Environmental Division, phone 254/287-6499, within 24 hours).

1.1 REFERENCES

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

AMERICAN PETROLEUM INSTITUTE (API)

API Publ 2217A	(1987) Guidelines for Work in Inert Confined Spaces in the Petroleum Industry
API Publ 2219	(1986) Safe Operation of Vacuum Trucks in Petroleum Service
API RP 1604	(1996) Closure of Underground Petroleum Storage Tanks
API RP 2003	(1991) Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents
API Std 2015	(1994) Safe Entry and Cleaning of Petroleum Storage Tanks

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1556	(1990; R 1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(1991) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu. m.))
ASTM D 2167	(1994) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2487	(1993) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1988; R 1993) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste

40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 279	Standards for the Management of Used Oil
40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)

TEXAS ADMINISTRATIVE CODE (CFR)

30 TAC CH-334	Underground and Aboveground Storage Tanks
30 TAC CH-335	Industrial Wastes and Hazardous Wastes
30 TAC CH-350	Texas Risk Reduction Program

1.2 MEASUREMENT AND PAYMENT

Compensation for removal of contaminated soil and replacing with clean backfill shall be paid as one unit cost (when contaminated soil is identified and in limited quantity as specified). Payment for all work in this section shall be under the base bid and it shall constitute full payment for all work defined in PART 1 GENERAL, except for airfield demolition and disposal, disposal of clean hydrant fueling system, excavation, stockpiling, trenching and backfilling. Demolition of airfield shall be in accordance with Section 02220 - DEMOLITION. Excavation, stockpiling and backfill of material shall be in accordance with Section 02316 - EXCAVATION, TRENCHING, BACKFILLING FOR UTILITIES SYSTEMS. Extent of excavation shall be to remove the existing hydrant fueling system.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation, submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Work Plan; GA.

The Work Plan within 30 days after notice to proceed. The Contractor shall allow 30 days in the schedule for the Government's review and approval. No adjustment for time or money will be made for resubmittals required as a result of noncompliance. The Work Plan shall also discuss how work

(including number of samples to draw and test parameters) described in PART 1 GENERAL shall be accomplished. Reference paragraph 1.6.2 Work Plan this section.

SD-08 Statements

Qualifications, Licenses, and Permits; GA.

A document indicating that the Contractor meets the specified requirements. Proofs, licenses and/or permits from hauler and treatment and/or disposal facility.

SD-09 Reports

Contaminated Liquids, Sludge, Excavated Water Testing and Disposal; GA.
Soil Examination, Testing, and Analysis; GA.

Reports including the chain-of-custody records.

Copies of all laboratory and field test reports.

Hydrant Fueling System Closure Report; GA.

3 copies of the report prepared in a standard 3-ring binder, within 14 days of completing work at each location. Each binder shall be labeled with contract number, project name, location marked on a drawing, photographs; each binder shall be indexed. A copy of the report shall be furnished to the DPW-Environmental through the COR. Also reference paragraph 3.14 Hydrant Fueling System Closure Report for detail information.

SD-18 Records

Salvage Rights; GA.

A record of the disposition of salvaged materials at the end of the contract.

1.4 QUALIFICATIONS

The Contractor shall have a minimum of 2 years of underground storage tank removal experience and shall be certified by the State of Texas for underground storage tank removal work.

1.4.1 Laboratory Services

For laboratory services the Contractor shall be validated in accordance with Corps of Engineers (COE) validation requirements specified in Section 01450 CHEMICAL DATA QUALITY CONTROL.

1.4.2 Support Staff

The Contractor shall identify all staff involved for the various work tasks in this section, including personnel collecting and shipping samples. The qualifications of these staff members shall be detailed by the Contractor.

1.5 REGULATORY REQUIREMENTS

1.5.1 Permits and Licenses

The Contractor, as required or as directed by the COR, shall obtain local, state, or federal permits and licenses that directly impact the Contractor's ability to perform the work prior to work. Training required for Safety and health for hazardous waste site shall reference Section 01351.

1.5.2 Statutes and Regulations

Work in this section shall be carried out in accordance with 40 CFR 280, 40 CFR 262, 40 CFR 264, and 40 CFR 265 as well as the applicable local and State of Texas regulations, 30 TAC Chapters 334 and 350. Petroleum (JP-8) contaminated waste shall be transported in accordance with 30 TAC Chapter 335.

1.6 PROJECT/SITE CONDITIONS

The hydrant fueling pits and valve boxes are constructed of steel. The hydrant fueling system have been used for conveying jet fuel (JP-8) and is currently in-service.

Some hydrant fuel pits and valve boxes are infiltrated by storm water and are potentially contaminated with small amount of dripped fuel from the fueling process. Liquid pumped from the hydrant fuel pits, valve boxes and manholes, etc. and wastewater from purging fuel lines (and other parts of the hydrant fueling system) is considered a petroleum contaminated waste.

Subsurface conditions are shown on the boring logs for this project (see project index of drawing for sheet number). Existing native soils are predominantly dark grayish brown clay loam at the top 7 inches (approx.) of depth and the subsoil at 22 inches (approx.) is grayish brown clay loam containing calcium carbonate concentrations and shale fragments. Groundwater is not expected to be encountered. The Contractor shall verify the actual conditions prior to submitting a bid. The site is not a hazardous waste site but shall be given special consideration due to the nature of the materials and potential hazards until activities in this section are complete.

If contaminated soil is identified, petroleum contaminated soil of less than 1500 ppm (mg/Kg) shall be disposed of at the Fort Hood Landfill. If contaminated soil is 1500 ppm and above, the Fort Hood Bio-Facility shall be utilized to remediate soil to a level until it is acceptable to Fort Hood Landfill.

1.6.1 Sequencing and Scheduling

The Contractor shall notify the COR 21 working days prior to start work (and DPW-Environmental shall be notified by COR). If contamination is identified after testing of excavated soil, water and soil in the excavation, reporting and recordkeeping shall be required in accordance with TAC Chapters 334 and 350. Contamination shall be notified as described in PART I GENERAL.

1.6.2 Work Plan

The Contractor shall develop, implement, maintain, and supervise as part of

the work, a comprehensive plan for work described in PART I, GENERAL. As a minimum the plan shall include, but not be limited to, excavation and stockpiling; purging, cleaning of fuel lines; pumping liquid and cleaning of hydrant fueling pits, valve boxes, manholes, and etc.; removal of existing hydrant fueling system; examination, testing, ultimate disposal of the hydrant fueling system, and contaminated materials. The Work Plan shall be based on work experience, on the requirements of this specification, and on the following references:

- a. API RP 1604.
- b. API Std 2015.
- c. API RP 2003.
- d. API Publ 2217A.
- e. API Publ 2219.
- e. TAC Chapters 334, 335 and 350.

No work at the site, with the exception of site inspections and mobilization, shall be performed until the Work Plan is approved. At a minimum, the Work Plan shall include:

- a. Discussion of the removal approach, purging, cleaning, dismantling and cutting procedures.
- b. A Sampling and Analysis Plan prepared in accordance with Section: 01450 CHEMICAL DATA QUALITY CONTROL.
- c. Methods to be employed for product, sludge, vapor, and pumpable liquid removal; purging and inerting; and storage methods proposed for control of surface water.
- d. Identification of waste; pipes (fueling pits and valve boxes) and contaminated water and soil; transporters; and means of transportation.
- e. Method of ultimate disposal.
- f. Borrow source (reference civil drawings).
- g. Spill prevention plan.
- h. Spill contingency plan.
- i. Decontamination procedures, shoring plan, and safety measures in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE.
- j. Type of structural controls to be used around the excavated trenches and stockpiles.

PART 2 PRODUCTS

2.1 BACKFILL

Non-contaminated material removed from the excavation shall be used for backfill in accordance with Section 02316 - EXCAVATION, TRENCHING, BACKFILLING FOR UTILITIES SYSTEMS.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

3.1.1 Safety Guidelines

Personnel shall abide by the safety guidelines specified in Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE.

3.1.2 Burning and Explosives

Use of explosives or burning debris will not be allowed.

3.1.3 Protection of Existing Structures and Utilities

The Contractor shall take all necessary precautions to avoid damage to existing structures, their appurtenances or utilities that may be affected by work activities. Any damage to utilities resulting from the Contractor's operations shall be repaired at no expense to the Government. The Contractor shall review the civil, electrical, and mechanical demolition drawings and be familiar with the project requirement. If needed to, perform site visit prior to work to verify conditions. Utilities encountered which were not previously shown or otherwise located shall not be disturbed without approval from the Contracting Officer.

3.1.4 Shoring

SHORING PLAN required shall be submitted under WORK PLAN in this section.

3.2 CONTENTS VERIFICATION

Sampling and analysis shall be conducted in accordance with the approved Sampling and Analysis Plan in Section 01450 CHEMICAL DATA QUALITY CONTROL.

3.2.1 Sampling and Analysis

Sampling required for work in this section shall be performed by the Contractor in accordance with the Evaluation of Solid Waste, Physical/Chemical Method (EPA SW 846) and Method for Chemical Analysis of Water and Waste (EPA Method 600 series) per 30 TAC Chapters 334, and applicable requirements per 30 TAC Chapters 335, and 350. If the data for disposal is not adequate, additional sampling and analysis to the extent required by the approved permitted treatment, storage or disposal (TSD) facility receiving the material shall be the responsibility of the Contractor. Meeting all regulatory requirements, including the preparation of hazardous materials and waste for transportation shall be the responsibility of the Contractor.

Based on the knowledge of the site, the Contractor shall coordinate analytical parameters requirements with the TSD facility. The sampling and analyses required shall be stated in the Work Plan

3.2.2 Not Used

3.2.3 Characterization

Contaminated water, pumpable liquids, and sludge shall be characterized in accordance with 40 CFR 261, 40 CFR 279, and 30 TAC Chapters 335 and any additional requirements identified by the disposal facility. The waste contents determination and accompanying test results shall be submitted to the COR. The characterized materials shall not be removed until approval is given by the COR.

3.3 DEMOLITION

Demolition at the airfield apron shall be in accordance with and Section 02220 - DEMOLITION.

3.4 Not Used

3.5 PREPARATIONS FOR EXCAVATION

Before excavation, the Contractor shall remove usable fuel or product in fuel lines to retrievable containers and turn-in to DPW-Supply. Liquids in hydrant pits and valve boxes and manholes shall be pumped. Fuel lines shall be purged and inerted. All items of the hydrant fueling system shall be cleaned prior to removal.

3.5.1 Contaminated Liquids and Sludge

Contaminated liquids and sludge shall be tested, manifested and disposed in accordance with local and state regulations. Pumpable liquids and sludge shall be analyzed and segregated to recover reusable products by the Contractor prior to being transported to the treatment, storage and disposal (TSD) facility. Pumpable liquids and sludge shall be removed and disposed of by the Contractor. No Government facilities shall be used for permanent storage or disposal of the wastes. Temporary storage on Government facilities will be allowed only until testing is complete, manifests (if necessary) are complete, and transportation is arranged. Location of storage shall be approved by the COR. The Contractor shall be responsible for obtaining all required permits. Recovered product shall be the property of the Contractor. The Contractor shall provide approved containers, vehicles, equipment, labor, signs, labels, placards and manifests and associated land disposal restriction notices and notifications, necessary for accomplishment of the work, including materials necessary for cleaning up spills that could occur from various activities.

3.5.2 Testing and Disposal of Water in Excavation

3.5.2.1 Sampling and Analysis

Water produced from excavation activities shall be analyzed. The parameters of analyses shall be submitted in the WORK PLAN, and shall be in accordance with the Evaluation of Solid Waste, Physical/Chemical Method (EPA SW 846) and Method for Chemical Analysis of Water and Waste (EPA Method 600 series) per 30 TAC Chapter 334, and applicable analytical procedures in 30 TAC Chapters 335, 350 (Texas Risk Reduction Program, TNRCC). The Contractor shall coordinate with a TSD facility for contaminated water to be taken to an off-site treatment facility. The test

parameters shall conform to the requirements of the treatment and disposal facility. Documentation of all analyses performed shall be furnished to the COR in accordance with paragraph RECORDS. Contaminated water shall be transported to the approved treatment, storage and disposal facility and disposed of by the Contractor in accordance with applicable Federal, state, and local disposal regulations. Uncontaminated water shall be disposed of on-base (see PART I GENERAL.) The Contractor shall provide approved containers, vehicles, equipment, labor, signs, labels, placards and manifests and associated land disposal (if needed) notices and notifications, necessary for accomplishment of the work. Sampling and analyses shall be in accordance with Section 01450 CHEMICAL DATA QUALITY CONTROL.

3.5.2.2 Not Used

3.6 PURGING AND INERTING

Flammable and toxic vapors shall be purged from the fuel lines and made inert in accordance with API RP 1604, with the exceptions that filling with water shall not be used and, if dry ice is employed, the Contractor shall use a minimum of 3 pounds per 100 gallons of fuel pipe volume. The pipe atmosphere shall be continuously monitored for combustible vapors if the fuel pipes are purged, or continuously monitored for oxygen if the pipes are inerted. Reference Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE.

3.7 EXCAVATION

Excavation areas, as well as work near roadways, shall be marked in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE.

3.7.1 Not Used

3.7.2 Pipe Excavation

Excavation around the fuel lines, hydrant fueling pits, valve boxes and manholes, etc. shall be performed limiting the amount of potentially petroleum contaminated soil that could be mixed with previously uncontaminated soil. Petroleum contaminated soil shall be segregated in separate stockpiles. The Contractor shall maintain around the hydrant fueling system an excavation of sufficient size to allow workers ample room to complete the work, but also protect the workers from sliding or cave-ins. Sheet piling, bracing, or shoring shall be installed in the absence of adequate side slopes if there is a need for workers to enter the excavated area. Surface water shall be diverted to prevent direct entry into the excavation. Dewatering of the excavation shall be limited to allow adequate access to the existing hydrant fueling system (see PART I GENERAL), to assure a safe excavation, and to ensure that compaction and moisture requirements are met during backfilling. Dewatering may result in the production of petroleum contaminated water and/or free product. Free product shall be recovered by the Contractor.

3.7.3 Piping Excavation

Excavation shall be performed as necessary to remove fuel lines, hydrant fueling pits, valve boxes, and ancillary equipment in accordance with paragraphs 3.7.4 Open Excavations.

3.7.4 Open Excavations

Open excavations and stockpile areas shall be secured while awaiting confirmation test results from the soil beneath the hydrant fueling system.

The excavation shall be backfilled (under Section 02316) as soon as possible after the existing hydrant fueling system and contaminated soil are removed, confirmation samples results are available, flushed water from new hydrant fueling system is tested, necessary grading (required by new work under other sections), and work necessary as approved by COR. The Contractor shall divert surface water around excavations to prevent water from directly entering into the excavation. If contaminated soil is identified, The Contractor shall stop work and notify the COR immediately. If site investigation and remediation is directed, it shall be performed in accordance with 30 TAC Chapter 350.

3.7.5 Stockpiles

Stockpile locations shall be approved by COR. Uncontaminated excavated soil shall be used for backfill. Excavated material that is regulated by the state as a petroleum contaminated waste or which is visibly stained and which has an obvious petroleum odor, shall be considered contaminated and shall be placed in separate stockpile for sampling in accordance with paragraphs Stockpiled Material Sampling and Analysis. Uncontaminated soil shall be stockpiled separately from the contaminated soil, a safe distance away from, but adjacent to, the excavation. Allowable stockpiles of contaminated soil shall be placed on an impermeable geomembrane a minimum of 3 layers, each 30 mils thick, and covered with a 6 mils sheet of geomembrane. Structural controls (to be specified in the WORK PLAN for approval) shall be established around the stockpile materials to prevent sediment from contacting the storm runoff. The geomembrane shall be placed to prevent the stockpiled soil from coming into contact with surface water run-off.

3.8 REMOVAL OF HYDRANT FUELING SYSTEM

3.8.1 Fuel Lines, Hydrant Fueling Pits and Valve Boxes

After interior cleaning, the exterior of all items removed shall be cleaned to remove all soil and inspected for signs of corrosion and leakage. The Contractor shall ensure no spillage of the piping contents occurs, as specified in the Work Plan, and as required in paragraph 3.13 SPILLS. All materials coming into contact with the hydrant fueling system, or in the vicinity of the excavation, such renovated items as shovels, slings and tools, shall be of the non-sparking type. After removal from the excavation, they shall be placed on a level surface at an approved location, and secured with wood blocks to prevent movement.

3.8.2 Not Used

3.8.3 Excavation Examination

After items are removed from the ground, the adjacent and underlying soil shall be examined for any evidence of leakage. The soil shall be visually inspected for staining after removal of all obviously contaminated soil, then screened for the presence of volatile and/or semi-volatile contamination using a real time vapor monitoring instrument or immunoassay field kit. Uncontaminated soil shall be stockpiled on site per paragraph

Stockpiles. Contaminated soil or suspected contaminated soil shall be stockpiled until COR approval for further disposition. If directed, the Contractor shall assist the COR to determine the extent of the contaminated soil to be removed. The Contractor shall report any evidence indicating that the amount of contaminated soil to the COR on the same day it is discovered. If minimal additional excavation is required, the COR may allow the Contractor to proceed. After contaminated soil is removed, the excavation shall be sampled and analyzed in accordance with Sampling and Analysis Plan approved in Section 01450 CHEMICAL DATA QUALITY CONTROL.

3.9 CLEANING

3.9.1 Exterior

Soil shall be removed from the exterior of each items in the hydrant fueling system to eliminate soil deposition on roadways during transportation, ensure markings will adhere to the surfaces. Soil shall be removed using non-sparking tools. Removed uncontaminated soil shall be recovered and used as backfill. Soil believed to be contaminated shall be removed and placed on 3 layers of 6 mil impermeable geomembrane and stockpiled with other contaminated soil removed from the excavation.

3.9.2 Not Used

3.9.3 Interior

The fuel pipes interior, hydrant fueling pits, valve boxes, manholes, etc. shall be cleaned using a high pressure (greater than 500 psi), low volume (less than 2 gpm) water spray until all loose scale and sludge is removed, and contamination, in the form of a sheen, is no longer visible in the effluent stream. Contaminated water generated from interior cleaning operations (of all items) shall not exceed 5 % volume of the item that required cleaning. The Contractor shall estimate volume of contaminated water generated from this task in the WORK PLAN.

All contaminated water resulting from cleaning operations shall be collected and stored on site and handled in accordance with paragraph 3.2 CONTENTS VERIFICATION. Cleaning shall be accomplished eliminating, to the greatest extent possible, the need for personnel to enter the hydrant fueling pits, valve boxes or manholes, etc. Cleaning shall be done using specially designed cleaning equipment which allows the pits or valve boxes to be cleaned without requiring personnel to enter the pits or valve boxes. The Contractor shall coordinate with the COR for the confined space entry and submit PERMIT REQUIRED CONFINED SPACE PLAN for COR approval prior to entry (see Section 01351 - SAFETY, HEALTH, AND EMERGENCY RESPONSE).

3.10 SOIL EXAMINATION, TESTING, AND ANALYSIS

3.10.1 Excavation Sampling Procedures

After soil excavation is complete, the excavation shall be screened for contamination per paragraph 3.8.3 Excavation Examination. If contamination is suspected, sampled soil in the excavation with procedures, number, location, and methodology in accordance with the Evaluation of Solid Waste, Physical/Chemical Method (EPA SW 846) per 30 TAC Chapter 334, and applicable requirements in 30 TAC Chapters 335 and 350, the approved Sampling and Analysis Plan in Section 01450 CHEMICAL DATA QUALITY CONTROL.

Sampling locations, number shall be submitted in WORK PLAN and meeting specific disposal requirements of the TSD facility.

3.10.2 Stockpiled Material Sampling

Stockpiled soil shall be screened for contamination per paragraph 3.8.3 Excavation Examination. If contamination is suspected, sampled stockpiled material and preserved in accordance with the Evaluation of Solid Waste, Physical/Chemical Method (EPA SW 846) per 30 TAC Chapters 334, and applicable requirements per 30 TAC Chapters 335 and 350, the approved Sampling and Analysis Plan in Section 01450 CHEMICAL DATA QUALITY CONTROL. Sampling locations, number shall be submitted in WORK PLAN and meeting specific disposal requirements of the TSD facility.

3.10.3 Analysis

Soil samples from the excavation and stockpiled material shall be tested in accordance with the approved Sampling and Analysis Plan in Section 01450 CHEMICAL DATA QUALITY CONTROL, and in accordance with Evaluation of Solid Waste, Physical/Chemical Method (EPA SW-846) per 30 TAC Chapters 334. Copies of all test results shall be provided to the COR.

3.11 BACKFILLING

The excavations shall be backfilled after approval of COR in accordance with Section 02316. Backfill consisting of clean fill shall be placed in layers with a maximum loose thickness of 8 inches, and compacted to 90 percent maximum density for cohesive soils and 95 percent maximum density for cohesionless soils. Density tests shall be performed by an approved commercial testing laboratory or by facilities furnished by the Contractor.

Test results shall be attached to contractor's Quality Control Report. A minimum of 1 density test shall be performed on each lift. Laboratory tests for moisture density relations shall be determined in accordance with ASTM D 1557, Method B, C, or D, or ASTM D 3017. A mechanical tamper may be used provided that the results are correlated with those obtained by the hand tamper. Field in-place density shall be determined in accordance with ASTM D 1556, ASTM D 2922, or ASTM D 2167.

3.12 DISPOSAL REQUIREMENTS

3.12.1 Treatment, Disposal, and Recycling

Disposal of fuel (JP-8) contaminated wastes shall be in accordance with all local, current State of Texas regulations (TAC Chapters 334, 335 and 350), and applicable Federal solid and hazardous waste laws and regulations; and conditions specified herein. This work shall include all necessary personnel, labor, transportation, packaging, detailed analyses (if required for disposal, manifesting or completing waste profile sheets), equipment, and reports. Product and pumpable liquids removed shall be recycled to the greatest extent practicable by the Contractor. The metallic components of the hydrant fueling system removed shall be disposed of at a state approved scrap metal facility. Final disposition document or manifest, as required by the current State of Texas regulations (30 TAC Chapters 334 and 335) and acceptance at the disposal facility, shall be submitted to the COR.

3.12.2 Not Used

3.12.3 Transportation of Wastes

Transportation shall be provided in accordance with Department of Transportation (DOT) Hazardous Material Regulations, the current State of Texas regulations (30 TAC Chapters 334 and 335), local requirements, including obtaining all necessary permits, licenses, and approvals. A copy of hauler permit from a state licensed waste transporter shall be included in the SUBMITTALS.

3.12.4 Salvage Rights

The Contractor shall retain the rights to salvage value of recycled or reclaimed product, so long as the requirements of 40 CFR 266, 40 CFR 279 and 30 TAC Chapters 334, 335, and 350, or the applicable State requirements are met. At the end of the contract, the Contractor shall provide documentation on the disposition of salvaged materials.

3.12.5 Records

Records shall be maintained of all waste determinations, including appropriate results of analyses performed, substances and sample location, the time of collection, and other pertinent data as required by 40 CFR 280, Section 74 and 40 CFR 262 Subpart D, 30 TAC Chapters 334, 335, 350, and Section 01450 CHEMICAL DATA QUALITY CONTROL. Transportation, treatment, disposal methods and dates, the quantities of waste, the names and addresses of each transporter and the disposal or reclamation facility, shall also be recorded and available for inspection, as well as copies of the following documents:

- a. Manifests.
- b. Waste analyses or waste profile sheets.
- c. Certifications of final treatment/disposal signed by the authorized disposal facility official.
- d. Land disposal notification records required under 40 CFR 268 for hazardous wastes.

Records shall be provided in accordance with the current State of Texas regulations, 30 TAC Chapters 334 and 350. Following contract close out, the records shall become the property of the Government.

3.12.6 Waste Manifests

Manifesting shall conform to the requirements specified in the current State of Texas regulations, 30 TAC Chapters 335 and 350.

3.12.7 Documentation of Treatment or Disposal

The wastes, other than recyclable or reclaimable product or metal, shall be taken to a treatment, storage, or disposal facility which has EPA or appropriate state permits and waste identification numbers and complies with the provisions of the disposal regulations. Documentation of acceptance of waste by the original return copy of the waste manifest, signed by the owner or operator of a facility legally permitted to treat or dispose of those materials shall be furnished to the COR not later than 5

working days following the delivery of those materials to the facility; and a copy shall be included in the Hydrant Fueling System Closure Report. A statement of agreement from the proposed treatment, storage or disposal facility and certified transporters to accept fuel (JP-8) contaminated wastes shall be furnished in the Work Plan to the COR not less than 14 days before transporting any wastes. If the Contractor selects a different facility than is identified in the contract Work Plan, documentation shall be provided for approval to certify that the facility is authorized and meets the standards specified in 40 CFR 264.

3.13 SPILLS

Immediate containment actions shall be taken as necessary to minimize effect of any spill or leak. Cleanup shall be in accordance with applicable Federal, State, local laws and regulations, and district policy at no additional cost to the Government. Spill response and reporting requirements shall be in accordance with the current state regulations, and the approved WORK PLAN

3.14 HYDRANT FUELING SYSTEMS CLOSURE REPORT

Closure Reports shall include the following information as a minimum:

- a. A cover letter signed by a responsible company official or a Professional Engineer registered in the State of Texas certifying that all services involved have been performed in accordance with the terms and conditions of this specification.
- b. A narrative report describing what was encountered at each location, including:
 - (1) condition of the fuel lines, hydrant fueling pits, valve boxes, manholes, etc.
 - (2) any visible evidence of leaks or stained soils.
 - (3) results of vapor monitoring readings or immunoassay kit.
 - (4) actions taken including quantities of materials treated or removed.
 - (5) reasons for selecting sample locations.
 - (6) sample locations.
 - (7) collection data such as time of collection and method of preservation shall be in accordance with Evaluation of Solid Waste, Physical/Chemical Method (EPA SW-846) and the types of parameter being analyzed. It shall be in accordance with applicable current state regulations in TAC Chapters 334 and 350.
 - (8) whether or not groundwater was encountered.
 - (9) Using a site drawing to indicate sample locations.
- c. Copies of all analyses performed for disposal.

- d. Copies of all waste analyses or waste profile sheets.
- e. Copies of all certifications of final disposal signed by the authorized disposal installation official.
- f. Information on who sampled, analyzed, transported, and accepted all wastes encountered, including copies of manifests, waste profile sheets, land disposal restriction, notification and certification forms, certificates of disposal, and other pertinent documentation.
- g. Copies of all analyses performed for confirmation that underlying soil is not contaminated, with copies of chain-of-custody for each sample. Analyses shall give the identification number of the sample used. Sample identification numbers shall correspond to those provided on the one-line drawings.
- h. Scaled one-line drawings showing tank locations, limits of excavation, limits of contamination, underground utilities within 50 feet, sample locations, and sample identification numbers.
- i. Progress Photographs. The Contractor shall take views of the site showing, as a minimum, location of sampled site, entrance/exit road, and any other notable site conditions before work begins. After work has been started at the site, the Contractor shall photographically record progress of activities. Photographs shall be 3 x 5 inches and shall include:
 - (1) Soil removal, handling, and sampling.
 - (2) Unanticipated events such as discovery of additional contaminated areas.
 - (3) Soil stockpile area.
 - (4) Demolished fuel lines, hydrant fueling pits and pipes; valve boxes and manholes, ect.
 - (5) Site or task-specific employee respiratory and personal protection.

INFORMATION ON PHOTOS

Project No.	Contract No.
Location	
Contractor/Photographer	
Photograph No.	Date/Time:
Description	
Direction of View	

-- End of Section --

AMENDMENT No. 0004

SECTION 02220

DEMOLITION
12/97

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 basic designation only.

ENGINEERING MANUALS (EM)

EM 385-1-1 (1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual

1.2 GENERAL REQUIREMENTS

The work includes demolition, salvage of identified items and materials, 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; salvaged items and materials shall be disposed of as specified.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-08 Statements

Work Plan; GA.

The procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, including procedures and methods to provide necessary supports, lateral bracing and shoring when required, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations in accordance with EM 385-1-1.

1.4 DUST CONTROL

The amount of dust resulting from demolition shall be controlled to prevent the spread of dust to occupied portions of the construction site and to avoid creation of a nuisance in the surrounding area. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding and pollution.

1.5 PROTECTION

1.5.1 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.

1.5.2 Protection of Structures

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, or 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.

1.5.3 Protection of Existing Property

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.

1.5.4 Protection From the Weather

The interior of buildings to remain; salvageable materials and equipment shall be protected from the weather at all times.

1.5.5 Protection of Trees

Trees within the project site which might be damaged during demolition, and which are indicated to be left in place, shall be protected by a 1.8 m (6 foot) high fence. The fence shall be securely erected a minimum of 1.5 m from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. 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.

1.5.6 Environmental Protection

The work shall comply with the requirements of Section 01410 ENVIRONMENT PROTECTION.

1.6 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.7 USE OF EXPLOSIVES

Use of explosives will not be permitted.

1.8 AVAILABILITY OF WORK AREAS

[AM#4]

See Specifications Section 1000 for information on availability of work areas and work area restructions.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 EXISTING STRUCTURES

Existing structures indicated on the contract drawings shall be removed..
Sidewalks, curbs, gutters and street light bases shall be removed as indicated.

3.2 UTILITIES

Existing utilities shall be removed 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.

3.3 Not used.

3.4 DISPOSITION OF MATERIAL

Title to material and equipment to be demolished, except Government salvage and historical items, is vested in the Contractor upon receipt of notice to proceed. The Government will not be responsible for the condition, loss or damage to such property after notice to proceed.

3.4.1 Salvageable Items and Material

Contractor shall salvage items and material to the maximum extent possible.

3.4.1.1 Material Salvaged for the Contractor

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. Material salvaged for the Contractor shall not be sold on the site.

3.4.1.2 Items Salvaged for the Government

Salvaged items to remain the property of the Government shall be removed in a manner to prevent damage, and packed or crated to protect the items from damage while in storage or during shipment. Items damaged during removal or storage shall be repaired or replaced to match existing items. Containers shall be properly identified as to contents.

3.4.1.3 Not used.

3.4.1.4 Historical Items

Historical items shall be removed in a manner to prevent damage. The following historical items shall be delivered to the Government for disposition: Corner stones, contents of corner stones, and document boxes wherever located on the site.

3.4.2 Unsalvageable Material

[AM#4]The Fort Hood Landfill may be used to dispose of Class 2 waste and non-friable asbestos (category 1. and 2.). Friable asbestos, light bulbs, mercury switches, thermostats, valances, and power poles containing cersoak shall be treated as hazardous material, which can not be disposed of in the Ft. Hood Landfill. Metal can not be disposed of in the Ft. Hood Landfill. Broken up asphalt and concrete, containg no exposed reinforcing steel, shall be disposed of in an area designated on the drawings. This area is located near the Ft. Hood Landfill, as shown on the project location maps in the drawings. All items to be demolished, which can not be disposed of in the Ft. Hood Landfill shall be disposed of off government controlled property, at the expense and responsibility of the contractor. See specifications SECTION 01368 for Ft. Hood Landfill requirements and procedures.

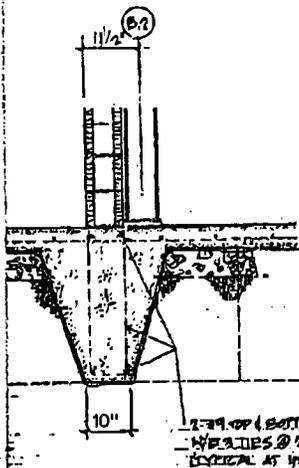
3.5 CLEAN UP

Debris and rubbish shall be removed from basement and similar excavations. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

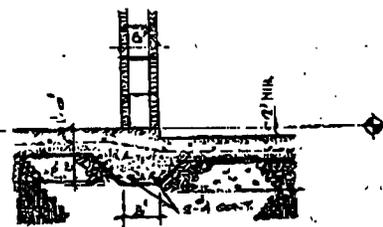
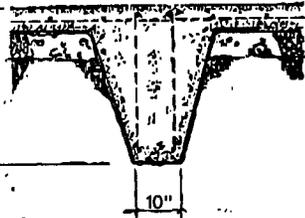
3.6 PAVEMENTS

Existing pavements designated for removal shall be saw cut and removed in accordance with the details shown on the drawings and to the limits and depths indicated on the drawings.

-- End of Section --



SAME DEPTH AS FEET. BEAT.

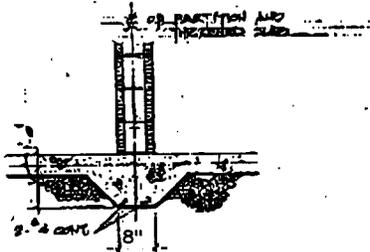
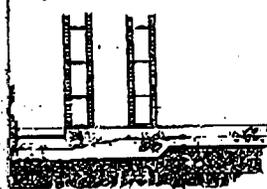


10"
1-1/2" OF (BOTT.)
HYDR. LIPS @ 24" OC.
VERTICAL AT INTERIOR ROBS

3
3/4" = 1'-0"

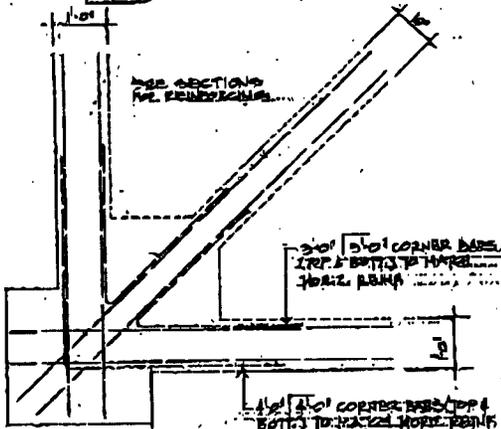
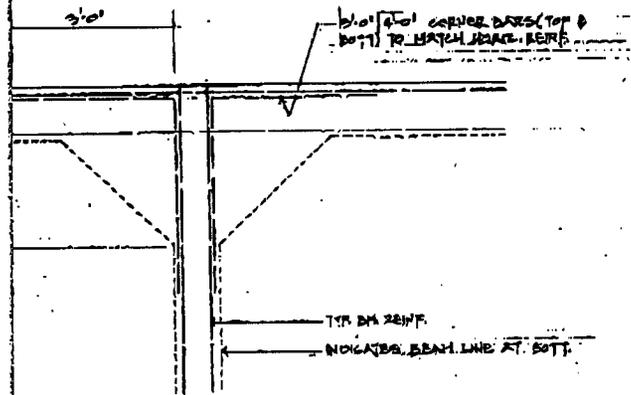
DETAIL
3/4" = 1'-0"

DETAIL
3/4" = 1'-0"



THICKENED SLAB DETAIL - (T.S.)
3/4" = 1'-0"

THICKENED SLAB DETAIL - (T.S.)
3/4" = 1'-0"



DETAIL
SCALE: 3/4" = 1'-0"

DETAIL
SCALE: 3/4" = 1'-0"

NOTE:
REFER DETAILS 1 & 2
THIS SHEET FOR TYPICAL
NOTES.

REFER SHEET 52 FOR
FOUNDATION NOTES.

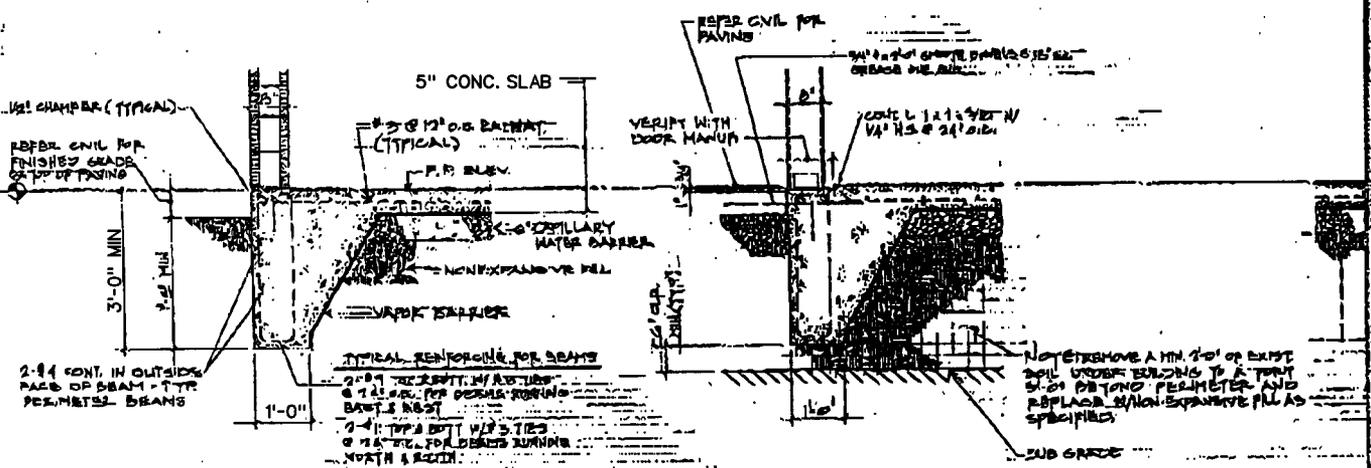
PK NO. 00105390

SCALE: 3/4" = 1'-0"



REVISIONS 1. REVISED AS-BUILT DATE: _____ BY: _____	
KIM VORCH CIVIL ENGINEER LICENSE NO. 10000	U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS
PROJECT NO. 10000 DRAWING NO. 10000	
AIRCRAFT MAINTENANCE FACILITY/RGAAF AIRLIFT CONTROL TERMINAL FOUNDATION DETAILS	
DESIGNED BY: MRS/DEO CHECKED BY: MRS/MS	DATE: APR. 1957 SHEET NO. 132 OF 26

DRAWING OF WORK AS-BUILT



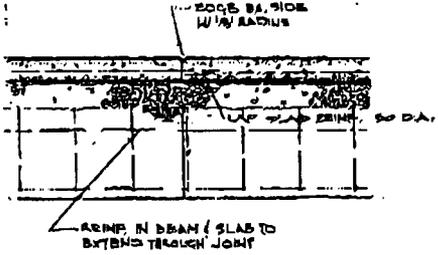
DETAIL
SCALE 3/4" = 1'-0"



DETAIL
SCALE 3/4" = 1'-0"



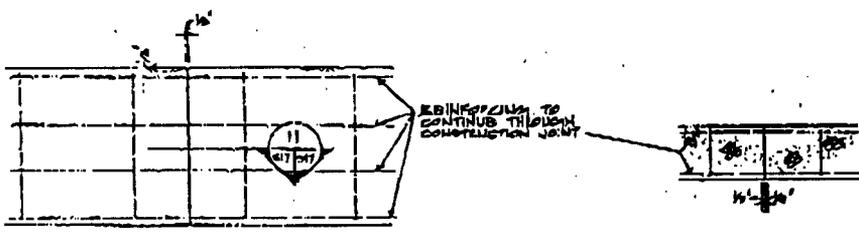
DETAIL
SCALE 3/4" = 1'-0"



SAWED CONTROL JOINT (S.C.J.)
SCALE 3/4" = 1'-0"



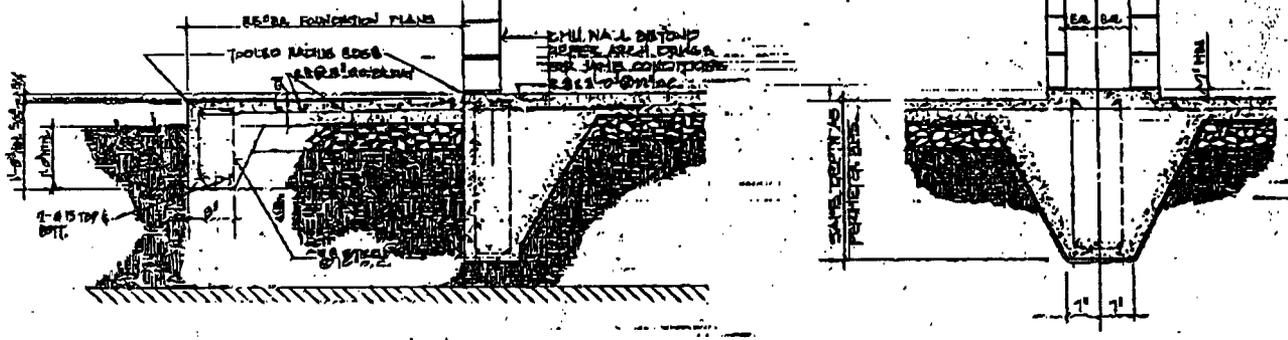
CONSTRUCTION JOINT (C.J.)
SCALE 3/4" = 1'-0"



BEAM ELEVATION AT CONST. JT.
SCALE 3/4" = 1'-0"



VEE JOINT DETAIL
SCALE 3/4" = 1'-0"



STOOP DETAIL
SCALE 3/4" = 1'-0"



DETAIL
SCALE 3/4" = 1'-0"



SECTION 02556

GAS DISTRIBUTION SYSTEM
10/98
Amendment #0004

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 basic designation only.

AMERICAN GAS ASSOCIATION (AGA)

AGA-01 (1989) A.G.A. Plastic Pipe Manual for Gas Service

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI B109.2 (1992) Diaphragm Type Gas Displacement Meters (Over 500 Cubic Feet per Hour Capacity)

AMERICAN PETROLEUM INSTITUTE (API)

API Spec 5L (1995) Line Pipe

API Spec 6D (1994; Supple June 1996) Pipeline Valves, (Gate, Plug, Ball, and Check Valves)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 53 (1997) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless

ASTM A 181 (1995b) Forgings, Carbon Steel, for General-Purpose Piping

ASTM D 2513 (1995c) Thermoplastic Gas Pressure Pipe, Tubing, and Fittings

ASTM D 2683 (1993) Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing

ASTM D 3261 (1993) Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing

ASTM D 3308 (1991a) PTFE Resin Skived Tape
ASTM D 3350 (1996) Polyethylene Plastics Pipe and Fittings Materials

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B1.20.1 (1983; R 1992) Pipe Threads, General Purpose (Inch)
ASME B16.5 (1988; Errata Oct 1988; B16.5a) Pipe Flanges and Flanged Fittings
ASME B16.9 (1993) Factory-Made Wrought Steel Buttwelding Fittings
ASME B16.11 (1991) Forged Fittings, Socket-Welding and Threaded
ASME B16.21 (1992) Nonmetallic Flat Gaskets for Pipe Flanges
ASME B16.34 (1988) Valves - Flanged, Threaded, and Welding End
ASME B16.40 (1985; R 1994) Manually Operated Thermoplastic Gas Shutoffs and Valves in Gas Distribution Systems
ASME B31.8 (1995) Gas Transmission and Distribution Piping Systems

CODE OF FEDERAL REGULATIONS (CFR)

49 CFR 192 Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)

MSS SP-25 (1993) Standard Marking System for Valves, Fittings, Flanges and Unions

NACE INTERNATIONAL (NACE)

NACE RP0185 (1985) Extruded, Polyolefin Resin Coating Systems for Underground or Submerged Pipe
NACE RP0274 (1993) High Voltage Electrical Inspection of Pipeline Coatings Prior to Installation

STEEL STRUCTURES PAINTING COUNCIL (SSPC)

SSPC Paint 25	(1991) Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer (Without Lead and Chromate Pigments)
SSPC Paint 104	(1991) White or Tinted Alkyd Paint
SSPC SP 1	(1982) Solvent Cleaning
SSPC SP 3	(1995) Power Tool Cleaning
SSPC SP 6	(1994) Commercial Blast Cleaning
SSPC SP 7	(1994) Brush-Off Blast Cleaning

UNDERWRITERS LABORATORIES (UL)

UL-06	(1996) Gas and Oil Equipment Directory
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1.2 GENERAL REQUIREMENTS

1.2.1 Welding Steel Piping

Structural members shall be welded in accordance with Section 05055 WELDING, STRUCTURAL.

1.2.2 Jointing Polyethylene and Fiberglass Piping

Piping shall be joined by performance qualified joiners using qualified procedures in accordance with AGA-01. Manufacturer's prequalified joining procedures shall be used. Joints shall be inspected by an inspector qualified in the joining procedures being used and in accordance with AGA-01.

Joiners and inspectors shall be qualified at the jobsite by a person who has been trained and certified by the manufacturer of the pipe, to train and qualify joiners and inspectors in each joining procedure to be used on the job. Training shall include use of equipment, explanation of the procedure, and successfully making joints which pass tests specified in AGA-01. The Contracting Officer shall be notified at least 24 hours in advance of the date to qualify joiners and inspectors.

1.2.3 Standard Products

Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. Asbestos or products containing asbestos shall not be used. Equipment shall be supported by a service organization that is, in the opinion of the Contracting Officer, reasonably convenient to the

site. Valves, flanges, and fittings shall be marked in accordance with MSS SP-25.

1.2.4 Verification of Dimensions

The Contractor shall become familiar with all details of the work, verify all dimensions in the field, and shall advise the Contracting Officer of any discrepancy before performing the work.

1.2.5 Handling

Pipe and components shall be handled carefully to ensure a sound, undamaged condition. Particular care shall be taken not to damage pipe coating. No pipe or material of any kind shall be placed inside another pipe or fitting after the coating has been applied, except as specified in paragraph INSTALLATION. Plastic pipe shall be handled in conformance with AGA-01.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Pipe, Fittings, and Associated Materials; FIO.

Drawings shall contain complete schematic and piping diagrams and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Drawings shall show proposed layout and anchorage of the system and appurtenances, and equipment relationship to other parts of the work including clearances for maintenance and operation.

SD-07 Schedules

Equipment and Materials; FIO.

A complete list of equipment and materials, including manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions, including, but not limited to the following:

- a. Dielectric Unions and Flange Kits.
- b. Meters.
- c. Regulators.

Spare Parts Data; FIO.

Spare parts lists for each different item of material and equipment specified, after approval of the detail drawings and not later than 3

months prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply.

Notification; FIO.

Notification of the Contractor's schedule for making connections to existing gas lines, at least 10 days in advance.

SD-08 Statements

Welding Steel Piping; FIO.

A copy of qualified welding procedures along with a list of names and identification symbols of performance qualified welders and welding operators.

Jointing Polyethylene and Fiberglass Piping; GA.

A copy of qualified jointing procedures, training procedures, qualifications of trainer, and training test results for joiners and inspectors.

Connection and Abandonment Procedures; GA.

A copy of procedures for gas line tie in, hot taps, abandonment/removal or demolition, purging, and plugging as applicable in accordance with ASME B31.8.

SD-13 Certificates

Utility Work; FIO.

Certification from the Operating Agency/Utility Company that work for which the Utility is responsible has been completed.

Training; FIO.

A copy of each inspector's and jointer's training certificate with respective test results.

SD-19 Operation and Maintenance Manuals

PART 2 PRODUCTS

2.1 PIPE, FITTINGS, AND ASSOCIATED MATERIALS

2.1.1 Steel Pipe

Steel pipe shall be used in above ground locations only. Steel pipe shall conform to ASTM A 53, Grade A or B, Type E or S, Schedule 40; or API Spec 5L seamless or electric resistance welded, Schedule 40, black steel pipe as specified in ASME B31.8. Furnace butt welded pipe may be used in sizes 40 mm (1-1/2 inches) and smaller.

2.1.2 Small Fittings

Fittings 40 mm (1-1/2 inches) and smaller shall conform to ASME B16.11.

2.1.3 Fittings, 50 mm (2 Inches) and Larger

Pipe flanges and flanged fittings including bolts, nuts, and bolt patterns shall be in accordance with ASME B16.5, Class 150. Butt weld fittings shall be in accordance with ASME B16.9. Weld neck flanges shall be used.

2.1.4 Steel Forged Branch Connections

Connections shall conform to ASTM A 181, Class 60, carbon steel.

2.1.5 Flange Gaskets

Gaskets shall be non-asbestos compressed material in accordance with ASME B16.21, 1.6 mm (1/16 inch) minimum thickness, full face or self-centering flat ring type. The gaskets shall contain aramid fibers bonded with nitrile butadiene rubber (NBR), or glass fibers bonded with polytetrafluorethylene, suitable for maximum 315 degrees C service and meeting applicable requirements of ASME B31.8.

2.1.6 Pipe Threads

Pipe threads shall conform to ASME B1.20.1.

2.1.7 Polyethylene Pipe, Tubing, Fittings and Joints

Polyethylene pipe, tubing, fittings and joints shall conform to ASTM D 3350 and ASTM D 2513, pipe designation PE 2406, rated SDR 11 or less, as specified in ASME B31.8. Pipe sections shall be marked as required by ASTM D 2513. Butt fittings shall conform to ASTM D 3261 and socket fittings shall conform to ASTM D 2683. Fittings shall match the service rating of the pipe. Minimum wall thickness shall be based on ASME B31.8, Table 842.32 (C).

2.1.8 Sealants for Steel Pipe Threaded Joints

2.1.8.1 Sealing Compound

Joint sealing compound shall be as listed in UL-06, Class 20 or less.

2.1.8.2 Tape

Polytetrafluoroethylene tape shall conform to ASTM D 3308.

2.1.9 Identification

Pipe flow markings and metal tags for each valve, meter, and regulator shall be provided as required by the Contracting Officer.

2.1.10 Insulating Joint Materials

Insulating joint materials shall be provided between flanged or threaded metallic pipe systems where shown to isolate galvanic or electrolytic action.

2.1.10.1 Threaded Joints

Joints for threaded pipe shall be steel body nut type dielectric type unions with insulating gaskets.

2.1.10.2 Flanged Joints

Joints for flanged pipe shall consist of full face sandwich-type flange insulating gasket of the dielectric type, insulating sleeves for flange bolts and insulating washers for flange nuts.

2.1.11 Gas Transition Fittings

Gas transition fittings shall be manufactured steel fittings approved for jointing steel and polyethylene pipe. Approved transition fittings are those that conform to AGA-01 requirements for transition fittings.

2.2 VALVES

Valves shall be suitable for shutoff or isolation service and shall conform to the following:

2.2.1 Steel Valves

Steel valves 40 mm (1-1/2 inches) and smaller installed aboveground shall conform to ASME B16.34, carbon steel, socket weld or threaded ends with handwheel or wrench operator. Steel valves 50 mm (2 inches) and larger installed aboveground shall conform to API Spec 6D, carbon steel, butt weld or flanged ends, Class 150 with handwheel or wrench operator.

2.2.2 Polyethylene Valves

Polyethylene valves shall conform to ASME B16.40. Polyethylene valves, in sizes 15 mm to 150 mm (1/2 inch to 6 inches), may be used with polyethylene distribution and service lines for underground installation only.

2.3 PRESSURE REGULATORS

Regulators shall have ferrous bodies, shall provide backflow and vacuum protection, and shall be designed to meet the pressure, load and other service conditions.

2.3.1 Service Line Regulators

Pressure regulators for individual service lines shall have ferrous bodies.

Regulator shall be capable of reducing distribution line pressure to pressures required for users. Regulators shall be provided where gas will be distributed at pressures in excess of 2.5 kPa (10 inches of water column). Pressure relief shall be set at a lower pressure than would cause unsafe operation of any connected user. Regulator shall have single port with orifice diameter no greater than that recommended by the manufacturer for the maximum gas pressure at the regulator inlet. Regulator valve vent shall be of resilient materials designed to withstand flow conditions when pressed against the valve port. Regulator shall be capable of regulating downstream pressure within limits of accuracy and shall be capable of limiting the buildup of pressure under no-flow conditions to 50 percent or less of the discharge pressure maintained under flow conditions. Regulator shall have a self contained service regulator. Regulator pipe connections shall not exceed 50 mm (2 inch) size.

2.4 METERS

Meters shall be provided in accordance with Section 13815 AUTOMATED REMOTE METER READING SYSTEM.

2.5 PROTECTIVE COVERING MATERIALS

2.5.1 Thermoplastic Resin Coating System

Continuously extruded polyethylene and adhesive coating system materials shall conform to NACE RP0185, Type A.

PART 3 EXECUTION

3.1 EXCAVATION AND BACKFILLING

Earthwork shall be as specified in Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS.

3.2 GAS MAINS

Pipe for gas mains shall be polyethylene . Polyethylene glass mains shall not be installed aboveground.

3.3 SERVICE LINES

Service lines shall be constructed of steel or polyethylene and shall extend from a gas main to and including the point of delivery within 1.5 meters (5 feet) of the building. The point of delivery is the meter set assembly. The service lines shall be connected to the gas mains as indicated. Where indicated, service line shall be provided with an isolation valve of the same size as the service line. The service lines shall be as short and as straight as practicable between the point of delivery and the gas main and shall not be bent or curved laterally unless necessary to avoid obstructions or otherwise permitted. Service lines shall be laid with as few joints as practicable using standard lengths of pipe. Shorter lengths shall be used only for closures. Polyethylene service lines shall not be installed aboveground except as permitted in ASME B31.8. Steel service lines shall not be installed underground.

3.4 WORKMANSHIP AND DEFECTS

Pipe, tubing, and fittings shall be clear and free of cutting burrs and defects in structure or threading and shall be thoroughly brushed and blown free of chips and scale. Defective pipe, tubing, or fittings shall be replaced and shall not be repaired.

3.5 PROTECTIVE COVERING

3.5.1 Protective Covering for Underground Steel Pipe

Except as otherwise specified, protective coverings shall be applied mechanically in a factory or field plant especially equipped for the purpose. Valves and fittings that cannot be coated and wrapped mechanically shall have the protective covering applied by hand, preferably at the plant that applies the covering to the pipe. Joints shall be coated and wrapped by hand. Hand coating and wrapping shall be done in a manner and with materials that will produce a covering equal in thickness to that of the covering applied mechanically.

3.5.1.1 Thermoplastic Resin Coating System

The coating system shall conform to NACE RP0185, Type A. The exterior of the pipe shall be cleaned to a commercial grade blast cleaning finish in accordance with SSPC SP 6. Adhesive compound shall be applied to the pipe.

Immediately after the adhesive is applied, a seamless tube of polyethylene shall be extruded over the adhesive to produce a bonded seamless coating.

The nominal thickness of the pipe coating system shall be 0.25 mm (10 mils)

(plus or minus 10 percent) of adhesive and 1.0 mm (40 mils) (plus or minus 10 percent) of polyethylene for pipes up to 400 mm (16 inches) in diameter. For pipes 450 mm (18 inches) and larger in diameter, the pipe coating system thickness shall be 0.25 mm (10 mils) (plus or minus 10 percent) adhesive and 1.5 mm (60 mils) (plus or minus 10 percent)

polyethylene. Joint coating and field repair material shall be applied as recommended by the coating manufacturer and shall be one of the following:

- a. Heat shrinkable polyethylene sleeves.
- b. Polyvinyl chloride pressure-sensitive adhesive tape.

- c. High density polyethylene/bituminous rubber compound tape.

The coating system shall be inspected for holes, voids, cracks, and other damage during installation.

3.5.1.2 Inspection of Pipe Coatings

Any damage to the protective covering during transit and handling shall be repaired before installation. After field coating and wrapping has been applied, the entire pipe shall be inspected by an electric holiday detector with impressed current set at a value in accordance with NACE RP0274 using a full-ring, spring-type coil electrode. The holiday detector shall be equipped with a bell, buzzer, or other type of audible signal which sounds when a holiday is detected. All holidays in the protective covering shall be repaired immediately upon detection. The Contracting Officer reserves the right to inspect and determine the suitability of the detector. Labor, materials, and equipment necessary for conducting the inspection shall be furnished by the Contractor.

3.5.2 Protective Covering for Aboveground Piping Systems

Finish painting shall conform to the applicable paragraphs of Section 09900 PAINTING, GENERAL and as follows:

3.5.2.1 Ferrous Surfaces

Shop primed surfaces shall be touched up with ferrous metal primer same type paint as the shop primer. Surfaces that have not been shop primed shall be solvent-cleaned in accordance with SSPC SP 1. Surfaces that contain loose rust, loose mill scale, and other foreign substances shall be mechanically cleaned by power wire brushing in accordance with SSPC SP 3 or brush-off blast cleaned in accordance with SSPC SP 7 and primed with ferrous metal primer in accordance with SSPC Paint 25. Primed surfaces shall be finished with two coats of exterior alkyd paint conforming to SSPC Paint 104.

3.5.2.2 Nonferrous Surfaces

Nonferrous surfaces shall not be painted.

3.5.3 Protective Covering for Piping in Valve Boxes

Piping in valve boxes shall receive protective coating as specified for underground steel pipe.

3.6 INSTALLATION

Gas distribution system and equipment shall be installed in conformance with the manufacturer's recommendations and applicable sections of ASME B31.8, AGA-01 and 49 CFR 192. Abandoning existing gas piping shall be done in accordance with ASME B31.8. Pipe shall be cut without damaging the pipe. Unless otherwise authorized, cutting shall be done by an approved type of mechanical cutter. Wheel cutters shall be used where practicable.

Cutting of plastic pipe shall be in accordance with AGA-01. Valve installation in plastic pipe shall be designed to protect the plastic pipe against excessive torsional or shearing loads when the valve is operated and from other stresses which may be exerted through the valve or valve box.

3.6.1 Installing Pipe Underground

Gas mains and service lines shall be graded as indicated. Mains shall have 900 mm minimum cover; service lines shall have [AM #4] 900 mm minimum cover; and both mains and service lines shall be placed on firmly compacted select material for the full length. Where indicated, the main shall be encased, bridged, or designed to withstand any anticipated external loads as specified in ASME B31.8. The encasement material shall be standard weight black steel pipe with a protective coating as specified. The pipe shall be separated from the casing by insulating spacers and sealed at the ends with casing bushings. Trench shall be excavated below pipe grade, bedded with bank sand, and compacted to provide full-length bearing. Laying the pipe on blocks to produce uniform grade will not be permitted. The pipe shall be clean inside before it is lowered into the trench and shall be kept free of water, soil, and all other foreign matter that might damage or obstruct the operation of the valves, regulators, meters, or other equipment. When work is not in progress, open ends of pipe or fittings shall be securely closed by expandable plugs or other suitable means. Minor changes in line or gradient of pipe that can be accomplished through the natural flexibility of the pipe material without producing permanent deformation and without overstressing joints may be made when approved. Changes in line or gradient that exceed the limitations specified shall be made with fittings. When cathodic protection is furnished, electrically insulated joints or flanges shall be provided. When polyethylene piping is installed underground, marking tape shall be placed above the pipe and a tracer wire shall be placed below the pipe. After laying of pipe and testing, trench shall be backfilled in accordance with Section 02316 EXCAVATION, TRENCHING AND BACKFILLING FOR UTILITY SYSTEMS.

3.6.2 Installing Pipe Aboveground

Aboveground piping shall be protected against dirt and other foreign matter as specified for underground piping. Joints in steel pipe shall be welded; however joints in pipe 40 mm (1-1/2 inches) in diameter and smaller may be threaded; joints may also be threaded to accommodate the installation of valves. Flanges shall be of the weld neck type to match wall thickness of pipe.

3.7 PIPE JOINTS

Pipe joints shall be designed and installed to effectively sustain the longitudinal pullout forces caused by the contraction of piping or superimposed loads.

3.7.1 Threaded Steel Joints

Threaded joints in steel pipe shall have tapered threads evenly cut and shall be made with UL approved graphite joint sealing compound for gas service or polytetrafluoroethylene tape applied to the male threads only.

Caulking of threaded joints to stop or prevent leaks will not be permitted.

3.7.2 Welded Steel Joints

Gas pipe weldments shall be as indicated. Changes in direction of piping shall be made with welding fittings only; mitering or notching pipe to form elbows and tees or other similar type construction will not be permitted. Branch connection may be made with either welding tees or forged branch outlet fittings. Branch outlet fittings shall be forged, flared for improvement of flow where attached to the run, and reinforced against external strains. Beveling, alignment, heat treatment, and inspection of weld shall conform to ASME B31.8. Weld defects shall be removed and repairs made to the weld, or the weld joints shall be entirely removed and rewelded. After filler metal has been removed from its original package, it shall be protected or stored so that its characteristics or welding properties are not affected adversely. Electrodes that have been wetted or have lost any of their coating shall not be used.

3.7.3 Polyethylene Pipe Jointing Procedures

Jointing procedures shall conform to AGA-01. Indiscriminate heat fusion joining of plastic pipe or fittings made from different polyethylene resins by classification or by manufacturer shall be avoided if other alternative jointing procedures are available. If heat fusion joining of dissimilar polyethylenes is required, special procedures are required. The method of heat fusion joining dissimilar polyethylene resins shall be tested in accordance with paragraph TESTS, subparagraph Destructive Tests of Plastic Pipe Joints.

3.7.3.1 Installer Qualifications

a. Personnel

Personnel which perform joining procedures shall meet the following qualifications prior to commencing work:

- 1) Performed joining of piping on at least one project using piping of the same type and size as to be installed under this contract.
- 2) Attend a qualification training course, after contract award, conducted by the manufacturer of the pipe installed under this contract. The training shall be a minimum of 8 hours and cover as a minimum the items set forth in the AGA plastic pipe manual. Equipment used for training shall be the same manufacture as that to be utilized on this project.

b. Contractor Quality Control Representative

The Contractor Quality Control representative shall attend the same training as that required for the personnel performing the joining procedure.

3.7.3.2 Testing

a. Instruments

Instruments which must be available at the project site:

- 1) Thermometer
- 2) Anemometer
- 3) Pyrometer (or temperature crayons)

b. Verification of Joining Procedure

Each morning, prior to commencing work, a joint of each size and type to be installed during that day shall be made.

- 1) Three coupons from each joint shall be taken at 120 degrees apart.
- 2) Each coupon shall be checked for alignment and subjected to a bend test.
- 3) Coupons shall be identified and retained.
- 4) Should the ambient temperature change by more than -7 degrees C (20 degrees F) or wind velocity increases by more than 10 MPH when ambient temperature is below 10 degrees C (50 degrees F), the joining procedures to be used for the remainder of the day will be retested.

c. Recording Test Data

The following items where applicable, shall be recorded each day of installing pipe. (Complete the attached sheet titled 'TEST DATA RECORD FOR P-E PIPE.')

- 1) Manufacture of Equipment
- 2) Operating pressures
- 3) Heating iron temperatures
- 4) Ambient conditions
- 5) Coupon Data
- 6) Installer and CQC signature block"

[AM #4] _____

3.7.4 Connections Between Metallic and Plastic Piping

Connections shall be made only outside, underground, and with approved

transition fittings.

3.8 VALVE BOXES

Valve boxes of cast iron not less than 4.7 mm (3/16 inch) thick shall be installed at each underground valve except where concrete or other type of housing is indicated. Valve boxes shall be provided with locking covers that require a special wrench for removal. Wrench shall be furnished for each box. The word "gas" shall be cast in the box cover. When the valve is located in a roadway, the valve box shall be protected by a suitable concrete slab at least 1 square meter. When in a sidewalk, the top of the box shall be in a concrete slab 600 mm square and set flush with the sidewalk. Boxes shall be adjustable extension type with screw or slide-type adjustments. Valve boxes shall be separately supported, not resting on the pipe, so that no traffic loads can be transmitted to the pipe. Valves shall only be located in valve boxes or inside of buildings.

3.9 DRIPS

Drips shall be installed at all low points in gas line. Locate drip points to provide for proper drainage of pipe system. Drips shall conform to the details shown or may be commercial units of approved type and capacity. A blow off pipe 32 mm (1-1/4 inches) or larger shall be connected to each drip at its lowest point and shall extend to or near the ground surface at a convenient location away from traffic. Discharge for each drip terminal (outlet) shall be provided with a reducing fitting, a plug valve, and a 15 mm (1/2 inch nipple turned down. The discharge terminal (outlet) shall be inside a length of 55 mm or larger vitrified clay pipe, concrete sewer pipe, concrete terminal box, on cast iron valve box set vertically on a bed of coarse gravel 300 mm thick and 1 m square, and closed at the ground surface with a suitable replacement cover.

3.10 PRESSURE REGULATOR INSTALLATION

3.10.1 Service Line Regulators

A shutoff valve, meter set assembly, and service regulator shall be installed on the service line outside the building, 450 mm above the ground on the riser. An insulating joint shall be installed on the inlet side of the meter set assembly and service regulator and shall be constructed to prevent flow of electrical current. A 10 mm (3/8 inch) tapped fitting equipped with a plug shall be provided on both sides of the service regulator for installation of pressure gauges for adjusting the regulator. All service regulator vents and relief vents shall terminate in the outside air in rain and insect resistant fittings. The open end of the vent shall be located where gas can escape freely into the atmosphere, away from any openings into the building and above areas subject to flooding.

3.11 METER INSTALLATION

Meters shall be installed in accordance with ASME B31.8. Permanent gas meters shall be installed with provisions for isolation and removal for calibration and maintenance, and shall be suitable for operation in conjunction with an energy monitoring and control system.

3.12 CONNECTIONS TO EXISTING LINES

Connections between new work and existing gas lines, where required, shall be made in accordance with ASME B31.8 using proper fittings to suit the actual conditions. When connections are made by tapping into a gas main, the connecting fittings shall be the same size as the pipe being connected.

3.12.1 Connection to Government Owned/Operated Gas Lines

The Contractor shall provide connections to the existing gas lines in accordance with approved procedures. Deactivation of any portion of the existing system shall only be done at the valve location shown on the drawings. Reactivation of any existing gas lines will only be done by the Government. The Contractor's Connection and Abandonment Plan shall be submitted and approved prior to making any connections to existing gas lines. This plan shall include the Operating Agency's required procedures which may be obtained from the Contracting Officer. The Contractor shall notify the Contracting Officer, in writing, 10 days before connections to existing lines are to be made.

- a. If facilities are abandoned in place, they shall be physically disconnected from the piping system. The open ends of all abandoned facilities shall be purged, capped, plugged or otherwise effectively sealed. Abandonment shall not be completed until it has been determined that the volume of gas or liquid hydrocarbons contained within the abandoned section poses no potential hazard. Air or inert gas may be used for purging, or the facility may be filled with water or other inert material. If air is used for purging, the Contractor shall ensure that a combustible mixture is not present after purging.
- b. When a main is abandoned, together with the service lines connected to it, only the customer's end of such service lines is required to be sealed as stipulated above.
- c. Service lines abandoned from the active mains shall be disconnected as close to the main as practicable.
- d. All valves left in the abandoned segment shall be closed.
- e. All abovegrade valves, risers, and vault and valve box covers shall be removed. Vault and valve box voids shall be filled with suitable compacted backfill material.

3.13 TESTS

3.13.1 Destructive Tests of Plastic Pipe Joints

Each day, prior to making polyethylene heat fusion joints or fiberglass adhesive joints, a joint of each size and type to be installed that day shall be made by each person performing joining of plastic pipe that day and destructively tested. At least 3 longitudinal straps shall be cut from each joint. Each strap shall be visually examined, shall not contain voids

or discontinuities on the cut surfaces of the joint area, and shall be deformed by bending, torque, or impact, and if failure occurs, it must not initiate in the joint area. If a joint fails the visual or deformation test, the qualified joiner who made that joint shall not make further field joints in plastic pipe on this job until that person has been retrained and requalified. The results of the destructive tests shall be recorded to include the date and time of the tests, size and type of the joints, ambient conditions, fusion iron temperature and names of inspectors and joiners.

3.13.2 Pressure and Leak Tests

The system of gas mains and service lines shall be tested after construction and before being placed in service using air as the test medium. The normal operating pressure for the system is 207 kPa to 450 kPa (30 to 65 psig). The test pressure is 675 kPa. Prior to testing the system, the interior shall be blown out, cleaned and cleared of all foreign materials. All meters, regulators, and controls shall be removed before blowing out and cleaning and reinstalled after clearing of all foreign materials. Testing of gas mains and service lines shall be done with due regard for the safety of employees and the public during the test. Persons not working on the test operations shall be kept out of the testing area while testing is proceeding. The test shall be made on the system as a whole or on sections that can be isolated. Joints in sections shall be tested prior to backfilling when trenches must be backfilled before the completion of other pipeline sections. The test shall continue for at least 24 hours from the time of the initial readings to the final readings of pressure and temperature. The initial test readings of the instrument shall not be made for at least 1 hour after the pipe has been subjected to the full test pressure, and neither the initial nor final readings shall be made at times of rapid changes in atmospheric conditions. The temperatures shall be representative of the actual trench conditions. There shall be no indication of reduction of pressure during the test after corrections have been made for changes in atmospheric conditions in conformity with the relationship $T(1)P(2)=T(2)P(1)$, in which T and P denote absolute temperature and pressure, respectively, and the numbers denote initial and final readings. During the test, the entire system shall be completely isolated from all compressors and other sources of air pressure. Each joint shall be tested by means of soap and water or an equivalent nonflammable solution prior to backfilling or concealing any work. The testing instruments shall be approved by the Contracting Officer. All labor, materials and equipment for conducting the tests shall be furnished by the Contractor and shall be subject to inspection at all times during the tests. The Contractor shall maintain safety precautions for air pressure testing at all times during the tests.

-- End of Section --

TEST DATA RECORD FOR P-E PIPE

1. DATE _____ TIME _____

2. FUSION EQUIPMENT

Manufacture _____ Model _____

Design Pressure _____ Design Iron Temp _____

Actual Pressure (a) _____ Actual Iron Temp (b) _____

(a) Pressure gauge calibrated date: _____

(b) Method of determining iron temperature: _____

3. WEATHER CONDITIONS

Ambient Temperature _____

Wind Velocity _____

Weather Condition (ie - clear, dry, etc) _____

4. TEST COUPON DATA (mark and return coupons)

Bend Test Alignment Bead Size

_____ | _____ | _____

_____ | _____ | _____

_____ | _____ | _____

5. TEST AUTHENTICATION (signature)

Equipment Operator _____

CQC Representative _____

QA Representative _____

SECTION 02933

ESTABLISHMENT OF TURF
12/1995
Amendment #0004

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 basic designation only.

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-1909 (Basic; Notice 1) Fertilizer

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. Six copies each of the following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES and prior to commencement of planting operations:

SD-07 Schedules

Turfing Equipment List; FIO.

Prior to planting operations, the Contractor shall furnish for approval, notification of the types of equipment, including descriptive data, he/she proposes to use in turfing operations such as preparation of ground surface, smoothing, fertilizing, seeding, mulching, sod-cutting, compacting, mowing, and watering.

SD-09 Reports

Fertilizer; FIO.

Seed ; FIO.

Test reports of samples of fertilizer and seed shall be signed and certified by the testing laboratory. Testing laboratories used by the Contractor shall be approved by the Contracting Officer.

SD-13 Certificates

Fertilizer; FIO.

Bulk deliveries of fertilizer shall be accompanied by a certificate indicating net pounds furnished, chemical analysis, name, trade name, and warranty of the supplier of the fertilizer.

Seed; FIO.

The Contracting Officer shall be furnished signed copies of certificates from the seed vendor, certifying that each container of seed delivered is labeled in accordance with Federal Seed Act and is at least equal to requirements specified. This certification shall be obtained from the vendor and shall be furnished on or with all copies of seed invoices.

SD-18 Records

Signed, certified copies of the following reports shall be submitted.

Fertilizer Invoices; FIO.

Invoices obtained from the vendor shall indicate quantities and grade of each fertilizer furnished.

Seed Invoices; FIO.

Invoices shall be obtained from the vendor.

Official Seed Analysis or Official Seed Tags; FIO.

Obtained from the vendor. The official seed analysis or the official seed tags shall be furnished with all copies of the seed invoices.

Notification of Sources; GA.

The Contractor shall notify the Contracting Officer for approval, in writing, the sources from which the following materials will be furnished:

Sod

Mulch

Soil for repairs

Water

1.3 INSPECTION AND TESTS

1.3.1 Fertilizer

Samples of each lot of fertilizer shall be tested by the Contractor upon request of the Contracting Officer. Sampling and testing shall be in accordance with the AOAC Official Methods of Analysis, at the discretion of Contracting Officer. The empty fertilizer bags shall be retained, and upon

completion of the project, a final check of total quantities of fertilizer used will be made against the total area treated. If minimum rates of application have not been met, additional quantities of these materials to make up minimum application specified shall be distributed as directed.

1.3.2 Seed

Each lot of seed may be sampled and tested, in accordance with latest USDA Rules and Regulations under the Federal Seed Act, at the discretion of the Contracting Officer. Such sampling and testing shall be made by or under the supervision of the Government. If these tests reveal the seed to be below the specified pure live seed content, the Contractor shall be required to plant additional seed to compensate for the deficiency at no additional cost to the Government. The seed test will be conducted by the State Seed Laboratory. Allowance will be made for the actual pure live seed content of seed in determining the actual planting rate.

1.3.3 Sod

Not less than five days prior to commencement of sodding operations the Contracting Officer shall be notified of the off-site sources from which sod is to be furnished. Sod shall be inspected prior to and during laying operations; sod that fails to meet requirements shall be rejected. Rejected material, if suitable, may be pulverized and used for filling. The average thickness of the sod will be determined at the sodding site as follows: 11 random sods will be stacked on a flat surface; the thickness from the base of the bottom sod to the base of the top sod will be measured, and that thickness divided by 10.

1.3.4 Mulch

Not less than five days prior to commencement of mulching operations the Contracting Officer shall be notified of sources from which mulch materials are available and the quantities thereof. Representative samples of the material proposed for use shall be submitted for approval. A weight certificate signed by a public weigher shall be furnished for each load of mulch used on the site. The weight certificates shall be furnished prior to applying the mulch. The mulch material shall be unloaded and stacked in an orderly manner.

1.3.5 Soil for Repairs

Not less than five days prior to the commencement of repair work, the Contracting Officer shall be notified of the source from which soil for repairs is to be furnished. The material will be inspected to determine whether the selected soil meets the requirements. The soil shall be subject to approval prior to use.

1.4 PAYMENT

No payment or partial payment will be made for work covered by this section of the specifications until all portions of this section, including maintenance of turfing work, are adequately performed and accepted, as determined by the Contracting Officer.

1.5 DELIVERY AND STORAGE

1.5.1 Delivery

1.5.1.1 Fertilizer

Fertilizer shall be delivered to the site in original, unopened bags or other convenient containers, each fully labeled, conforming to the applicable State fertilizer laws, and bearing the name, trade name or trademark, and warranty of the producer. In lieu of bags or containers, fertilizer may be furnished in bulk. Bulk deliveries shall be accompanied by a certificate conforming to PART 1 paragraph SUBMITTALS, SD-13 Certificates.

1.5.1.2 Seed

Seed shall be furnished in sealed, standard containers unless written exception is granted.

1.5.2 Storage

1.5.2.1 Storage Area

Materials shall be stored in areas designated by the Contracting Officer.

1.5.2.2 Seed and Fertilizer

Seed and fertilizer shall be stored in dry locations away from contaminants.

1.5.2.3 Sod

Sod shall be lightly sprinkled with water, covered with moist burlap, straw or other covering; and protected from exposure to wind and direct sunlight until planted. Covering shall be provided that will allow air to circulate and prevent internal heat from building up.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Fertilizer for Fertilizing

Fertilizer shall be commercial grade, free flowing, uniform in composition and conforming to CID A-A-1909. Granular Fertilizer: Consists of nitrogen-phosphorus-potassium ratio: 15 percent nitrogen, 5 percent phosphorus, and 10 percent potassium..

2.1.2 Fertilizer for Refertilizing

Fertilizer for refertilizing shall be as specified in paragraph Fertilizer for Fertilizing.

2.2 Seed

Seed labeled in accordance with USDA Rules and Regulations under the Federal Seed Act shall be furnished. Seed that is wet or moldy or that has been otherwise damaged in transit or storage will not be acceptable. The seed shall be free of field bindweed, hedgeweed, and nutgrass seed. Seed shall not contain other noxious weed seed in excess of the limits allowable under the Federal Seed Act and applicable State seed laws. Seed labeled as mixture or pasture mixture will not be acceptable. Each seed container shall bear the date of the last germination which date shall be within a period of 6 months prior to commencement of planting operations.

2.2.1 Seed Mixture

Seed with the following percentage by weight of pure live seed in each lot shall be furnished. Weed seed shall not exceed one percent.

Kind of Seed		Kilograms/Hectare	
Common Name	Scientific Name	of Pure Live Seed	Hulled or Unhulled
Lawn Areas (Reference Turfing Plans)			
Buffalo Grass 'Topgun'	Buchloe dactyloides 'Topgun'	68 kg	Unhulled, Treated
Green Sprangletop	Leptochloa dubia	12 kg	Unhulled
Graded and Disturbed Areas NOT Labeled Lawn Areas (Reference Civil Grading Plans)			
Buffalo Grass 'Topgun'	Buchloe dactyloides 'Topgun'	17 kg	Unhulled, Treated
Sideoats Grama	Bouteloua curtipendula	17 kg	Unhulled
Little Bluestem	Schizachyrium scoparium	18 kg	Unhulled
Green Sprangletop	Leptochloa dubia	12 kg	Unhulled

P.L.S.

NOTE:

2.3 Sod

Sod containing a dense cover of growing or living grass shall be provided. Living grass is defined as grass that is seasonably dormant during a cold or dry season and capable of renewing growth after the dormant period. At least 90 percent of the plants in the sod shall be common Bermudagrass. Sod shall be procured from areas having growing conditions similar to those areas on which the sod is to be used. Sod shall be furnished that is free of noxious weeds and undesirable plants, stones, roots of trees, and other materials that hinder the development and maintenance of sod. Vegetation more than three inches in height shall be cut to two inches or less, and hay and other loose materials on the surface shall be removed at least 5 days before the sod is lifted. Sod shall be procured from areas containing clay or clay loam topsoil. Sod shall have such density that when it is cut in strips 305 mm wide, it can be lifted and handled without breaking. When the sod is cut, the height of the grass shall not exceed 50 mm. Sod shall be cut with an approved sod cutter to provide an average thickness of 38 mm. All sod shall be furnished by the Contractor from approved sources

off the site.

2.4 Water

Water shall be free from oil, acid, alkali, salt, and other substances harmful to growth of grass, and shall be from a source approved prior to use.

2.5 Mulch

Acceptable mulch shall be baled, bright, native prairie hay, such as broomsedge bluestem, little bluestem, big bluestem, switchgrass, and indiagrass, or hay of other grasses and sedges having the equivalent in leafiness, structure and fibre strength. Bermudagrass hay, cereal grain straw (such as oat and wheat), and forage sorghums, including johnsongrass, will not be acceptable. Hay material which has passed through a seed harvesting combine or a thresher will not be acceptable. A minimum of 50 percent of weight of the herbage making up the material shall be 250 mm in length or longer. Mulch material which contains an excessive quantity of mature seed of noxious weeds or other species, including crops which would be detrimental to the grasses planted on the mulched areas or provide a menace to surrounding farm lands, will not be acceptable. Discolored, weathered, brittle hay or any hay harvested during the dormant season will not be acceptable.

2.6 Soil For Repairs

The soil used in the repair work shall be of at least equal quality to that which exists in areas adjacent to the area to be repaired. Soil shall be used that is free from tree roots, stones, and other materials that hinder grading, planting, and maintenance operations and that is free from noxious and other objectionable weed seeds and toxic substances. Soil for repairs shall be obtained from approved sources.

2.7 Topsoil

Natural, friable clay loam topsoil, characteristic of representative soils in the vicinity that produce heavy growths of crops, grass, or other vegetation shall be furnished. Topsoil shall be free from tree roots, stones, and other materials that hinder grading, planting, and maintenance operations, and free from noxious and other objectionable weed seeds and toxic substances. All topsoil shall be obtained from stockpiles.

PART 3 EXECUTION

3.1 GENERAL

The turfing work shall be accomplished only when satisfactory results can be expected during periods indicated in PART 3 paragraph PLANTING SEASON. When conditions such as drought, excessive moisture, high winds, or other factors prevail to such an extent that satisfactory results are not likely to be obtained, the Contracting Officer may, at his own discretion, stop any phase of the work. The work shall be resumed only when, in the opinion of the Contracting Officer, the desired results are likely to be obtained.

All turfing operations shall be conducted across the slope. Establishment of turf shall be accomplished on all unpaved, graded, and disturbed areas that are the result of the Contractor's operations and as specified herein. Hydromulching will not be accepted.

3.2 PLANTING SEASON

The planting season for turfing work shall be from 1 April to 1 June; planting shall be accomplished during the first planting season, or portion thereof (but not less than 15 days), following substantial completion of building construction.

3.3 REPAIR WORK

Repair work shall be done on the slopes of areas where gullies have occurred, as required by the Contracting Officer. The entire fill in gullies shall be compacted by the tractor wheels as the soil is placed and spread. Repairs shall be accomplished on slopes damaged prior to or during accomplishment of turfing work. The damaged slopes shall be repaired to re-establish the condition and grade of the soil prior to the damage as directed by the Contracting Officer. Repair work shall be done to the extent and at the locations directed by the Contracting Officer. Repair work shall be done before fertilizing operations are begun. Reseeding shall be accomplished on previously seeded areas after repairs are completed.

3.4 SMOOTHING

Smoothing shall be done on areas to receive turfing as directed by the Contracting Officer. Smoothing shall be done on gullied areas, where grades cannot be restored and gullies filled by the specified tillage operations. Smoothing shall be done, where required, to facilitate seeding operations. Smoothing shall be done with a bulldozer, maintainer or other approved blade equipment.

3.5 APPLICATION OF FERTILIZER

Fertilizer shall not be applied more than 24 hours in advance of tilling operations. The fertilizer distributor box shall be equipped with baffle plates to prevent downward movement of fertilizer when operating on the slope. Fertilizer shall be distributed with a fertilizer distributor (Ezee Flow) or approved equal at the rate of 340 kg per hectare.

3.5.1 Refertilizing

The planted areas shall be refertilized 5 weeks after commencement of maintenance operations, with refertilizing completed not later than 3 days after commencement. Fertilizer shall be applied at the rate 340 kg per hectare using a fertilizer distributor (Ezee Flow or approved equal). Fertilizer shall be applied when the vegetation is dry. The refertilized areas shall be watered as specified for MAINTENANCE OF TURFING WORK within 24 hours following refertilizing operations.

3.6 PREPARATION OF GROUND SURFACE

Equipment, in good condition, shall be provided for the proper preparation of the ground. Equipment shall be subject to approval before work is started.

3.6.1 Clearing

Prior to grading and tilling, vegetation that may interfere with operations shall be mowed, grubbed, and raked. The collected material shall be removed from the site. The surface shall be cleared of stumps, and stones larger than 25 mm in diameter, and roots, cable, wire, and other materials that might hinder the work or subsequent maintenance shall also be removed.

3.6.2 Grading

Previously established grades shall be maintained on the areas to be treated in a true and even condition, and necessary repairs shall be made to previously graded areas. All surfaces shall be left in a smooth condition to prevent formation of depressions. Areas having inadequate drainage as indicated by the ponding of water near foundations, walks, driveways, or on other areas shall be filled or graded to drain as directed by the Contracting Officer. Ruts, deep tracks, dead furrows, and ridges shall be eliminated and the necessary replanting accomplished prior to acceptance of the completed work. Replanting shall be at the same rate and same manner as specified for the original planting. The finished grade shall be such that after the various turfing operations, the planted grade will be one inch below the adjacent surfaced grade of walks, drives, and curbs.

3.6.3 Tillage

After the areas have been brought to the grades shown, tillage shall be accomplished in such manner as to destroy existing vegetation and to prepare an acceptable seed bed. The Contractor shall utilize tractors with adequate horsepower and heavy duty tillage equipment in accomplishing the specified tillage operations. All areas shall be tilled with a heavy duty disk type breaking plow or chisel type breaking plow, followed by disking with a disk harrow, and smoothing with a weighted spike tooth harrow, railroad irons, or bridge timber float drag. When a chisel plow is used the chisels shall be set not to exceed 250 mm apart, and the areas shall be cross or double tilled. Lawn areas shall be left smooth for lawn purposes and other areas shall be left smooth for ease of mowing. Depth of tillage shall be 100 mm.

3.7 SODDING

3.7.1 Obtaining and Handling Sod

After inspection and approval of the source of sod, the sod shall be cut into squares or rectangular sections, exercising care to retain the native soil on the roots of the sod during stripping, transporting, and planting. Sod shall be transplanted within 24 hours after the sod is stripped, unless stored in a satisfactory manner. If sod is stacked it shall be placed roots to roots or grass to grass. Sod shall be kept moist during delivery

and while in stacks. Sod shall be protected from exposure to wind and sun and from freezing. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Rectangular sections of sod may vary in length but shall be of equal width and of a size that permits the sod to be lifted and rolled without breaking. Sod shall not be dumped from vehicles. When soil is too dry, permission to cut sod will be granted only after the ground has been watered sufficiently to moisten the ground to the depth to which sod is to be cut. Damaged sod will be rejected. The sod shall be cut with an approved sod cutter.

3.7.2 Placing Sod

When authorized in writing, sodding may be performed during dry weather or periods of drought, provided the ground is watered sufficiently to moisten soil adequately to depth to which sod is to be cut and sod bed is thoroughly watered to a depth of at least 100 mm prior to placing sod.

3.7.2.1 Solid Sodding

Sod shall be anchored on slopes steeper than 3-horizontal-to-1-vertical. Anchoring may be required when surface weight or pressure upon placed sod sections is anticipated to cause lateral movement. Sod anchors shall be placed a minimum of 600 mm on center with a minimum of 2 anchors per sod section. Sod sections shall be laid across the slope on long slopes. Sod sections shall be laid at right angles to the flow of water in ditches. The areas to be solid sodded shall be excavated to a sufficient depth so that the top of the sod when set in place will be from 13 mm to 25 mm below the surrounding soil at the outer edges of the solid sodded area. Sod shall be laid smooth, edge to edge, with staggered joints. The sod sections shall not be stretched or overlapped. Sod shall be immediately pressed firmly into contact with the sod bed by hand tamping with an approved hand tamper or rolling to eliminate air pockets. Roller shall not exceed 130 kilograms per meter width. Slopes over a maximum 3-horizontal-to-1-vertical shall not be rolled. A true and even surface shall be provided, to insure knitting without displacement of the sod or deformation of the surfaces of the sodded areas. Following compaction, screened soil of good quality shall be used to fill all cracks, and excess soil shall be worked into the grass with rakes or other suitable equipment. Grass shall not be smothered with excess fill soil.

3.8 PLANTING SEED

The Contractor shall conduct seeding equipment calibration tests in the presence of the Contracting Officer as a means of determining the equipment setting to plant the seed at the specified rates. If unplanted skips and areas are noted after germination and growth of the grass, the Contractor shall be required to seed the unplanted areas with the grass or grasses that were to have been planted at no additional cost to the Government. Seed boxes shall be kept at least half full during seeding operations to insure even distribution of seed over all the areas seeded. Seeding equipment operating on slopes shall be anchored, as required, to prevent downward movement of the equipment and formation of ridges and ruts.

3.8.1 Seeding

The equipment to be used and the methods of planting shall be subject to the inspection and approval of the Contracting Officer prior to commencement of planting operations. The seed shall be planted at the rates indicated in paragraph SEED MIXTURE using a Brillion seeder or approved equal. Depth of planting the seed shall be 13 mm . The seed shall be planted after tilling.

3.9 PROTECTION

The seeded areas shall be protected against traffic or other use by erecting barricades immediately after seeding is completed and by placing warning signs of a type approved by the Contracting Officer on the various areas. Such protective devices shall be maintained until completion of all work under this contract.

3.10 MULCHING AREAS

3.10.1 Applying Mulch

Mulch shall be spread uniformly in a continuous blanket, using 3.18 metric tons per hectare . Mulch shall be spread by hand or by an approved blower-type mulch spreader. Blower-type mulch spreaders shall be adjusted and operated in such manner to prevent excessive breakage of the mulch material. If this cannot be accomplished, the mulch shall be spread by hand. Care shall be exercised to insure that all wire from baled hay is collected as it is removed from the bale and then removed from the site. Mulching shall be started at the windward side of relatively flat areas, or at the upper part of a steep slope, and continued uniformly until the area is covered. The mulch shall not be bunched.

3.10.1.1 Mulching Prior to Planting

During periods when turfing not approved in PART 3 paragraph PLANTING SEASON, hay mulch shall be applied at the rate of 3.18 metric tons per hectare following liming and tilling. Hay mulch will then be anchored.

3.10.1.2 Mulching After Planting

Hay mulch shall be applied to seeded areas after tilling, fertilizing, tilling, and seeding during period when seeding is approved in PART 3 paragraph PLANTING SEASON.

3.10.2 Anchoring Mulch

Within 4 hours following spreading, the mulch shall be anchored in the soil to a depth of 50 mm to 76 mm . An approved machine equal to a disk harrow with cupped disks removed and replaced with straight rolling coulters spaced not more than eight inches apart and having edges approximately 3 mm wide shall be used to anchor the mulch. The machine shall be weighted and operated in such manner to secure the hay firmly in the ground to form a soil-binding mulch and prevent loss or bunching of the hay by wind. The mulch anchoring machine shall be as manufactured by the Finn Equipment Co. of Cincinnati, Ohio, or approved equal. The mulch machine shall be

anchored as required to prevent downward movement of the equipment and the formation of ridges and ruts. Suitable anchoring equipment shall be on hand and ready for use prior to applying the mulch. The coulters shall be at least 250 mm in diameter. The number of passes needed, not to exceed 3, will be determined by the Contracting Officer.

3.10.3 Maintenance of Mulched Areas

Mulch shall be maintained until all work or designated portions thereof have been completed and accepted. Maintenance shall consist of providing protection against traffic by erecting barricades and placing warning signs as specified in PART 3 paragraph PLANTING SEED. Any damage shall be repaired, and mulch material that has been removed by wind or other causes shall be replaced and secured.

3.11 WATERING AREAS

3.11.1 Initial Watering

Water shall be applied to the seeded and/or sodded Lawnareas. Such watering shall be within 12 hours after commencement of seeding and sodding operations on each portion of an area to be planted. If the soil is extremely dry prior to planting, watering of the areas 48 to 72 hours in advance of planting may be required if deemed necessary by the Contracting Officer. Water shall be applied using portable aluminum pipelines with rotating sprinklers. The sprinklers shall not be spaced in excess of 12 meters apart. Small areas which are inaccessible with portable aluminum pipelines will be watered with hoses and rotating sprinklers. Water shall be applied to the planted areas at a rate sufficient to insure thorough wetting of the soil to a depth of 100 mm over the entire planted area. The actual rate will be determined by the Contracting Officer at the time of watering. Watering operations shall be discontinued during and following effective rains and resumed as directed by the Contracting Officer. Watering operations shall be properly supervised to prevent run-off of water. The Contractor shall supply all pumps, hoses, pipelines and sprinkling equipment. The Contractor shall have adequate equipment available for watering operations prior to commencement of planting operations. The Contractor shall repair areas damaged by watering operations at no cost to the Government. All water shall be kept free from oil, acids, alkali, salts, and other substances harmful to the growth of grass.

3.11.2 Rewatering

Daily rewaterings shall be required after the initial watering on Lawn Areas adjacent to buildidngs, when such rewatering is deemed necessary by the Contracting Officer. Rewatering shall be at the same rate and applied in the same manner as specified for the initial watering. Rewaterings shall be completed prior to the end of the maintenance period.

3.12 MAINTENANCE OF TURFING WORK

3.12.1 General

The Contractor shall maintain all planted areas during the planting period and for an additional period of not less than 90 calendar days following completion of planting operations or replanting operations, if required. Maintenance shall consist of watering, replanting, mowing, maintaining existing grades, and repair of erosion damage. [AM #3] No partial payment will be made until an acceptable stand of grass has been established and the maintenance period has expired.

3.12.2 Stand

A stand shall be defined as the planted area achieving a uniform live grass coverage having a density where the total bare spots do not exceed 2 percent of the total turfed area, bare spots are not larger than 150 mm square, and the grass is of a height sufficient to be capable of being mowed as specified in the mowing requirements contained in this contract.

3.12.3 Replanting

Green Sprangletop seed should germinate within at least 14 days from planting. If, after that 14-day period a successful germination of a potential stand of grass is not present, the area shall be reseeded prior to the end of the planting season, or within the next 7 days after the 14-day germination period if after the plant season as specified in PART 3 paragraph PLANTING SEASON.

3.12.4 Maintenance of Grades and Repair of Erosion Damage

It shall be the responsibility of the Contractor to maintain the original grades of the planted turf areas after commencement of planting operations and during the specified maintenance period. Any damage to the finished surface from Contractor's operations shall be promptly repaired. In the event erosion occurs from either watering operations or from rainfall, such damage shall be repaired within 10 days from the date of the noted damage. Ruts, ridges, tracks, and other surface irregularities shall be corrected and replanted where required prior to acceptance.

3.12.5 Mowing

Mowings of all Lawn Areas shall be accomplished when the soil is dry and when deemed necessary by the Contracting Officer. The exact time of the mowing will be determined by the Contracting Officer. Mowing of the vegetation shall be to a height of 75 mm to 100 mm and shall be accomplished with a rotary type mower. The clippings shall be left evenly distributed over all the mowed areas. Mowing shall be conducted in such a manner as not to cause damage to slopes. Mowing shall be completed prior to the end of the maintenance period.

3.12.6 Mowing (Lawn Areas):

Vegetation shall be kept under control by mowing. Any time that the weed or grass growth reaches a height of 100 mm, the areas shall be mowed. Mowing shall be done with approved mowing machines in such manner that will leave a vegetation height of between 50 mm to 64 mm .

3.13 WATERING (LAWN AREAS)

Maintenance watering shall consist of daily watering. Water shall be applied each day over the entire planted area until the soil is thoroughly wet to a depth of 100 mm as determined by the Contracting Officer. During and following effective rainfall, watering shall be discontinued but shall be promptly resumed when directed by the Contracting Officer. Water shall be applied using portable aluminum lines with rotating sprinklers on the larger areas beyond the building and facilities. Spacing of the sprinklers shall not exceed 12 meters along the aluminum lines. Hoses with rotating sprinklers may be used for watering the smaller areas adjacent to the building.

-- End of Section --

SECTION 08700

BUILDERS' HARDWARE
Amendment #0004

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 basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 283 (1991) Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

BHMA-01 (Effective thru Jun 1998) Directory of Certified Locks & Latches

BHMA-02 (Effective thru Jul 1997) Directory of Certified Door Closers

BHMA-03 (Effective thru Jul 1997) Directory of Certified Exit Devices

BHMA ANSI/BHMA A156.1 (1997) Butts and Hinges

BHMA ANSI/BHMA A156.3 (1994) Exit Devices

BHMA ANSI/BHMA A156.4 (1992) Door Controls - Closers

BHMA ANSI/BHMA A156.5 (1992) Auxiliary Locks & Associated Products

BHMA ANSI/BHMA A156.6 (1994) Architectural Door Trim

BHMA ANSI/BHMA A156.7 (1988) Template Hinge Dimensions

BHMA ANSI/BHMA A156.8 (1994) Door Controls - Overhead Stops and

Holdings

BHMA ANSI/BHMA A156.13 (1994) Mortise Locks & Latches

BHMA ANSI/BHMA A156.16 (1989) Auxiliary Hardware

BHMA ANSI/BHMA A156.18 (1993) Materials and Finishes

BHMA ANSI/BHMA A156.21 (1996) Thresholds

DOOR AND HARDWARE INSTITUTE (DHI)

DHI-03 (1989) Keying Systems and Nomenclature

DHI-04 (1976) Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames

DHI 05 (1990) Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames

DHI-A115.1G (1994) Installation Guide for Doors and Hardware

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80 (1995) Fire Doors and Fire Windows

NFPA 101 (1997; Errata 97-1) Life Safety Code

NFPA 105 (1993) Installation of Smoke-Control Door Assemblies

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Hardware and Accessories; FIO.

Manufacturer's descriptive data, technical literature, catalog cuts, and installation instructions. Spare parts data for locksets, exit devices, closers, electric locks, electric strikes, electro-magnetic closer holder release devices, and electric exit devices, after approval of the detail drawings, and not later than 3 month(s) prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply.

SD-04 Drawings

Hardware Devices; FIO.

Detail drawings for hardware devices for computerized keying systems, magnetic cards, keyless push button access control systems, and other electrical hardware devices showing complete wiring and schematic diagrams and other details required to demonstrate proper function of units.

SD-07 Schedules

Hardware Schedule; GA.

Hardware schedule listing all items to be furnished. The schedule shall include for each item: the quantities; manufacturer's name and catalog numbers; the ANSI number specified, sizes; detail information or catalog cuts; finishes; door and frame size and materials; location and hardware set identification cross-references to drawings; lock trim material thicknesses; lock trim material evaluation test results; corresponding reference standard type number or function number from manufacturer's catalog if not covered by ANSI or BHMA; and list of abbreviations and template numbers.

Keying Schedule; GA.

Keying schedule developed in accordance with DHI-03, after the keying meeting with the user.

SD-13 Certificates

Hardware and Accessories; GA.

The hardware manufacturer's certificates of compliance stating that the supplied material or hardware item meets specified requirements. Each certificate shall be signed by an official authorized to certify in behalf of the product manufacturer and shall identify quantity and date or dates of shipment or delivery to which the certificates apply. A statement that the proposed hardware items appear in BHMA-01, BHMA-02 and BHMA-03 directories of certified products may be submitted in lieu of certificates. Furnish a separate certificate of compliance attesting that hardware items conform to the Section 00700 Contract clauses pertaining to the Buy American Act.

SD-14 Samples

Locksets; GA.

Furnish a sample of the locksets to be furnished this project. Notify the Contracting Officer and base personnel for a meeting demonstrating that the locksets to be furnished are fully compatible with the existing keying system. An existing base core, and key will be fitted to the sample lockset. The core shall fit the lockset without the use of adaptors and without play. The key shall easily lock and unlock the lockset without binding or other difficulties. Control key shall easily remove and install cores.

1.3 PREDELIVERY CONFERENCE

Upon approval of the Hardware Schedule, the construction Contractor shall arrange a conference with the hardware supplier, Contracting Officer and the using agency to determine keying system requirements. Location of the key control storage system, set-up and key identification labeling will also be determined.

1.4 DELIVERY, STORAGE, AND HANDLING

Hardware shall be delivered to the project site in the manufacturer's original packages. Each article of hardware shall be individually packaged in the manufacturer's standard commercial carton or container, and shall be properly marked or labeled to be readily identifiable with the approved hardware schedule. Each change key shall be tagged or otherwise identified with the door for which its cylinder is intended. Where double cylinder functions are used or where it is not obvious which is the key side of a door, appropriate instructions shall be included with the lock and on the hardware schedule. Manufacturer's printed installation instructions, fasteners, and special tools shall be included in each package.

1.5 SPECIAL TOOLS

Special tools, such as those supplied by the manufacturer, unique wrenches, and dogging keys, shall be provided as required to adjust hardware items.

1.6 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a one year period shall be provided.

1.7 OPERATION AND MAINTENANCE MANUALS

Six complete copies of maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides shall be provided. The instructions for electric locks, electric strikes, electro-magnetic closer holder release devices, and electric exit devices shall include simplified diagrams as installed.

PART 2 PRODUCTS

2.1 GENERAL HARDWARE REQUIREMENTS

Hardware shall conform to the requirements specified herein and the HARDWARE SETS listing at the end of this section. Hardware set numbers correspond to the set numbers shown on the drawings.

2.2 TEMPLATES

Requirements for hardware to be mounted on metal doors or metal frames shall be coordinated between hardware manufacturer and door or frame manufacturer by use of templates and other information to establish location, reinforcement required, size of holes, and similar details. Templates of hinges shall conform to BHMA ANSI/BHMA A156.7.

2.3 HINGES

Hinges shall conform to BHMA ANSI/BHMA A156.1. Hinges used on metal doors and frames shall also conform to BHMA ANSI/BHMA A156.7. Except as otherwise specified, hinge sizes shall conform to the hinge manufacturer's printed recommendations.

2.3.1 Hinges for Reverse Bevel Doors with Locks

Hinges for reverse bevel doors with locks shall have pins that are made nonremovable by means such as a set screw in the barrel, or safety stud, when the door is in the closed position.

2.3.2 Contractor's Option

Hinges with antifriction bearings may be furnished in lieu of ball bearing hinges, except where prohibited for fire doors by the requirements of NFPA 80.

2.3.3 Pivot Hinges

Pivot hinges shall conform to BHMA ANSI/BHMA A156.4.

2.4 LOCKS AND LATCHES

To the maximum extent possible, locksets, latchsets and deadlocks, and all components thereof, including cylinders and removable cores, shall be the products of a single manufacturer. Lock fronts for double-acting doors shall be rounded.

2.4.1 Mortise Lock and Latchsets

Mortise lock, latchsets, and strikes shall be series 1000 and shall conform to BHMA ANSI/BHMA A156.13, operational Grade 1. Strikes for security doors shall be rectangular without curved lip. Mortise type locks and latches for doors 44 mm thick and over shall have adjustable bevel fronts or otherwise conform to the shape of the door. Mortise locks shall have

armored fronts.

2.4.2 Auxiliary Locks and Associated Products

Mortise dead locks and dead latches, narrow style dead locks and dead latches, rim latches, dead latches, and dead bolts, and electric strikes shall conform to BHMA ANSI/BHMA A156.5. Bolt and latch retraction shall be dead bolt style. Strike boxes shall be furnished with dead bolt and latch strikes for Grade 1. Electric strikes shall be unlocked from a remote location in fail secured mode. Electric strike for rated openings shall be fail secured.

2.4.3 Lock Cylinders (Mortise, Rim and Bored)

Lock cylinders shall comply with BHMA ANSI/BHMA A156.5. Lock cylinder shall have not less than seven pins. Cylinders shall have key removable type cores. A master keying system shall be provided. Construction interchangeable cores shall be provided. Disassembly of knob or lockset shall not be required to remove core from lockset. All locksets, and lockable exit devices shall accept same interchangeable cores.

2.4.4 Lock Trim

Lock trim shall be cast, forged, or heavy wrought construction of commercial plain design. In addition to meeting the test requirement of or BHMA ANSI/BHMA A156.13, lever handles, and escutcheons shall be 1.27 mm thick, if unreinforced. If reinforced, the outer shell shall be 0.89 mm thick and the combined thickness shall be 1.78 mm except that lever shanks shall be 1.52 mm thick. Lever handles shall be of plain design with ends returned to no more than 10 mm from the door face. Lever handle shall be of solid construction.

2.5 EXIT DEVICES AND EXIT DEVICE ACCESSORIES

Exit devices and exit device accessories shall conform to BHMA ANSI/BHMA A156.3, Grade 1.

2.5.1 Exit Devices and Auxiliary Items

Trim shall be of wrought construction and commercial plain design with straight, beveled, or smoothly rounded sides, corners, and edges. Adjustable strikes shall be provided for rim type and vertical rod devices. Open back strikes shall be provided for pairs of doors with mortise and vertical rod devices; except open back strikes shall be used on labeled doors only where specifically provided for in the published listings. Touch bars shall be provided in lieu of conventional crossbars and arms. Escutcheons shall be provided not less than 175 by 55 mm. Escutcheons shall be cut to suit cylinders and operating trim.

2.6 KEYING

Locks shall be keyed in sets or subsets as scheduled. Locks shall be furnished with the manufacturer's standard construction key system. Change keys for locks shall be stamped with change number and the inscription

"U.S. Property - Do Not Duplicate." Keys shall be supplied as follows:

Locks: 2 change keys each lock.
Master keyed sets: 4 keys each set.

Construction keys: 6 total.
Blank keys: 150 total.

The keys shall be furnished to the Contracting Officer arranged in a container for key control system storage in sets or subsets as scheduled.

2.7 DOOR CLOSING DEVICES

Door closing devices shall conform to BHMA ANSI/BHMA A156.4, Grade 1. Closing devices shall be products of one manufacturer for each type specified. The opening resistance of closing devices shall not exceed 67 N applied at the latch stile or exceed 22 N where low opening resistance is scheduled.

2.7.1 Surface Type Closers

Surface type closers shall be Grade 1, Series C02000 Full Cover with options PT-4F (delayed action), PT-4H, Size 1 or 2 through Size 6, PT-4G (built-in factory set dead stop), and PT-4D with back check position valve.

Except as otherwise specified, sizes shall conform to the manufacturer's published recommendations. Closers for outswinging exterior doors shall have parallel arms or shall be top jamb mounted. Closers for doors close to a wall shall be of narrow projection so as not to strike the wall at the 90-degree open position. Closers on doors accessible to the physically handicapped shall have the closing force set for a push-pull of 2.27 kg (5 pounds) applied at the knob or handle for interior doors; for exterior doors, set to the minimum required to relatch the door.

2.8 DOOR CONTROLS - OVERHEAD HOLDERS

Door controls - overhead holders shall conform to BHMA ANSI/BHMA A156.8.

2.9 ARCHITECTURAL DOOR TRIM

Architectural door trim shall conform to BHMA ANSI/BHMA A156.6.

2.9.1 Door Protection Plates

2.9.1.1 Kick Plates

Kick plates shall be Type J102 stainless steel. Width of plates shall be 50 mm less than door width for single doors and 25 mm less for pairs of doors. Height shall be 400 mm, except where the bottom rail is less than 400 mm the plate shall extend to within 13 mm of the panel mold or glass bead. Edges of plates shall be beveled.

2.9.1.2 Mop Plates

Mop plates shall be Type J103 stainless steel. Width of plates shall be 50 mm less than door width for single doors and 25 mm less for pairs of doors. The height shall be 100 mm. Edges of plates shall be beveled.

2.9.2 Push Plates

2.9.2.1 Flat Plates

Flat plates shall be Type J301, 1.27 mm thick stainless steel. Edges of plates shall be beveled.

2.9.3 Door Pulls and Push/Pull Units

2.9.3.1 Door Pulls

Door pulls shall be Category J400 stainless steel of plain modern design. Pulls for hollow metal doors shall be Type J405 thru-bolted to Type J301 flat push plates.

2.9.4 Push and Pull Bars

Push and pull bars shall be Category J500, aluminum. Edges of mounting plates shall be beveled.

2.10 AUXILIARY HARDWARE

Auxiliary hardware, consisting of flushbolts door holders, and door stops, shall conform to BHMA ANSI/BHMA A156.16. Lever extension flush bolts shall be Type L14081. Dust-proof strikes shall be Type L04011 for doors that are not fire rated. Dust-proof strikes shall be Type L04021 for fire rated doors. Other auxiliary hardware of the types listed below, shall conform to BHMA ANSI/BHMA A156.16. Floor mounted door stop risers shall be used on all doorstops that are not of sufficient height to stop the door.

Garment Hooks: L12131

2.11 MISCELLANEOUS

2.11.1 Metal Thresholds

Thresholds shall conform to BHMA ANSI/BHMA A156.21. Thresholds for exterior doors shall be extruded aluminum of the type indicated and shall provide proper clearance and an effective seal with specified weather stripping. Where required, thresholds shall be modified to receive projecting bolts of flush bolts. Thresholds for doors accessible to the handicapped shall be beveled with slopes not exceeding 1:2 and with heights not exceeding 13 mm. Air leakage rate of weatherstripping shall not exceed 0.775 liters per second per lineal meter of crack when tested in accordance with ASTM E 283 at standard test conditions.

2.11.2 Rain Drips

Extruded aluminum, not less than 1.78 mm thick, clear anodized. Door sill rain drips shall be 38 mm to 44 mm high by 16 mm projection. Overhead rain drips shall be approximately 38 mm high by 63 mm projection and shall extend 50 mm on either side of the door opening width.

2.11.3 Aluminum Housed Type Weatherseals

Weatherseals of the type indicated shall consist of extruded aluminum retainers not less than 1.78 mm wall thickness with vinyl, neoprene, silicone rubber, polyurethane or vinyl brush inserts. Aluminum shall be clear (natural) anodized. Weatherseal material shall be of an industrial/commercial grade. Seals shall remain functional through all weather and temperature conditions. Air leakage rate of weatherstripping shall not exceed 0.775 liters per second per lineal meter of crack when tested in accordance with ASTM E 283 at standard test conditions.

2.11.4 Key Control Storage System

Key control storage system shall conform to BHMA ANSI/BHMA A156.5, Type E8351, capacity as required, and shall be properly labeled for key identification. Set up, identification labeling and location of the key control storage shall be as directed at the Predelivery Conference.

2.11.5 Door Stops

Wall stops, floor stops and combination stop and holders shall conform to BHMA ANSI/BHMA A156.16.

2.12 FASTENINGS

Fastenings of proper type, size, quantity, and finish shall be supplied with each article of hardware. Machine screws and expansion shields shall be used for attaching hardware to concrete or masonry. Fastenings exposed to the weather in the finished work shall be of brass, bronze, or stainless steel. Sex bolts, through bolts, or machine screws and grommet nuts, where used on reverse-bevel exterior doors equipped with half-surface or full-surface hinges, shall employ one-way screws or other approved tamperproof screws. Screws for the jamb leaf of half-mortise and full-surface hinges attached to structural steel frames shall be one-way or other approved tamperproof type.

2.13 FINISHES

Unless otherwise specified, finishes shall conform to those identified in BHMA ANSI/BHMA A156.18. Where painting of primed surfaces is required, painting is specified in Section 09900 PAINTING, GENERAL.

2.14 HARDWARE FOR FIRE DOORS

Hardware for fire doors shall conform to the requirements of NFPA 80 and NFPA 101.

PART 3 EXECUTION

3.1 APPLICATION

Hardware shall be located in accordance with DHI-04 and DHI 05, except that deadlocks shall be mounted 1220 mm above finish floor. When approved, slight variations in locations or dimensions will be permitted.

Application shall be in accordance with DHI-A115.1G. Door control devices for exterior doors such as closers and holders, shall be attached to doors with thru bolts and nuts or sex bolts. Alternate fastening methods may be approved by the Contracting Officer when manufacturers' documentation is submitted to verify that the fastening devices and door reinforcements are adequate to resist wind induced stresses.

3.1.1 Hardware for Fire Doors and Smoke-Control Door Assemblies

Hardware for fire doors shall be installed in accordance with the requirements of NFPA 80. Exit devices installed on fire doors shall have a visible label bearing the marking "Fire Exit Hardware". Other hardware installed on fire doors, such as locksets, closers, and hinges shall have a visible label or stamp indicating that the hardware items have been approved by an approved testing agency for installation on fire-rated doors. Hardware for smoke-control door assemblies shall be installed in accordance with NFPA 105.

3.1.2 Door-Closing Devices

Door-closing devices shall be installed and adjusted in accordance with the templates and printed instructions supplied by the manufacturer of the devices. Insofar as practicable, doors opening to or from halls and corridors shall have the closer mounted on the room side of the door.

3.1.3 Key Control Storage Systems

Key control storage system shall be installed where directed .

3.1.4 Kick Plates and Mop Plates

Kick plates shall be installed on the push side of single-acting doors and on both sides of double-acting doors. Mop plates shall be installed on the pull side of the single acting doors.

3.1.5 Auxiliary Hardware

Lever extension flush bolts shall be installed at the top and bottom of the inactive leaf of pairs of doors. The bottom bolt shall operate into a dust-proof floor strike or threshold. Floor mounted door stop risers shall be used on all door stops that are not of sufficient height to stop the door.

3.1.6 Thresholds

Thresholds shall be secured with a minimum of three fasteners per single door width and six fasteners per double door width with a maximum spacing of 300 mm. Exterior thresholds shall be installed in a bed of sealant with expansion anchors and stainless steel screws. Minimum screw size

shall be No.10 length, dependent on job conditions, with a minimum of 19 mm thread engagement into the floor or anchoring device used. Thresholds shall have ends scribed neatly to jambs.

3.1.7 Rain Drips

Door sill rain drips shall align with the bottom edge of the door. Overhead rain drips shall align with bottom edge of door frame rabbet. Drips shall be set in sealant and fastened with stainless steel screws.

3.1.8 Weatherseals

Weatherseals shall be located as indicated, snug to door face and fastened in place with color matched metal screws after door and frames have been finish painted. Screw spacing shall be as recommended by manufacturer.

3.2 FIELD QUALITY CONTROL

Supplier shall inspect the completed installation and certify that the hardware has been furnished and installed in accordance with the manufacturers' instructions and as specified. The inspection report shall identify any malfunctioning items and recommend adjustment or replacement as appropriate.

3.3 HARDWARE SETS

AIR PASSENGER TERMINAL

- AHW-1 Door No. A001, A002, A005, A008, A009, A016, A017, A020, A021, A027, A028, A034, A035, A042, A043,
- 2 pr. Pivots, C07162, by door manufacturer x finish to match door
- 2 ea. Intermediate pivots, C07382, by door manufacturer x finish to match door
- 1 ea. Exit device, type 6, Function 08 (cylinder dogging) x RHR x AM #0004 630
- 1 ea. Exit device, type 6, Function 02 (cylinder dogging) x trim to match active door x AM #0004 630
- 1 ea Pull bar by door manufacturer x factory finish to match doors
- 2 ea. Closers, C02041 x finish to match door
- 2 ea. Overhead stop, C12541 x 626
- 1 ea. Threshold, J32190 as detailed x 628
- 1 set Weatherstripping, at head, jambs and meeting stiles
- 1 ea. Door Sweep, R3C415 x 628
- AHW-2 Door Nos. A003, A007, A010, A011, A012, A013, A014, A015, A022, A023, A024, A025, A026, A029, A030, A031, A032, A033, A036, A037, A038, A039, A040, A041, A044, A045, A046, A047, A048, A049
- 1 pr. Pivots, C07162, by door manufacturer x finish to match door

- 1 ea. Intermediate pivot, C07382, by door manufacturer x finish to match door
- 1 ea. Exit device, type 6, Function 08 x **AM #0004** 630
- 1 ea Pull bar by door manufacturer x factory finish to match doors
- 1 ea. Closer, C02041 x finish to match door
- 1 ea. Stop, L12161 x 626
- 1 ea. Threshold, J32190 as detailed x 628
- 1 set Weatherstripping, at head and jambs
- 1 ea. Door Sweep, R3C415 x 628

AHW-3 Door No. A004, A019,

- 3 pr. Hinges, A2112 x 626
- 1 ea. Lockset, F04, Grade 1 x 626
- 1 set Self Latching Extension Flush Bolt set (Type 27) x 626
- 2 ea. Overhead stop, C18541 x 626
- 1 ea. Dustproof strike, L04011 x 626
- 1 set Weatherstripping, @ head & jambs and meeting stiles
- 1 set Rain Drip @ Head and Door Bottom x 628
- 1 ea. Threshold, J33130 as detailed x 628
- 1 ea. Door Sweep, R3C415 x 628

AHW-4 Door No. A006

Hardware by Door Manufacturer

AHW-5 Door No. A018

- 1 ½ pr. Hinges, A2112 x 626
- 1 ea. Lockset, F07 Grade 1 x 626
- 1 ea. Closer, C02021, PT-8C x 689 (Provide adapter need to allow for clearance of overhead holder)
- 1 ea. Kickplate, J102 x 630
- 1 ea. Overhead stop, C12541 x 626
- 1 set Weatherstripping, @ head & jambs
- 1 ea. Threshold, J33130 as detailed x 628
- 1 set Rain Drip @ Head and Door Bottom x 628
- 1 ea. Door Sweep, R3C415 x 628

AHW-6 Door No. A052, A076, A109, A116 (Fire Rated)

- 1 ½ pr. Hinges, A2112 x 626
- 1 ea. Lockset, F07 Grade 1 x 626
- 1 ea. Stop, L12141 x 626
- 1 ea. Closer, C02011 x 689
- 1 ea. Kickplate, J102 x 630

- AHW-7 Door No. A050, A051, A061, A069, A070, A085, A086, A088, A089, A098, A099, A101, A102, A111, A112
- 2 pr. Pivots, C07162, by door manufacturer x finish to match door
 - 2 ea. Intermediate pivots, C07382, by door manufacturer x finish to match door
 - 2 ea. Closers, C02041 x finish to match door (provide adapter as needed to allow for clearance of overhead holder)
 - 1 ea Pull bar by door manufacturer x factory finish to match doors
 - 1 ea. Push bar by door manufacturer x factory finish to match doors.
 - 1 ea. Kickplate, J102 x 630
 - 4 ea. Push bars, J501 x 626
 - 2 ea. Overhead stop, C12541 x 626
 - 1 ea. Threshold, J32130 as detailed x 628
- AHW-8 Door No. A053, A073, A074, A082, A083, A090, A091, A095, A096, A103, A104
- 2 pr. Pivots, C07162, by door manufacturer x finish to match door
 - 2 ea. Intermediate pivots, C07382, by door manufacturer x finish to match door
 - 1 ea. Exit device, type 6, Function 08 (keyed side of lock to be in Main Lobby A101) (cylinder dogging) x RHR x AM #0004 630
 - 1 ea. Exit device, type 6, Function 02 (cylinder dogging) x trim to match active door x AM #0004 630
 - 2 ea. Closers, C02041 x finish to match door(Provide adapter needed to allow for clearance of overhead holder.)
 - 2 ea. Overhead stop, C12541 x 626
 - 1 ea. Threshold, J32190 as detailed x 628
- AHW-9 Door No. A054
- 1 ½ pr. Hinges, A2112 x 626
 - 1 ea. Lockset, F04 Grade 1 x 626
 - 1 ea. Stop, L12141 x 626
 - 3 ea. Silencers, L03011
- AHW-10 Door No. A055, A062, A064
- 2 pr. Pivots, C07162, by door manufacturer x finish to match door
 - 2 ea. Intermediate pivots, C07382, by door manufacturer x finish to match door
 - 1 ea. Lockset, F04 Grade 1 x 626

2 ea. Closers, C02011 x finish to match door (Provide adapter as needed to allow clearance of overhead holder)
 4 ea. Push bars, J501 x 626
 2 ea. Overhead stop, C12541 x 626
 1 set Self Latching Extension Flush Bolt set (Type 27) x 626
 1 ea. Dustproof strike, L04011 x 626
 1 ea. Threshold, J32130 as detailed x 628

AHW-11 Door No. A056

2 pr. Pivots, C07162, by door manufacturer x finish to match door
 2 ea. Intermediate pivots, C07382, by door manufacturer x finish to match door
 2 ea. Closers, C02041 x finish to match door (Provide adapter as needed to allow clearance of overhead holder)
 4 ea. Push bars, J501 x 626
 2 ea. Overhead stop, C12541 x 626
 1 ea. Threshold, J32130 as detailed x 628

AHW-12 Door No. A057, A063, A065, A068

1 ½ pr. Hinges, A2112 x 626
 1 ea. Lockset, F04 Grade 1 x 626
 1 ea. Threshold, J32130 x 628
 1 ea. Stop, L12161 x 626

AHW-13 Door No. A058, A059, A060, A071, A077, A078, A113, A114

1 ½ pr. Hinges, A5111 x 630
 1 ea. Lockset, F19 Grade 1 x 630
 1 ea. Closer, C02011 x 689
 1 ea. Stop, L12161 x 626
 1 ea. Threshold, as detailed x marble
 1 ea. Garment hook, L12131 x 630

AHW-14 Door No. A066 (Fire Rated)

1 ½ pr. Hinges, A5111 x 630
 1 ea. Exit Device Type 1, Function 08 x **AM #0004 630**
 1 ea. Closer, C02021 x 689 (provide adapted as needed to allow for clearance of overhead holder)
 1 ea. Kickplate, J102 x 630
 1 ea. Overhead stop, C12541 x 626
 1 ea. Threshold, as detailed x marble

AHW-15 Door No. A067, A072

AM #0002

2 pr. Top pivots, C07021, by door manufacturer x finish to match door

2 ea. Floor Closers, C06011, center pivoted, double acting, x finish to match door

4 ea. Push bars, J501 x 626

2 ea. Stop, L12141 x 626

AHW-16 Door No. A075, A081, A094, A107, A117(Fire Rated)

1 ½ pr. Hinges, 5111 x 630

1 ea. Lockset, F07 Grade 1 x 630

1 ea. Closer, C02021 x 689 (provide adapter as needed to allow for clearance of overhead holder)

1 ea. Overhead stop, C12541 x 626

1 ea. Kickplate, J102 x 630

1 ea. Mop plate, J103 x 630

1 ea. Threshold, as detailed x marble

AHW-17 Door No. A079, A80, A084, A093, A097, A106, A108, A110, A115

1 ½ pr. Hinges, A2112 x 626

1 ea. Lockset, F07 Grade 1 x 626

1 ea. Stop, L12141 x 626

AHW-18 Door No. A087, A092, A100, A105

1 ½ pr. Hinges, A2112 x 626

1 ea. Lockset, F07 Grade 1 x 626

1 ea. Stop, L12161 x 626

WAREHOUSE

BHW-1 Door No. B001, B017

2 pr. Pivots, C07162, by door manufacturer x finish to match door

2 ea. Intermediate pivots, C07382, by door manufacturer x finish to

match door
 1 ea. Exit device, type 6, Function 08 (cylinder dogging) x RHR x AM
#0004
 1 ea. Exit device, type 6, Function 02 (cylinder dogging) x trim to
 match active door x AM #0004 630
 2 ea. Closers, C02041 x finish to match door
 2 ea. Stops, L12161 x 626
 1 ea. Threshold, J33130 as detailed x 628
 1 set Weatherstripping, at head, jambs and meeting stiles
 1 ea. Door Sweep, R3C415 x 628

BHW-2 Door No. B002, B005, B006, B007, B019

Hardware by Door Manufacturer

BHW-3 Door No. B003, B004, B008, B013, B018, B020

1 ½ pr. Hinges, A2112 x 626
 1 ea. Lockset, F13 Grade 1 x 626
 1 ea. Closer, C02021 x 689
 1 ea. Kickplate, J102 x 630
 1 ea. Threshold, J32138 as detailed x 628
 1 set Weatherstripping, at head and jambs
 1 ea. Stop, L12141 x 626
 1 ea. Door Sweep, R3C415 x 628

BHW-4 Door No. B009

1 ½ pr. Hinges, A2112 x 626
 1 ea. Lockset, F07 Grade 1 x 626
 1 ea. Closer, C02021 x 689
 1 ea. Kickplate, J102 x 630
 1 ea. Stop, L12161 x 626
 1 ea. Threshold, J32133 x as detailed x 628
 1 ea. Garment hook, L12131 x 630

BHW-5 Door No. B010, B011

1 ½ pr. Hinges, A2112 x 626
 1 ea. Lockset, F19 Grade 1 x 626
 1 ea. Closer, C02021 x 689
 1 ea. Kickplate, J102 x 630
 1 ea. Mop plate J103 x 630
 1 ea. Stop, L12161 x 626
 1 ea. Threshold, J32133 x as detailed x 628

BHW-6 Door No. B012 (Fire Rated)

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F07 Grade 1 x 626
1 ea. Closer, C02021 x 689
1 ea. Kickplate, J102 x 630
1 ea. Stop, L12161 x 626

BHW-7 Door No. B014

3 pr. Hinges, A2112 x 626
1 ea. Lockset, F04 Grade 1 x 626
1 set Self Latching Extension Flush Bolt set (Type 27) x 626
2 ea. Overhead stop, C18541 x 626
1 set Weatherstripping, @ head, jambs, and meeting stiles
1 ea. Threshold, J33180 as detailed x 628
1 ea. Dustproof strike, L04011 x 626
1 set Rain Drip @ Head and Door Bottom x 626
1 ea. Door Sweep, R3C415 x 628

BHW-8 Door No. B015, B016

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F04 Grade 1 x 626
1 ea. Stop, L12161 x 626
1 ea. Threshold, J33130 as detailed x 628

FIRE STATION

CHW-1 Door No. CHW-1 C100, C103, C104, C111

2 pr. Pivots, C07162, by door manufacturer x finish to match door
2 ea. Intermediate pivots, C07382 by door manufacturer x finish to match door
1 ea. Exit device, type 6, Function 08 (cylinder dogging) x RHR x **AM #0004 630**
1 ea. Exit device, type 6, Function 02 (cylinder dogging) x trim to match active door x 626
2 ea. Closers, C02041 x finish to match door
2 ea. Stops, L12161 x 626
1 set Weatherstripping, at head, jambs, and meeting stiles
1 ea. Threshold, J32190 as detailed x 628
1 ea. Door Sweep, R3C415 x 628

CHW-2 Door No. C101, C106, C107, C110, C117

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F04 Grade 1 x 626
1 ea. Closer, C02021 x 689
1 ea. Stops, L12161 x 626
1 ea. Kickplate, J102 x 630
1 ea. Threshold, J33180 as detailed x 628
1 set Weatherstripping, at head and jambs
1 ea. Door Sweep, R3C415 x 628

CHW-3 Door No. C102

2 pr. Pivots, C07162 x finish to match door
2 ea. Intermediate pivots, C07382 x finish to match door
2 ea. Exit devices, type 6, Function 01 x **AM #0004 630**
2 ea. Closers, C02041 x finish to match door
2 ea. Stops, L12161 x 626
1 ea. Threshold, J33180 as detailed x 628
1 set Weatherstripping, at head, jambs, and meeting stiles
1 ea. Door Sweep, R3C415 x 628

CHW-4 Door No. C105, 138, **188A AM #0002**

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F07 Grade 1 x 626
1 ea. Stop, L12141 x 626

CHW-5 Door No. C108, C109, C118, C119

3 pr. Hinges, A2112 x 626
1 ea. Lockset, F04 Grade 1 x 626
2 ea. Flushbolt, L04081 x 626
2 ea. Stop, L12131 x ES x 626
1 ea. Dustproof strike, L04011 x 626
1 set Weatherstripping, @ head, jambs, and meeting stiles
1 ea. Threshold, J33180 as detailed x 628
1 ea. Door Sweep, R3C415 x 628

CHW-6 Door No. C120, C126

3 pr. Hinges, A2112 x 626
1 ea. Lockset, F04 x 626

2 ea. Closers, C02021, PT-8C x 689
1 set Self Latching Extension Flush Bolt set (Type 27) x 626
2 ea. Stop, L12131 x ES x 626
1 set Weatherstripping, @ head, jambs, and meeting stiles
1 ea. Dustproof strike, L04011 x 626
2 ea. Kickplates, J102 x 630
1 set Rain Drip @ Head and Door Bottom x 626
1 ea. Threshold, J33180 as detailed x 628
1 ea. Door Sweep, R3C415 x 628

CHW-7 Door No. C112, C113, C114, C115, C116, C121, C122, C123, C124, C125

Hardware by Door Manufacturer.

CHW-8 Door No. C127 (Fire Rated)

1 ½ pr. Hinges, A5111 x 630
1 ea. Lockset, F19 Grade 1 x 626
1 ea. Closer, C02021, PT-4G x 689
1 ea. Stop, L12141 x 626
1 ea. Kickplate, J102 x 630

CHW-9 Door No. C128, C133, C136, C140 (Fire Rated)

1 ½ pr. Hinges, A5111 x 630
1 ea. Lockset, F04 Grade 1 x 626
1 ea. Closer, C02021, PT-4G x 689
1 ea. Stop, L12141 x 626
1 ea. Kickplate, J102 x 630

CHW-10 Door No. C129, C130, C131 (Fire Rated)

3 pr. Hinges, A5111 x 630
1 ea. Lockset, F04 Grade 1 x 626
2 ea. Closers, C02021, PT-4G x 689
1 set Self Latching Extension Flush Bolt set (Type 27) x 626
2 ea. Stop, L12131 x 626
1 ea. Dustproof strike, L04021 x 626
2 ea. Kickplates, J102 x 630

CHW-11 Door No. C132 (Fire Rated)

3 pr. Hinges, A5111 x 630
2 ea. Exit Devices, Type 2, Function 01 x AM #0004 630
2 ea. Closers, C02021 x PT-4G x 689

2 ea. Kickplates, J102 x 630
 2 ea. Stops, L12141 x 626

CHW-12 Door No. C134, C137, C139

1 ½ pr. Hinges, A2112 x 626
 1 ea. Lockset, F04 Grade 1 x 626
 1 ea. Stop, L12141 x 626

CHW-13 Door No. C135, C141, C146, C147, C152, C153, C158, C163, C164, C165, C170, C171, C176, C177, C182, C187

1 ½ pr. Hinges, A2112 x 626
 1 ea. Lockset, F13 Grade 1 x 626
 1 ea. Stop, L12141 x 626

CHW-14 Door No. C142, C143, C144, C145, C148, C149, C150, C151, C154, C155, C156, C157, C159, C160, C161, C162, C166, C167, C168, C169, C172, C173, C174, C175, C178, C179, C180, C181, C183, C184, C185, C186

1 ½ pr. Hinges, A2112 x 626
 1 ea. Lockset, F07 Grade 1 x 626
AM #0003 1 ea. Stop, L12141 x 626 (For Doors: C142, C145, C149, C150, C155, C156, C159, C162, C166, C169, C173, C174, C178, C181, C184, C185, only.)

CHW-15 Door No. C188, C189, C194, C195, C196

3 pr. Hinges, A2112 x 626
 1 ea. Lockset, F04 Grade 1 x 626
 2 ea. Closers, C02021, PT-8C x 689
 1 set Self Latching Extension Flush Bolt set (Type 27) x 626
 1 ea. Dustproof strike, L04011 x 626
 2 ea. Kickplates, J102 x 630
 2 ea. Stop, L12141 x 626
 1 ea. Threshhold, J32130 as detailed x 628

CHW-16 Door No. C190

1 ½ pr. Hinges, A5111 x 626
 1 ea. Lockset, F04 Grade 1 x 626
 2 ea. Closers, C02021, PT-8C x 689 (provide adapter as needed to allow for clearance of overhead holder)
 1 ea. Kickplate, J102 x 630

1 ea. Overhead stop, C12541 x 626
 1 ea. Threshold, as detailed x marble

CHW-17 Door No. C191, C192

1 ½ pr. Hinges, A5111 x 630
 1 ea. Push Plate, J304 x 630
 1 ea. Pull Plate, J407 x 630
 1 ea. Closer, C02021 x 689
 1 ea. Kickplate, J102 x 630
 1 ea. Stop, L12141 x 626
 1 ea. Mop Plate, J103 x 630
 1 ea. Garment Hook, L12131 x 630
 1 ea. Threshold, as detailed X marble

CHW-18 Door No. C193

1 ½ pr. Hinges, A2112 x 626
 1 ea. Lockset, F07 Grade 1 x 626
 1 ea. Closer, C02021 x 689
 1 ea. Kickplate, J102 x 630
 1 ea. Stop, L12161 x 626
 1 ea. Threshold, as detailed X marble

CHW-19 Door No. C197 (Fire Rated)

1 ½ pr. Hinges, A5111x 630
 1 ea. Lockset, F04 Grade 1 Grade 1 x 626
 1 ea. Closer, C02021 x 689
 1 ea. Kickplate, J102 x 630
 1 ea. Stop, L12141 x 626

AIR TRAFFIC CONTROL TOWER

DHW-1 Door No. D101, D102

1 pr. Pivots, C07162, by door manufacturer x finish to match door
 1 ea. Intermediate pivots, C07382, by door manufacturer x finish to match door
 1 ea. Exit device, type 8, function 08 x AM #0004 630
 1 ea. Closers, C02041, by door manufacturer x finish to match

door (Provide adapter as needed to allow for clearance of overhead door stop)
1 set Weatherstripping @ head and jambs
1 ea. Overhead stop, C22541 x 626
1 ea. hreshold, J32180 x 628
1 ea. Door shoe, R3D535 X 628
1 set Rain drips, at head and door bottom x 628

DHW-2 Door No. D103

3 pr. Hinges, A2112 x 626
1 ea. Lockset, F04, grade 1 x 626
1 set Self Latching Extension Flush Bolt set (Type 27) x 626
1 ea. Threshold, J32180 x 628
1 set Weatherstripping @ head and jambs
1 set Rain Drip, Head and Door Bottom x 628
1 ea. Door shoe, R3D535 X 628
2 ea. Stops, L51371 x 630 x ES

DHW-3 Door No. D104

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F04, grade 1 x 626
1 set Weatherstripping @ head and jambs
1 ea. Threshold, J32180 x 628
1 ea. Door shoe, R3D535 X 628
1 ea. Overhead stop, C22541 x 626
1 set Rain drips, at head and door bottom

DHW-4 Door No. D105 (Fire Rated)

1 ½ pr. Hinges, A5111 x 630
1 ea. Lockset, F04, grade 1 x 626
1 ea. Closer, C02021, PT-4G x 689
1 ea. Kickplate, J102 x 630
1 ea. Overhead stop, C22541 x 626
1 set Weatherstripping @ head and jambs
1 ea. Threshold, J32100 x 628

DHW-5 Door no. D106

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, (BEST 36H7F3M) , grade 1 x 626

1 ea. Closer, C02021 x 626 (Provide adapter as needed to allow for clearance of overhead door stop.)
1 ea. Kickplate, F102 x 630
1 ea. Overhead stop, C22511 x 626
1 ea. Threshold, J32180 x 628
1 ea. Electric strike, (Von Duprin 6211) x 630
1 ea. Power supply, (Von Duprin PS861)
1 ea. Push wall switch, Von Duprin PB720 x 630

DHW-6 Door No. D501 (Fire Rated) , 502

1 ½ pr. Hinges, A5111 x 630
1 ea. Lockset, F04, grade 1 x 626
1 ea. Closer, C02021, PT-4G x 689
1 ea. Kickplate, J102 x 630
1 ea. Stop, L22141 x 626
1 set Weatherstripping @ head and jambs
1 ea. Threshold, J32100 x 628

DHW-7 Door No. D601 (Fire Rated)

1 pr. Hinges, A5111 x 630
1 ea. Lockset, F04, grade 1 x 630
1 ea. Closer, C02021, PT-4G x 689
1 ea. Overhead stop, C01541 x 630
1 set Weatherstripping @ head and jambs
1 ea. Kickplate, J102 x 630
1 ea. Threshold, J32100 x 628

DHW-8 Door no. D602

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F08, grade 1 x 626
1 ea. Closer, C02021 x 689
1 ea. Kickplate, J102 x 630
1 ea. Mop Plate, J103 x 630
1 ea. Stop, L22141 x 626
1 ea. Garment hook, L12131 x 630
1 ea. Threshold, as detailed x marble

DHW-9 Door No. D701 (Fire Rated)

1 ½ pr. Hinges, A5111 x 630
1 ea. Lockset, F04, grade 1 x 630

1 ea. Closer, C02021, PT-4G x 689
1 ea. Kickplate, J102 x 630
1 ea. Overhead stop, C22541 x 630
1 set Weatherstripping @ head and jambs
1 ea. Threshold, J32100 x 628

DHW-10 Door No. D702

1 ½ pr. Hinges, A5111 x 630
1 ea. Lockset, F04, grade 1 x 630
1 ea. Closer, C02021, PT-4G x 689
1 ea. Kickplate, J102 x 630
1 ea. Stop, L22141 x 626
1 set Weatherstripping @ head and jambs
1 ea. Threshold, J32100 x 628

DHW-11 Door No. 801

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F04, grade 1 x 626
1 ea. Overhead stop, C22541 x 626
1 set Weatherstripping, @ head & jambs
1 set Rain drips, at head and door bottom
1 ea. Door shoe, R3D535 X 628
1 ea. Threshold, J32180 x 628

Fuel/Scale House

EHW-1 Door No. E001 and E002

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F04 Grade 1 x 626
1 ea. Closer, C02011 x 689(provide adapter as needed to allow
for clearance of overhead holder)
1 ea. Overhead stop, C18541 x 626
1 ea. Threshold, J32130 x 628
1 set Weatherstripping at head and jambs
1 ea. Door Sweep, R3C415 x 628

Electric Vault

HHW-1 Door No. 1

Hardware by manufacturer

HHW-2 Door No. 2

3 pr. Hinges, A2112 x 626
1 ea. Lockset, F04 Grade 1 x 626
1 ea. Self-latching extension flushbolt set (type 27) 626
2 ea. Stops, L51371 x ES x 630
1 ea. Threshold, J32130 x 628
1 set Weatherstripping, @ head, jambs, and meeting stiles
1 ea. Door Sweep, R3C415 x 628

HHW-3 Door No. 3

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F04 Grade 1 Grade 1 x 626
1 ea. Closer, C02021 x 689
1 ea. Stop, L51371 x x ES 630
1 ea. Threshold, J32130 x 628
1 set Weatherstripping, @ head, and jambs
1 ea. Door Sweep, R3C415 x 628

HHW-4 Door No. 4

1 ½ pr. Hinges, A2112, wide throw, (door to clear trim for 180
degree door swing) x 626
1 ea. Lockset, F04 Grade 1 x 626
1 ea. Stop, L12161 x 626
1 ea. Threshold, J32130 x 628

HHW-5 Door No. 5

1 ½ pr. Hinges, A2112 x 626
1 ea. Lockset, F04 Grade 1 x 626
1 ea. Overhead stop, C18541 x 626

-- End of Section --

SECTION 10880

SCALES
04/2000
AMENDMENT NO. 0004

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 basic designation only.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 8329 (Jul 1986) Specification for Structural Joints Using A8TM A 325 or ASTM A 490 Bolts

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 159 (1983) Automotive Gray Iron Castings

ASTM A 325 (1988; Rev a) High-Strength Bolts for Structural Steel Joints

ASTM A 490 (1988; Rev a) Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength

ASTM A 668 (1985; Rev a) Steel Forgings, Carbon and Alloy, for General Industrial Use

ASTM B 438 (1983; Rev a) Sintered Bronze Bearings (Oil-Impregnated)

ASTM B 438 (1983) Iron-Base Sintered Bearings (Oil-Impregnated)

ASTM B 612 (1983) Iron-Bronze Sintered Bearings (Oil-Impregnated)

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST H44 (1993 Edition) Class I, II, II Weighing Devices

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1 (1988) Structural Welding Code-Steel

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA ICS 2	(1983; Incl Rev 1 thru 5) Industrial Control Devices, Controllers and Assemblies
NEMA ICS 6	(1988) Enclosures for Industrial Controls and Systems
NEMA MG 1	(1987; Rev 1) Motors and Generators

NATIONAL FIRE PROTECTION ASSOCIATION (NPPA)

NPPA 70	(1987; Errata; 1st Am 1987-1 thru Int Am 1987-6) National Electrical Code
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UNDERWRITERS LABORATORIES, INC (UL)

UL 489	(Sep 15, 1986, 7th Ed; Rev thru Apr 13, 1988) Molded-Case Circuit Breakers and Circuit-Breaker Enclosures
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1.2 GENERAL REQUIREMENTS

1.2.1 Standard Products

Materials and equipment shall be standard products of manufacturers regularly engaged in the fabrication of scales and shall essentially duplicate items which have been in satisfactory use for at least 2 years prior to bid opening. It is not the intent of the specification to prevent or limit qualified scale manufacturers from submitting a bid utilizing their standard product and design detail, even though it may differ from the specification as written.

1.2.2 Nameplates

Each major component of equipment shall have the manufacturer's name, address, type or style, model or catalog number, and serial number on a plate secured to the equipment.

1.2.3 Verification of Dimensions

The Contractor shall verify all dimensions in the field and shall advise the Contracting Officer of any discrepancy before performing any work.

1.2.4 Welding

Welding shall be in accordance with qualified procedures using AWS D14.1 as modified herein. All welding shall be performed indoors and the surface of parts to be welded shall be free from rust, scale, paint, grease or other foreign matter. Minimum preheat and interpass temperatures shall conform to the requirements of AWS D1.1. Welding shall be performed in accordance with written procedures which specify the Contractor's standard dimensional tolerances. Such tolerances shall not exceed those specified in accordance with AWS D1.1. Welding of frames and beams shall conform with AWS D1.1.

Welders, welting operators and welding procedures shall be qualified or prequalified in accordance with AWS D1.1 in lieu of AWS D14.1.

1.3 DESIGN CRITERIA

The scales shall be designed to operate in the spaces and match the access dimensions and clearances indicated.

1.3.1 Classification

The scales shall be designed and constructed to requirements for operation in nonhazardous environment and NIST H44, Class III for capacities indicated.

1.3.2 Rated Capacity and Speeds

The use and rated capacity of the scales shall be as follows.

TYPE	PPROXIMATE SIZE	CAPACITY
PALLET SCALE	3.66 M x 3.66 M	6,804 kg
VEHICLE SCALE	4.88 M x 21.641 M	113,400 kg

1.3.3 Capacity Plates

Two capacity plates shall be provided, one for each side of the scale. Each plate shall be lettered to indicate the total rated weighing capacity of the scale. All lettering shall be of sufficient size to be easily read from the floor. Each lower load block shall be marked with the hoist rated capacity.

1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Detail Drawings; FIO

Detail drawings shall consist of a complete list of equipment and materials, including manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions. Detail drawings shall also contain complete wiring and schematic diagrams; and any other details required to demonstrate that the system has been coordinated and will Properly function as a unit. Drawings shall show proposed layout and anchorage of equipment and appurtenance", and equipment relationship to other parts of the work including clearances for

maintenance and operation.

SD-09 Reports

Test Reports; FIO

Upon completion and testing of the installed system, test reports shall be submitted in booklet form showing all field tests performed to adjust each component and all field tests performed to prove compliance with the specified performance criteria. The report shall include the information as required by paragraph "ACCEPTANCE TESTING".

SD-19 Operation and Maintenance Manuals

Operation and Maintenance Manuals; GA

Six copies of operation and six copies of maintenance manuals are required for the equipment furnished. one complete set shall be furnished prior to performance testing and the remainder shall be furnished upon acceptance. Manuals shall be approved prior to the field training course. Operating annuals shall detail the step-by-step procedures required for system startup, operation, and shutdown. Operating manuals shall include the manufacturer's name, model number, parts list, and brief description of all equipment and their basic operating features. Maintenance manuals shall list routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides. Maintenance manuals shall include piping and equipment layout and simplified wiring and control diagrams of the system as installed.

Posted Instructions; FIO

Framed instructions under glass or in laminated plastic, including wiring, electrical and control diagrams showing the complete layout of the entire system shall be posted where directed. Proposed diagrams, instructions, and other sheets shall be submitted prior to posting. The framed instructions shall be posted before acceptance testing of the systems.

SD-18 Records

Scale Test Details; FIO

Scale test data shall be recorded on appropriate test record forms suitable for retention for the life of the scale.

SD-01 Spare parts Data

Spare Parts Data; FIO

After approval of the detail drawings and not later than 2 months prior to the date of beneficial occupancy, the Contractor shall furnish spare parts data for each different item of material and equipment specified. The data shall include a complete list of parts and supplies, with current unit prices and source of supply.

1.5 DELIVERY AND STORAGE

Equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variations, dirt and dust, or other contaminants.

PART 2 PRODUCTS

2.1 PALLET SCALE

2.1.1 General Provisions

2.1.1.1 Installation

Furnish and install one steel platform Pallet scale and associated electronic controls. Include junction boxes, load cells, load cell mounting hardware. Control shall be installed; mount on Pallet building column.

2.1.1.2 Weighing Surface

The scale shall have a clear and unobstructed weighing surface of not less than 3.66 m long and 3.66 m wide.

2.1.1.3 Weighing Elements

The scale shall be fully electronic in design and shall not incorporate any mechanical weighing elements, check rods, or check stays.

2.1.1.4 Performance

The scale shall be designed to perform as a single weighing platform and shall be of flat top design. Side rails are not acceptable.

2.1.1.5 Weighing Capacity

The scale shall have a gross weighing capacity of 6804 kg . The scale shall be designed to accept pallet which generate up to 4536 kg .

2.1.1.6 Calibration

The scale shall be calibrated to 6804 KG by 2.268 KG increments.

2.1.1.7 Conformance

The scale shall meet the requirements set forth by the current edition of the National Institute of Standards and Technology Handbook 44 (NIST H-44).

2.1.1.8 Design and Manufacture

The design and manufacture of the scale weigh bridge, load cells, digital instrument, printer, and associated accessories shall be of one manufacturer, or shall use only H-44 and NTEP certified components.

2.1.1.9 Spare Parts and Prices

The manufacturer shall provide with the bid proposal a listing of major spare parts and their prices including (but not limited to) replacement load cells, digital instrument and junction box circuit boards.

2.1.2 Scale Foundation Requirements

2.1.2.1 Soil Bearing

The minimum soil bearing required shall be 14647.5 kg/m for a beam slab, and 14647.5 kg/m for a pit foundation. The buyer shall be responsible for determining whether or not the soil conditions are adequate.

2.1.2.2 Length and Width

The foundation shall extend the full length and width of the scale platform.

2.1.2.3 Clearance

The foundation shall provide a minimum of 0.61 m of clearance to the pallet building columns. Location of the pallet scale is shown on the drawings.

2.1.2.4 Height

The foundation must be higher than surrounding grade to promote drainage away from the scale. Elevation of the scale platform shall be as shown on the site Grading Plan and scale pit details.

2.1.2.5 Concrete Construction

The foundation shall be poured and constructed of concrete with a minimum strength of 210.9 kg/sq.cm at a 28-day cure with 5 to 7 percent air entrainment.

2.1.2.6 Reinforcement

The foundation shall be reinforced in all load bearing areas.

2.1.2.7 Drainage

The foundation shall be constructed to provide positive drainage away from its center to a sump. The sump shall drain through a 150mm drain line to the nearest storm drain structure as shown on the layout and grading plans.

2.1.2.8 Approach

The approach on each end and the sides of the scale pit foundation shall adjoin the new concrete pavenemt as shown on the Expansion Joint detail sht. C-33 of the drawings.

2.1.3 Specifications

2.1.3.1 Weighing Capacity

The scale platform shall be capable of weighing 3.05 m x 3.05 m Pallets that weigh up to 6804 kg .

2.1.3.2 Access

The weigh bridge shall be designed to allow access to the junction boxes, load cell cables, base plates, and all foundation anchor bolts from the top of the scale platform.

2.1.3.3 Mounting Assembly

The weigh bridge and load cell mounting assemblies shall be designed to allow installation or replacement of a load cell with at least 2.54 centimeter of clearance required between the top of the foundation and the bottom of the weigh bridge.

2.1.3.4 Field Welding

There shall be no field welding required for the installation of the scale.

2.1.4 Surface Preparation and Finish

2.1.4.1 Exterior Surfaces of Scale

All exterior surfaces of the scale shall have one coat of primer and two coats of epoxy finish, providing a total Dry Film Thickness of 0.1524 mm - 0.2032 mm . or an approved equal finish.

2.1.5 Load Cell Specifications

2.1.5.1 Capacity

Each load cell shall have a minimum capacity of 6804 kg 15,000 pounds and NTEP certified.

2.1.5.2 Conformance

Load cells shall be certified by NTEP and meet the specifications as set forth by NIST H-44 for Class IIIIL devices. A Certificate of Conformance to these standards shall be provided by the manufacturer upon request.

2.1.5.3 Warranty

The load cell shall have a minimum five years warranty against defects in materials and workmanship. The warranty shall cover all costs associated with replacement parts and on-site labor.

2.1.5.4 Model

Load cells shall be or approved equal.

2.1.6 Scale Instrument

2.1.6.1 Conformance

The scale instrument shall be NTEP approved and meet or exceed the specifications set forth by NIST H-44 for Class II, III, and IIII Devices. A Certificate of Conformance to these standards shall be provided by the manufacturer upon request.

2.1.6.2 Instrument Housing

The scale instrument shall be housed in a stainless steel enclosure which is suitable for exterior use. The instrument housing shall be metal and have a NEMA 4X environmental rating and mounted on Pallet building column.

2.1.6.3 Performance

The scale instrument shall be capable of performing calibration, span, zero, and shift adjustment through software calculations that require no in scale adjustment.

2.1.6.4 Prompting/Entry of Information

The scale instrument shall prompt the start-up personnel through all phases of set-up, calibration, and testing.

2.1.6.5 Communication

The scale instrument shall be capable of communicating with up to 12 pairs of digital load cell assemblies.

2.1.6.6 Digital Averaging

The scale instrument shall be capable of digitally averaging the weight information sent from the load cells and updating the instrument's weight display approximately 15 times per second.

2.1.6.7 Digital Information

The scale instrument shall only receive digital information from the junction box.

2.1.6.8 Identification and Weight Reading

The scale instrument shall be capable of assigning each load cell with its own unique identification number and shall be capable of displaying the weight reading of each individual load cell through the instrument without disconnecting any of the load cells from the system.

2.1.6.9 Weight Switching

The scale instrument shall have gross/net weight switching.

2.1.6.10 Calibration

The scale instrument shall be capable of being programmed and calibrated in pounds and kilograms.

2.1.6.11 Transaction Counter

The scale instrument shall have a transaction counter to automatically assign sequence numbers to transactions.

2.1.6.12 Output Information

The scale instrument shall output the following information:

- a. Gross, Tare, and Net Weight
- b. At least 10 Digit Numeric I.D.
- c. Transaction Counter
- d. Time and Date

2.1.6.13 Sign Corrected Net Weighing

The scale instrument shall be capable of being programmed for sign corrected net weighing so that all net weights are positive.

2.1.6.14 Keyboard Operations

The scale instrument shall have the following keyboard operations:

- a. 0-9 Numeric Keys
- b. Zero
- c. Clear
- d. Tare
- e. Gross/Net
- f. LB/KG
- g. I.D.
- h. Memory
- i. Function
- j. Enter
- k. Print

2.1.6.15 Motion

Tare, Zero, and Print functions shall be inhibited while the weight display is hanging. Motion detection shall be selectable for + /- 0.5 percent, +/- 1.0 percent, + /- 2.0 percent or +/- 3.0 percent increments.

2.1.6.16 Display

The scale instrument shall have a green-blue vacuum fluorescent display that is 1.27 cm high, six digit, and seven segment or similar manufacturers standard display.

2.1.6.17 UL/CSA Listed

The scale instrument shall be UL/CSA listed.

2.1.7 Printer Specifications

2.1.7.1 Printing Capability

The printer shall be capable of printing all information sent from the scale instrument including:

- a. Gross, Tare, and Net Weights
- b. Time and Date
- c. Transaction Counter Number
- d. 12 Digit Numeric I.D.

2.1.8 Junction Boxes and Cables

2.1.8.1 Construction

All junction boxes shall be NEMA 4X rated and constructed of stainless steel.

2.1.8.2 Inspection/Maintenance

Junction boxes shall be accessible for inspection and maintenance from the top of the scale platform.

2.1.8.3 Cables

Load cell and scale platform to scale instrument cables shall be stainless steel sheathed for environmental and rodent protection.

2.1.9 Lightning Protection Specifications

A comprehensive lightning protection system shall be provided with the scale.

2.1.10 Warranty Requirements

2.1.10.1 Defects

All construction work and materials are warranted against defects in material or workmanship for a period of one year from the date of completion of all work. Contractor shall promptly correct any such defect appearing within the warranty period.

2.1.10.2 Scale Assembly

The scale manufacturer shall warrant the scale assembly including all load cells, scale instrument, printer, junction boxes, cables, and accessories for a period of twenty-four months from the date of installation from failures due to a defect in manufacturing, workmanship, lightning, or surge voltages.

2.1.10.3 Replacement Parts and Labor

The manufacturer shall bear the charges and expenses associated with replacement parts, equipment, on-site labor, and any associated freight or handling expenses incurred in the repair or replacement of the scale assembly due to failed or damaged items under warranty.

2.1.10.4 Extended Warranty

At any time during the twenty-four month warranty period, the scale's owner/operator shall have the option of extending this warranty coverage for up to a total of five years.

2.1.10.5 Regular Maintenance/Calibration Service

The manufacturer and/or its local representative shall present a program of regular maintenance and calibration service including the associated inspection costs. Inspection shall occur at a minimum of once every six months and shall comply with the guidelines set forth by the manufacturer, local regulations, and NIST H-44.

2.2 CONCRETE PLATFORM VEHICLE SCALE

2.2.1 General Provisions

2.2.1.1 Installation

Furnish and install one concrete platform vehicle scale and associated electronic controls.

2.2.1.2 Weighing Surface

The scale shall have a clear and unobstructed weighing surface of not less than 21.64 meters long and 4.57 meters wide.

2.2.1.3 Weighing Platform

The scale shall be designed to perform as a single weighing platform and shall be of flat top design. Side rails are not acceptable.

2.2.1.4 Weighing Capacity

The scale shall have a gross weighing capacity of 113.4 metric ton .

2.2.1.5 Calibration

The scale shall be calibrated to 90720 kg by 20 pound increments.

2.2.1.6 Construction

The junction boxes, load cells, load cell mounting hardware, cover bolts, and fasteners shall be constructed of stainless steel. The cables shall be stainless steel sheathed.

2.2.1.7 Conformance

The scale shall meet the requirements set forth by the current edition of the National Institute of Standards and Technology Handbook 44 (NIST H-44).

2.2.1.8 Design and Manufacture

The design and manufacture of the scale weigh bridge, load cells, digital instrument, printer, and associated accessories shall be of one manufacturer as to maximize compatibility and availability of components or shall use only H-44 and NTEP certified components.

2.2.1.9 Spare Parts and Prices

The manufacturer shall provide with the bid proposal a listing of major spare parts and their prices including (but not limited to) replacement load cells, digital instrument, printer, junction box circuit boards, and associated parts.

2.2.1.10 Capability

The scale shall be able to weigh axle type vehicles, track type vehicles (i.e. tanks), and treaded tire type vehicles. The scale shall be designed to weigh military vehicles weighing up to 113.4 metric tons .

2.2.2 Scale Foundation Requirements

The foundation shall meet all local requirements and the minimum specifications as stated in this section.

2.2.2.1 Soil Bearing

The minimum soil bearing required shall be 12,206.25 kg per square meter (psf)

2.2.2.2 Length and Width

The foundation shall extend the full length and width of the scale platform.

2.2.2.3 Clearance

The foundation shall provide a minimum of 7.62 cm of clearance to the weigh bridge.

2.2.2.4 Height

Elevation of the scale platform shall be as shown on the site Grading Plan and scale pit details.

2.2.2.5 Concrete Construction

The foundation shall be poured and constructed of concrete with a minimum strength of 219.9 kg/sq.m at a 28-day cure with 5 to 7 percent air entrainment.

2.2.2.6 Reinforcement

The foundation shall be reinforced in all load bearing areas.

2.2.2.7 Drainage

The foundation pit shall be constructed to provide positive drainage away from its center. Provide a 150mm dia. drain line from pit as shown on the drawings.

2.2.2.8 Approach

The approach on each end and the sides of the scale pit foundation shall adjoin the new concrete pavement as shown on the Expansion Joint detail sht. C-33 of the drawings.

2.2.3 Weigh bridge Specifications

2.2.3.1 Accessibility

The weigh bridge shall be designed to allow access to the junction boxes, load cell cables, base plates, and all foundation anchor bolts from the top of the scale platform.

2.2.3.2 Mounting Assemblies

The weigh bridge and load cell mounting assemblies shall be designed to allow installation or replacement of a load cell with only an additional 25.4 mm of clearance required between the top of the foundation and the bottom of the weigh bridge on pitless installations.

2.2.3.3 Connections

There shall be no bolted connections between the load cell and weigh bridge assemblies.

2.2.4 Surface Preparation and Finish

2.2.4.1 Exterior Surface

All exterior surfaces of the scale shall have one coat of primer and two coats of epoxy finish, providing a total Dry Film Thickness of 0.1524 mm - 0.2032 mm (6 - 8 mils).

2.2.5 Load Cell Specifications

2.2.5.1 Capacity

Each load cell shall have a minimum capacity of 22,680 kg .

2.2.5.2 Conformance

Load cells shall be certified by NTEP and meet the specifications as set

forth by NIST H-44 for Class IIIL devices. A Certificate of Conformance to these standards shall be provided by the manufacturer upon request. Load cells shall be 45,360 kg capacity and NTEP certified.

2.2.5.3 Warranty

The load cell shall have a minimum two year warranty against defects in materials and workmanship. The warranty shall cover all costs associated with replacement parts and on-site labor.

2.2.6 Scale Instrument

2.2.6.1 Conformance

The scale instrument shall be NTEP approved and meet or exceed the specifications set forth by NIST H-44 for Class II, III, and IIIL Devices. A Certificate of Conformance to these standards shall be provided by the manufacturer upon request.

2.2.6.2 Instrument Housing

The scale instrument shall be housed in a stainless steel enclosure which is suitable for desk top mounting in the scale house building shown on the drawings. The instrument housing shall be metal and have a NEMA 4X environmental rating.

2.2.6.3 Performance

The scale instrument shall be capable of performing calibration, span, zero, and shift adjustment through software calculations that require no in scale adjustment.

2.2.6.4 Prompting

The scale instrument shall prompt the start-up personnel through all phases of set-up, calibration, and testing.

2.2.6.5 Digital Averaging

The scale instrument shall be capable of digitally averaging the weight information sent from the load cells and updating the instrument's weight display approximately 15 times per second.

2.2.6.6 Receiving Digital Information

The scale instrument shall only receive digital information from the load cell assemblies.

2.2.6.7 Identification and Weight Reading

The scale instrument shall be capable of assigning each load cell with its own unique identification number and shall be capable of displaying the weight reading of each individual load cell through the instrument without disconnecting any of the load cells from the system.

2.2.6.8 Weight Switching

The scale instrument shall have gross/net weight switching.

2.2.6.9 Calibration

The scale instrument shall be capable of being programmed and calibrated in pounds or kilograms.

2.2.6.10 Transaction Counter

The scale instrument shall have a transaction counter to automatically assign sequence numbers to transactions.

2.2.6.11 Output

The scale instrument shall output the following information:

- a. Gross, Tare, and Net Weights
- b. Time and Date
- c. Transaction Counter Number
- d. Vehicle Nomenclature 16 character (alpha numeric)
- e. Special Notes 16 character (alpha numeric)
- f. Unit Number 5 character (alpha numeric)
- g. Bumper Number 5 character (alpha numeric)
- h. Vehicle Length
- I. Center of Gravity

2.2.6.12 Sign Corrected Net Weighing

The scale instrument shall be capable of being programmed for sign corrected net weighing so that all net weights are positive.

2.2.6.13 Keyboard Operations

The scale instrument shall have the following keyboard operations along with an alpha numeric keyboard:

- a. 0-9 Numeric Keys
- b. Zero
- c. Clear
- d. Tare
- e. Gross/Net
- f. LB/KG
- g. I.D.
- h. Memory
- I. Function
- j. Enter
- k. Print

2.2.6.14 Motion

Tare, Zero, and Print functions shall be inhibited while the weight display

is changing. Motion detection shall be selectable for +/- 0.5 percent, +/- 1.0 percent, +/- 2.0 percent or +/- 3.0 percent increments.

2.2.6.15 UL/CSA Listed

The scale instrument shall be UL/CSA listed.

2.2.7 Printer Specifications

2.2.7.1 Printer Housing

The printer shall be housed in a suitable enclosure for desk top mounting.

2.2.7.2 Printing Capability

The printer shall be capable of printing all information sent from the scale instrument including:

- a. Gross, Tare, and Net Weights
- b. Time and Date
- c. Transaction Counter Number
- d. Vehicle Nomenclature - 16 character (alpha numeric)
- e. Special Notes - 16 character (alpha numeric)
- f. Unit Number - 5 character (alpha numeric)
- g. Bumper Number - 5 character (alpha numeric)
- h. Vehicle Length
- I. Center of Gravity

The printer shall be capable of printing the contents of the two weight accumulators in the scale instrument.

2.2.7.3 Susceptibility

The printer shall meet SMA susceptibility tests for electro-magnetic radio frequency interference.

2.2.7.4 Compliance

All materials, components, and electrical design shall comply with UL and CSA standards and requirements.

2.2.8 Junction Boxes and Cables

2.2.8.1 Construction

All junction boxes shall be NEMA 4X rated and constructed of stainless steel.

2.2.8.2 Inspection/Maintenance

Junction boxes shall be accessible for inspection and maintenance from the top of the scale platform.

2.2.8.3 Cables

Load cell and scale platform to scale instrument cables shall be stainless steel sheathed for environmental and rodent protection.

2.2.9 Lightning Protection Specifications

A comprehensive lightning protection system shall be provided with the scale.

2.2.10 Warranty Requirements

2.2.10.1 Defects

All construction work and materials are warranted against defects in material or workmanship for a period of one year from the date of completion of all work. Bidder shall promptly correct any such defect appearing within the warranty period.

2.2.10.2 Scale Assembly

The scale manufacturer shall warrant the scale assembly including all load cells, scale instrument, printer, junction boxes, cables, and accessories for a period of twenty-four months from the date of installation from failures due to a defect in manufacturing, workmanship, lightning, or surge voltages.

2.2.10.3 Replacement Parts and Labor

The manufacturer shall bear the charges and expenses associated with replacement parts, equipment, on-site labor, and any associated freight or handling expenses incurred in the repair or replacement of the scale assembly due to failed or damaged items under warranty.

2.2.10.4 Extended Warranty

At any time during the twenty-four month warranty period, the scale's owner/operator shall have the option of extending this warranty coverage for up to a total of five years.

2.2.10.5 Regular Maintenance/Calibration Service

The manufacturer and/or its local representative shall present a program of regular maintenance and calibration service including the associated inspection costs. Inspection shall occur at a minimum of once every six months and shall comply with the guidelines set forth by the manufacturer, local regulations, and NIST H-44.

PART 3 EXECUTION

3.1 ACCEPTANCE TESTING

3.1.1 Scale Acceptance Test

The Contractor shall provide all personnel necessary to conduct the tests including but not limited to scale operators. Test weights shall be Government furnished. The Contractor shall receive and deliver from a site not more than 10 miles distance. Testing shall be performed in the presence of the Contracting Officer. The Contractor shall notify the Contracting Officer 7 days prior to testing operations.

3.1.1.1 Test Sequence

The scales shall be tested according to the applicable paragraphs of this procedure in the sequence provided.

3.1.1.2 Test Data

Operating and startup current measurements shall be recorded for electrical equipment using appropriate instrumentation. Measurements shall be recorded as required by the facility evaluation tests (normally at 100 percent load). Recorded values shall be compared with design specifications or manufacturer's recommended values; abnormal differences shall be justified in the remarks or appropriate adjustments performed.

3.1.1.3 Equipment Monitoring

During the load test, improper operation or poor condition of safety devices, electrical components, mechanical equipment, and structural assemblies shall be monitored. Observed defects critical to continued testing shall be reported immediately to the Contracting Officer and testing shall be suspended until the deficiency is corrected. During and immediately following each load test, the following inspections shall be made:

- a. Inspect for evidence of bending, warping, permanent deformation, cracking or malfunction of structural components.
- b. Inspect for evidence of slippage in fittings.
- c. Check electrical components for proper operation.

3.1.2 Load Test

3.1.2.1 Scale

Unless otherwise indicated, the following tests shall be performed using a test load of 90 percent of rated load.

- a. Scale Static Load Test: Weighing components shall be tested. The load shall be held for 10 minutes. The first holding brake shall be reapplied and the second holding brake released. The load shall be held for 10 minutes. The test shall be repeated 10 times and weight accuracy noted.

3.2 MANUFACTURER'S SERVICES

Services of a manufacturer's representative who is experienced in the installation, adjustment, erection and operation of the equipment specified shall be provided. The representative shall supervise the installation, adjustment, and testing of the equipment.

3.3 FIELD TRAINING

A field training course shall be provided for designated operating staff members. Training shall be provided for a total period of 4 hours of normal working time and shall start after the system is functionally complete but prior to final acceptance tests. Field training shall cover all of the items contained in the operating and maintenance instructions. The Contracting Officer shall be given at least 2 weeks' advance notice of such training.

-- End of Section --