

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE	PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. 0001		3. EFFECTIVE DATE 26 Oct 2001	4. REQUISITION/PURCHASE REQ. NO. W25PHS12159300	5. PROJECT NO. (If applicable)	
6. ISSUED BY CODE		7. ADMINISTERED BY (If other than Item 6) CODE			
US Army Corps of Engineers, Philadelphia Wanamaker Building, 100 Penn Square East CENAP-CT-C Philadelphia, Pennsylvania 19107-3390 Jennifer McGivern (215) 656-6773					
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)			(√)	9A. AMENDMENT OF SOLICITATION NO. DACA61-02-R-0001	
			X	9B. DATED (SEE ITEM 11) 16 Oct 2001	
				10A. MODIFICATION OF CONTRACTS/ORDER NO.	
				10B. DATED (SEE ITEM 13)	
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 0 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 you 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)

REPLACE FAMILY HOUSING, PHASES 1 & 2, DOVER AIR FORCE BASE, DELAWARE

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

(√)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) 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 (such as changes in paying office, appropriation date, etc.) 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 (Specify type of modification and authority)

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.)

THIS AMENDMENT DOES NOT EXTEND THE STEP ONE PROPOSAL DUE DATE OF 06 NOV 2001, C.O.B. 4:00 PM EST.

(CONTINUED ON NEXT PAGE)

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

SF 30 CONTINUATION SHEET

14. DESCRIPTION OF AMENDMENT:

a. SPECIFICATIONS:

(1) Section 00110 - PROPOSAL SUBMISSION REQUIREMENTS AND INSTRUCTIONS: Please delete pages 00110-2 through 00110-9 in its entirety and replace it with the new pages 00110-2 through 00110-9, annotated Amendment No. 0001, attached hereto.

(2) Section 00120 - PROPOSAL EVALUATION AND CONTRACT AWARD: Please delete pages 00120-3 and 00120-4 in its entirety and replace it with the new pages 00120-3 and 00120-4, annotated Amendment No. 0001, attached hereto.

(3) ATTACHMENTS TO THE STATEMENT OF WORK: Please delete the List of Attachments to the Statement of Work in its entirety and replace it with the new List of Attachments to the Statement of Work, annotated Amendment No. 0001, attached hereto.

(4) Attachment No. 10 - FIRE FLOW DATA: Please delete Attachment No. 10 in its entirety and replace it with the new Attachment No. 10 (36 pages), annotated Amendment No. 0001, attached hereto.

(5) Attachment No. 12 - ASBESTOS AND PCB SURVEY RESULTS: Please delete Attachment No. 12 in its entirety and replace it with the new Attachment No. 12 (28 pages), annotated Amendment No. 0001, attached hereto.

b. DRAWINGS:

Please make the following pen and ink change on drawing number W-40634 entitled: "REPLACE SECONDARY ELECTRIC, 860 UNITS - DEMOLITION", On the detail entitled: "Existing Plan of One 20-Unit Block (Typical)"; Delete the following text and associated items from the detail: "Existing 6000 gallon Fuel Oil Tank".

The above change constitutes Revision "a" to Drawing Number W-40634, with a revision date of 26 October 2001.

c. Please indicate receipt of this amendment on Standard Form 1442 (SOLICITATION, OFFER, AND AWARD) as Amendment No. 0001. Failure to acknowledge all amendments may be cause for rejection of the bid.

a. General. Inasmuch as the technical proposal will describe the capability of the offeror to perform any resultant contract, it should be specific and complete in every detail. The proposal should be prepared simply and economically, providing straightforward, concise delineation of capabilities to perform satisfactorily the contract being sought. The proposal should therefore be practical, legible, clear and coherent. Offerors will not be permitted to revise their Step One proposals as part of their Step Two proposals.

b. Format of Technical Proposals. In order that the evaluation may be accomplished strictly on the merit of the material submitted, no dollar amounts for the proposed work are to be included in the technical proposal. In order that the technical evaluation may be accomplished efficiently, the technical evaluation criteria listed below in this section are to be addressed in order. If supplemental information relative to the criteria is included in another part of the technical proposal, its location must be identified. **WARNING:** The proposals are evaluated in direct correspondence to the technical evaluation criteria, which are included in Section 00120, Factors 1 through 4. It is in the best interest of the offerors to format the technical proposal in the order of the technical evaluation criteria. If the offeror fails to provide information relating to the criteria or locates the information in another part of the proposal without providing any cross references, the offeror runs the risk of having their proposal receive a lower evaluation by the Government evaluators who were not able to locate the appropriate information.

c. The technical proposal shall contain:

(1) Title Page, including the title of the solicitation, solicitation number, and date of the submittal.

(2) Table of Contents, including a list of tables, drawings, maps or exhibits.

(3) Compliance Statement: The offeror is required to certify that all items submitted in the technical proposal comply with the RFP requirements and any differences, deviations or exceptions must be stated and explained. Offerors are required to complete the statement and submit it with their technical proposal. Even if there are no differences, deviations or exceptions, the offeror must submit the Compliance Statement and state that none exist.

Statement of Compliance:

This proposer hereby certifies that all items submitted in this proposal and final design documents (after contract award) comply with the solicitation requirements. The criteria specified in Solicitation No. DACA61-02-R-0001 are binding contract criteria and in case of any conflict after award, between DACA61-02-R-0001 and the contractor's proposal, the solicitation criteria shall govern unless there is a written and signed agreement between the contractor and the Government waiving a specific requirement. Should this proposal result in the award of a contract, this statement will be included on each sheet of drawings and on the cover of the specifications.

(4) Requirements for Special Marking of Proposals. Proposers are advised that the technical evaluation and rating of the proposals are conducted in strict confidence and that technical evaluation personnel and consultants review and rate each proposal without knowledge of the name of the proposer, including his/her A-E, or the price offered. Accordingly, proposer identification **MUST NOT APPEAR** on any technical documents for evaluation. The Army will assign proposal numbers prior to submission of proposals. To receive a proposal identification number contact the Philadelphia District Contracting Division at 215 656 6773. Proposal identification numbers will be issued following written requests only. This number is to be used by each proposer to identify the technical portions of the proposal. The proposer's name, address, signature, etc. as well as the assigned identification number, should only be inserted, as appropriate, on transmittal letters, pricing bonds, etc., required by this solicitation.

d. Exceptions to the contractual terms and conditions of the solicitation (e.g., standard company terms and conditions) must not be included in the proposal.

e. The technical proposal shall not include any cost information. The technical and cost proposals shall be submitted as two separate documents.

2.0 PROPOSAL SUBMISSION REQUIREMENTS:

a. Who May Submit.

(1) Step One proposals may be submitted by: firms formally organized as design/build entities, or by design firms and construction contractors that have associated specifically for this project. In the latter case, a single design firm or construction contractor may offer more than one proposal by entering into more than one such association. For the purpose of this solicitation, no distinction is made between formally organized design/build entities and project-specific design/build associations. Both are referred to as the design/build offeror, (or simply "offeror"), or the design/build contractor, (or simply "Contractor"), after award of a contract.

(2) Any legally organized offeror may submit a Step One proposal, provided that the offeror, or offeror's subcontractor, has on its permanent staff professional architects and engineers registered in the appropriate technical disciplines and provided that the requirements specified in the solicitation are met. All designs must be accomplished under the direct supervision of appropriately licensed professionals.

(3) Only up to five Step One offerors will be asked to submit Step Two proposals.

b. General Requirements.

(1) In order to effectively and equitably evaluate all proposals, the Contracting Officer must receive information sufficiently detailed to clearly indicate the materials, equipment, methods, functions, and schedules proposed.

(2) In addition to the Step Two design documents addressed below, Step Two proposals must contain financial terms and schedules for design and construction; and Step One proposals must contain a management plan, background information regarding the offerors' qualifications, and the representations and certifications. Specific Step Two requirements are described below.

c. Size of Printed Matter Submissions.

(1) Written materials: Size A4 [or 8-1/2" x 11"] format.

(2) Drawing sheets: Use Size A1 approximately 24" x 36" for full size drawings which are not intended for reduction to half-size sets. Half size sheets size A2 approximately 16" x 23" are also acceptable.

d. Where to Submit. Offerors shall submit their proposal packages to the Philadelphia District at the address shown in Block 8 of Standard Form 1442.

e. Submission Deadline. Proposals shall be received by the Philadelphia District no later than the time and date specified in Block 13 of Standard Form 1442. The initial SF 1442 will be for Step One only. A second SF 1442 will be issued for Step Two. However, all other RFP documents herein will be issued only with the Step One SF 1442.

f. Step One Proposal Requirements and Submission Format. The proposals sought by this solicitation shall contain two categories of submittal information as follows:

(1) Offeror past performance. This information shall be submitted in separate three-ring binders labeled "Offeror Past Performance" or may be included in the "Offeror Project Team and Performance Plans and Familiarity with Government Contracts" binder required in paragraph (2). Complete Attachment No. 4, Proposal Data Sheet. Offerors shall submit the following as part of their proposals. Provide original and **five** copies.

(a) Project examples. Provide examples (at least three) of recent projects for which the offeror has been responsible and the offeror considers as relevant in demonstrating ability to perform the proposed work. The

examples should be as similar as possible to this solicitation in project type and scope. Provide references (with contract names and telephone numbers) for all examples cited. Each example shall indicate the general character, scope, location, cost, and date of completion of the project. If the offeror represents the combining of two or more companies for the purpose of this RFP, each company shall list project examples. Provide the following:

[1] Identity of all contracts; including Federal, State, local government and private/commercial for efforts similar to the Government requirement in scope, size, and complexity that are either currently ongoing or which were completed within the past three years. Past performance data shall also be provided for all projects submitted to demonstrate experience, even if the referenced project was not completed within the past three years. Past performance on State, local government, and private/commercial contracts will be evaluated equally with past performance on Federal contracts. Offerors are encouraged to provide information regarding predecessor companies, key personnel who have relevant experience, or subcontractors that will perform major or critical aspects of the requirement when such information is relevant to this solicitation. Important Note: See paragraph f. below regarding required consent for release of subcontractor past performance information.

[2] Furnish a performance assessment report for each referenced contract as an attachment to the past performance information submitted for each referenced project. If an official written performance evaluation/assessment was not received, so indicate. The Offeror is also encouraged to submit any letters of appreciation or similar correspondence that the Contractor received from the Owner/Customer at the time of contract performance/completion. However, the Offeror is neither required nor requested to have the Owner/Customer write such a letter for the purpose of this solicitation.

[3] Offerors are encouraged to provide information on problems encountered on the identified contracts and corrective actions taken.

[4] "Confidential" projects cannot be submitted unless all of the information required for evaluation purposes as specified herein can nonetheless be provided to the Government as part of the Offeror's technical proposal. Offerors that include in their proposals information that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, must be clearly marked in accordance with the instructions at FAR 52.215-1, "Instructions to Offerors—Competitive Acquisition", paragraph (e), "Restriction on disclosure and use of data".

[5] Release of Subcontractor Past Performance Information. Past performance information pertaining to a proposed subcontractor cannot be disclosed to the Offeror by the Government without the proposed subcontractor's consent. Therefore, if subcontractor past performance information is being utilized by the Offeror, the Offeror must also submit as part of its technical proposal the subcontractor's consent to release of its past performance information by the Government to the Offeror. If there is a problem with the proposed subcontractor's past performance, the prospective prime contractor can be notified, but no details can be discussed without the proposed subcontractor's permission.

[6] The requirement to submit information pertaining to this technical evaluation factor is a separate requirement from the submission of pre-award survey information with the price proposal. Do not submit the Pre-Award Survey as part of your technical proposal.

(2) Offeror project team and performance plans and familiarity with Government contracts. This information shall be submitted in separate three-ring binders labeled "Offeror Project Team and Performance Plans and Familiarity with Government Contracts." Complete Attachment No. 4, Proposal Data Sheet. Offerors shall submit the following as part of their proposals. Provide original and **five** copies.

(a) Personnel. Provide the names, resumes, and levels of responsibility of the principal managers and technical personnel who will be directly responsible for the day-to-day design and construction activities. Include, as a minimum, the project manager; the project architect; the engineers responsible for civil, electrical, mechanical and structural design; the design-build quality control (QC) manager; and on-site the construction team (Project

Engineer, Construction QC Manager, and Superintendent). Indicate whether each individual has had a significant part in any of the project examples cited. If reassignment of personnel is considered possible, provide the names and resumes of the alternative professionals in each assignment.

(b) Familiarity with Government Contracts. Offerors are required to list all contracts with the Federal Government within the last five years. Indicate the contract number and the contracting agency (with contact names and telephone numbers). If the offeror represents the combining of two or more companies for the purpose of this RFP, each company is required to list their Government contract experiences.

(c) Management Plan. The offeror shall provide a Management Plan. This is an overall plan showing how the offeror will control the job. The term "management plan" is defined as a plan that includes the following subplans: Quality Control Plan; Design Schedule; Construction Schedule; and Contract Closeout Plan. As part of its Management Plan, the offeror shall submit a Design Schedule and Construction Schedule for all phases of the project. The offeror shall also submit a rationale explaining how the schedules will be achieved. The schedule for construction shall be task oriented, indicating dates by which milestones are to be achieved. The offeror may use a critical path or other method of his/her choice; however, the schedules shall be graphically represented. A Closeout Plan shall be furnished in a brief structured time scale schedule reflecting the planned activities during the final 90 days of the contract activity. Items to be included in the closeout plan are as follows:

CLOSEOUT PLAN

Testing of equipment and systems with schedules and reports.
Equipment instruction and training schedules.
O&M Manuals transfer.
As-built drawings transfer.
Transfer procedures and schedules.
Pre-final inspection procedures and correction of deficiencies.
Warranty data submission and planned implementation.
Cleanup of administrative deficiencies.
Real Property Transfer Data (DD Form 1354)
Installed Equipment Data (Equipment-in-Place Listing)
Move off site.

(d) Quality Control Plan. The Quality Control Plan is part of the Management Plan. The offeror must submit a design QC plan and a construction QC plan. The alliance of the project designer and builder on a project such as this naturally removes one commonly used method of quality control; that is, the usual reliance on the owner or the design consultant for monitoring construction quality. Although the Government will provide an on-site representative during construction, offerors are expected to develop a formal program of monitoring to ensure a high level of construction quality. Offerors shall submit Quality Control Plans that respond to the minimum requirements of Technical Specifications Section 01451 (furnished with this RFP package) entitled "Contractor Quality Control Design/Build." The offeror's program shall have the following characteristics:

CONTRACTOR QUALITY CONTROL REQUIREMENTS

A clear identification of the personnel responsible for quality control and a clear policy establishing their authority. The quality control group shall be separate and apart from (not the same) the people that are doing the construction. This quality control group shall report to the Contractor's management at a level no lower than a vice president of the

CONTRACTOR QUALITY CONTROL REQUIREMENTS

company.
A specific description of the tasks and functions of the quality control personnel.
A specific policy establishing schedules for the performance of quality control tasks.
A policy for reporting quality control findings to the Contracting Officer.
A procedure whereby the Contracting Officer may resolve disputes that have not received satisfactory responses from the first levels of quality control personnel.
The names of testing laboratories to be used and the procedures for test data reporting.
A plan for material storage and protection.

(e) Small Business Utilization

Important Note to Large Businesses: If you are a large business, do not include the Subcontracting Plan in your Technical Proposal as your response to either of the following subfactors. Also, do not simply provide a cross reference to the Subcontracting Plan, which is to be provided by large businesses as part of the Price Proposal.

Participation of Small Business Concerns, Historically Black Colleges and Universities, and Minority Institutions (SBC/HBCU/MI) (Subfactor 6e(1))

Note: All Offerors regardless of business size status are required to respond to this subfactor.

Provide a narrative discussion that addresses the proposed participation of Small Businesses Concerns (SBCs) and Historically Black Colleges and Universities and Minority Institutions (HBCU/MIs) in the performance of work under the prospective contract.

The Extent of Small Disadvantaged Business (SDB) Participation under the Authorized NAICS Codes and Regions (Subfactor 6e(2)):

IMPORTANT NOTES TO ALL OFFERORS PERTAINING TO SUBFACTOR 6e(2):

--All Offerors, regardless of business size status, must respond to this Subfactor.

-- See FAR 19.12 for further information pertaining to the requirement for this subfactor.

--The Authorized NAICS Major Groups/Regions are available on the Internet at: <http://www.arnet.gov/References/sdbadjustments.htm>.

-- Large businesses can count the participation of any certified small disadvantaged business subcontractor towards their SDB subcontracting goals on their subcontracting plan. However, the evaluation credit under this subfactor is limited by FAR 19.12 to SDB participation in performance of the contract under the Authorized NAICS Major Groups and Regions.

--An Offeror who is proposing the participation of SDB concerns in the performance of the contract (under the Authorized NAICS Codes and for construction, by SDB concerns located in the Authorized Regions) must provide a narrative discussion as described below in response to this Subfactor.

--An Offeror who is not proposing the participation of SDB concerns in the performance of the contract (under the Authorized NAICS Codes and for construction, by SDB concerns located in the Authorized Regions) must specifically address the rationale for not utilizing such concerns in the performance of the

contract. Offerors who present valid reasons for not proposing SDB participation under the Authorized NAICS Major Groups/Regions will not be disqualified from consideration for contract award based solely on the lack of proposed SDB participation under this subfactor.

--In order to receive consideration for SDB participation in performance of the contract, when and where authorized (see FAR Subparts 19.12 and the above website URL), Offerors must provide, with their offers, targets, expressed as dollars and percentages of total contract value, in each of the applicable, authorized NAICS Major Groups and a total target for SDB participation by the contractor, including joint venture partners, and team members; a total target for SDB participation by subcontractors. An Offeror that is a certified SDB concern must also provide a target for work it intends to perform as the prime contractor. These targets will be incorporated into and will become a part of any resulting contract. Additionally, contractors with SDB participation targets will be required to report SDB participation during performance of the contract. (See the provision at FAR 52.219-24, Small Disadvantaged Business Participation Program Targets, located in Section 00600, and the clause at FAR 52.219-25, Small Disadvantaged Business Participation Program—Disadvantaged Status and Reporting, located in Section 00700.)

-- The SDB concerns considered in the evaluation will be listed in the contract, and the contractor shall be required to notify the contracting officer of any substitutions of firms that are not SDB concerns.

-- If authorized elsewhere in the solicitation, monetary incentives may be authorized for exceeding SDB subcontracting targets. The incentive, if elsewhere authorized, shall be paid only if an SDB subcontracting target was exceeded as a result of actual subcontract awards to SDBs, and not as a result of developmental assistance credit under the Pilot Mentor-Protégé Program. (See the clause at 52.219-26, Small Disadvantaged Business Participation program—Incentive Contracting, located in Section 00700.)

Submission Requirement:

Provide a narrative discussion that addresses the proposed participation in the performance of the work under the prospective contract of SDB concerns under the Authorized NAICS Major Groups and for construction, by SDB concerns located in the Authorized Regions.

(3) Pro Forma requirements. This information should be submitted in an envelope labeled "Pro Forma Requirements." This category consists of representations and certifications and completed Standard Form 1442. Provide original and **five (5)** copies. Offerors subcontracting plan will NOT be evaluated as part of this competitive negotiation procurement process; however, the submission of an acceptable subcontracting plan is required prior to contract award.

(4) The proposals shall contain a detailed table of contents. If more than one binder is used, the complete table of contents shall be included in each. Any materials submitted but not required by this solicitation, (such as company brochures), shall be relegated to appendices.

(5) Evaluation Factors 5 and 6/Proposal Contents Listing. A spreadsheet or table consisting of all the evaluation categories and sub-categories listed in Section 0120 for proposal evaluation and specific reference to where in the proposal documents those requirements are addressed or indicated.

NOTE: Nonresponsive proposals. Failure to submit all the data indicated in this section may be cause for determining a proposal nonresponsive and, therefore, not considered for technical evaluation or award.

g. Step Two Proposal Requirements and Submission Format. The proposals sought by this solicitation shall contain three categories of submittal information as follows:

(1) Design-Technical. This information shall be submitted in separate three-ring binders labeled "Design-Technical Information." This category consists of design documents, drawings, calculations, specifications,

design analysis, catalog cuts, and other information. Design Technical materials shall also include a spreadsheet or tabular listing of the Evaluation Factors 1 through 4 for Technical Proposals included in Section 0120 and identify where in the proposal materials that specific item is addressed. Provide six (6) copies of the drawings (size A1); or six (6) copies of half size drawings (size A2) with a minimum of one full size set; and six (6) copies of catalog cuts and other technical data. The drawings shall be bound.

(2) Price Proposal/Pro Forma requirements. This information should be submitted in an envelope, binder or box labeled "Price Proposal/Pro Forma Requirements." This category consists of a subcontracting plan, proposal bonds, completed Step Two Standard Form 1442, and schedule of proposed prices. Provide original and **five (5)** copies.

(3) The proposals shall contain a detailed table of contents. If more than one binder is used, the complete table of contents shall be included in each. Any materials submitted but not required by this solicitation, (such as company brochures), shall be relegated to appendices.

h. Required Technical Data for Step Two Proposal Submission. The following technical data shall be submitted as part of the formal proposal. Proposals shall include graphic description of the design included in the basic proposal clearly indicated as such. All alternate designs shall be graphically described on separate drawings from the basic proposal. Offerors are advised that the required data listed below will be utilized for technical review and evaluation and used for determination of a "Quality Rating" by a Technical Evaluation Team. Materials indicated in the design/construction criteria, but not indicated in the offeror's specifications, will be assumed to be included and a part of the proposal.

(1) Design drawings. Provide an index of drawings. If required drawings are common for more than one type of building or dwelling unit, indicate so on the drawing. Do not provide foundation plans or structural, civil, plumbing, mechanical, or electrical detail drawings. The proposal design drawings shall provide the information as indicated in the following tables:

SITE DESIGN

Drawing Type / Scale	Show This Information
Area Site Development Plan 1"=80' Note ¹	Spatial and functional arrangement of all family housing requirements Adjacent land uses and historical or environmental conditions Project Boundaries Existing Contours Proposed contours at 3' intervals. Drainage and water retention ponds (if utilized) Vehicular and pedestrian circulation Housing types to include patios and fencing

SITE DESIGN

Drawing Type / Scale	Show This Information
Typical Cluster Plans 1"=40' Note ¹	Solar orientation of each housing unit or cluster Vehicular and pedestrian circulation Spacing between housing units Utilities and utility entrance into housing unit walls Children's play lots
Demolition Plan 1"=40'	All site amenities, structures, or features to be removed or retained.
Site Plan 1"=40'	Layout for all site requirements. Show "Use Zones" in children's outdoor play lots.
Typical Landscape Planting Plans 1"=20'	Botanical/Common Names of plants used, size, and quantity of trees, shrubs, ground covers, related notes, and planting details.
Utility Plans 1"=80'	All site utility requirements. Site lighting. Primary and secondary electric cable routing (new and existing). Pad-mounted transformers and service laterals. Cable television and telephone routing. Water, sanitary sewer and storm sewer and natural gas mains.
Off-Site Electrical Plan 1"=400' Scale as required (If applicable)	Location of primary supply point of take-off. Existing electrical lines, both overhead and underground, properly identified. New construction tie-in to on-site electrical distribution system.

Note¹: Drawings shall be dimensioned to show building separations, set back, etc.

c. Relative importance of the technical factors in relation to the cost is (the applicable statement is preceded by an "X"):

- (X) All Step Two technical evaluation factors when combined are approximately equal to cost or price.
- () Cost will be given greater weight than technical merit.
- () Technical merit will be given greater weight than cost.

d. Notice is given of the possibility that an award may be made after receipt of proposals without further negotiations or after limited discussions. It is therefore emphasized THAT ALL OFFERS SHOULD BE SUBMITTED INITIALLY ON THE MOST FAVORABLE TERMS THAT THE OFFEROR CAN SUBMIT TO THE GOVERNMENT.

6. 52.0215-4550 OTHER AWARD FACTORS (JUL 1995)

The Contracting Officer shall consider several factors in the selection process that are important, but not quantified, such as:

- a. Agreement by the Offeror to all general and special contract provisions and clauses.
- b. Submission of an acceptable Subcontracting Plan, if required (see Attachments section), in accordance with the terms and conditions of the solicitation.
- c. Determination of responsibility of the contractor by the Contracting Officer. In order to determine a contractor's responsibility for purposes of contract award in accordance with FAR Part 9, the contractor is required to provide a statement regarding previous experience and past performance in performing comparable work, information related to the business organization, financial resources, and/or plant to be used in performing the work (see Attachments, Preaward Survey). All Offerors will complete and return the Preaward Survey as part of the Price/Cost proposal. In order to be determined to be responsible, a prospective contractor must:
 - (1) Have adequate financial resources to perform the contract or the ability to obtain them.
 - (2) Be able to comply with the required or proposed delivery or performance schedule, taking into consideration all existing commercial and governmental business commitments.
 - (3) Have a satisfactory performance record. In making the determination of responsibility, the Government Contracting Officer shall consider relevant past performance information. A prospective contractor shall not be determined responsible or nonresponsible solely on the basis of a lack of relevant performance history except when there are special standards set forth in the solicitation, which applies to all bidders that must be met in order to receive the award. These special standards may be necessary when unusual expertise or specialized facilities are necessary in the performance of the contract; therefore, in order to be determined to be responsible for that particular contract, the Offeror must be able to meet those special standards. A prospective contractor that is or recently has been seriously deficient in contract performance shall be presumed to be nonresponsible unless the Contracting Officer determines that the circumstances were beyond the contractor's control or that the contractor has taken appropriate corrective action. Other responsibility considerations by the Contracting Officer will include past efforts by the contractor to apply sufficient tenacity and perseverance to perform acceptably, to meet quality requirements of contracts, and the contractor's past compliance with subcontracting plans (if required) under recent contracts.
 - (4) Have the necessary organization, experience, accounting and operational controls, and technical skills, or the ability to obtain them (including, as appropriate, such elements as production control procedures, property control systems, quality assurance measures, and safety programs applicable to materials to be produced or services to be performed by the prospective contractor and subcontractors).
 - (5) Have the necessary production, construction, and technical equipment and facilities, or the ability to obtain them.
 - (6) Be otherwise qualified and eligible to receive an award under applicable laws and regulations.

7. 52.0215-4560 DEBRIEFING (OCT 1995)

a. In accordance with FAR 15.506, when a contract is awarded on the basis of competitive proposals, an Offeror, upon its written request received by the agency within three days after the date on which that Offeror has received

LIST OF ATTACHMENTS TO THE STATEMENT OF WORK

NUMBER DESCRIPTION

1. TECHNICAL SPECIFICATIONS
2. OUTLINE SPECIFICATIONS
3. FORMAT FOR REQUIRED AREA CALCULATIONS
4. PROPOSAL DATA SHEETS
5. PROPOSAL DRAWING FORMAT
6. SITE AND LOCALITY MAP
7. NOT USED
8. GEOTECHNICAL REPORT
9. NOT USED
10. FIRE FLOW DATA
11. LIST OF DRAWINGS
12. ASBESTOS **AND PCB** SURVEY RESULTS

Project Name REPLACE FAMILY HOUSING PHASES 1 & 2

Project No FJXT024002/034003
REQUEST FOR PROPOSAL
DACA61-02-R-0001

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ATTACHMENT 10

FIRE FLOW DATA

Project Name REPLACE FAMILY HOUSING PHASES 1 & 2

Project No FJXT024002/034003
REQUEST FOR PROPOSAL
DACA61-02-R-0001

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HYDRANT FLOW TEST REPORT

For:

Dover Air Force Base
Dover, Delaware

Prepared for:

United States Army Corps of Engineers
Philadelphia District
100 Penn Square East, Philadelphia, PA 19103
Contract No. DACA61-99-D-0002
Task Order Number 07

Prepared By:



BLACK & VEATCH

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1. PURPOSE

The purpose of this hydrant flow test was to obtain water supply data from existing domestic/fire main systems for use in evaluating available flow (gpm) and pressure of the hydrant system in a selected area of Dover Air Force Base (DAFB). The selected area was located in the court housing area of DAFB that is set to be demolished in February of 2002 to make way for the construction of new housing on the base. Before construction is to begin, DAFB personnel have requested the hydrants in the area to be tested to ensure proper flow for the protection of the new housing complexes. Also, the hydrant flow report can be used to assist in the installation of an automatic fire safety sprinkler system. The contractor installing the sprinkler system can use this test report in calculations to determine the demand required for the system.

2. PROCEDURE

Black and Veatch personnel (Glenn Berger P.E., Dave Graff, and Mark Elliot) performed the hydrant flow test on October 2, 2001. In accordance with the delivery order requirements, Mr. Berger has extensive expertise in performing hydrant flow testing. After coordinating with DAFB personnel (MSgt Koppa, Jeff Thorne, and Matt Mattis), a standard two-hydrant method was used for this test, which includes the following steps:

1. Become familiar with the direction of the water supply source. This information was provided by the USACE.
2. Pick hydrants in which the test hydrant is between the water supply and the flow hydrant.
3. Isolate all water paths that may allow water to get to the flow hydrant without passing the test hydrant.
4. Open test hydrant to flush the water supply, close hydrant after water has turned clear.
5. Attach hydrant cap pressure gauge
6. Slowly open test hydrant to full open position
7. Record "static pressure" reading from gauge
8. Measure orifice size and coefficient at the flow hydrant,
9. Slowly open flow hydrant to full open position
10. Record "residual pressure" from test hydrant

11. Measure flow pressure from test hydrant and record results using a pitot tube
12. Close both hydrants, detach equipment from test hydrant, return all street valves to open position.

The water supply in the area is considered to be a gridded or multi-looped system. The selected hydrants were those that could be properly arranged (isolated) between the water supply and the project area. The equipment used by the field team consisted of a hydrant cap, air chamber pressure gauge, and a hydrant wrench. Calibration of the equipment was maintained by comparing results of previous tests. This test was performed in accordance with Chapter 8, Section 5, Fire Protection Handbook, 17th edition, National Fire Protection Association for flow in loop systems.

3. RESULTS

A total of four official tests were conducted. An official test is one where all of the flow of water had to pass by the test hydrant on the path to the flow hydrant. It should be noted that the quantity of water available for firefighting purposes would be higher than shown in the test results, due to configuration of water lines in the area. A map indicating locations of hydrants tested and assigned tag numbers is shown in Figure 1 (Appendix A) Also, a flow test data sheet, which includes the time of test and the measurements of pressure and flow rates corresponding to each tagged hydrant is shown in Table 1 (Appendix B).

The four tested hydrants were hydrants 5-3, 5-4, 5-17, and 5-19. Their respective flow hydrants were hydrants 5-1, 5-22, 5-18 and 5-18 again. Of the seven hydrants used for the official test, only hydrant 5-1 operated properly. Every other hydrant needed significant effort to operate. It was also noted by the field personnel that hydrant 5-19 had significant water discharge from the operating nut assembly.

Two other attempts to test hydrant 5-22 failed. The first attempt was to test hydrant 5-22 using hydrant 5-26 as the flow hydrant. This could not be accomplished due to the inability to isolate the test hydrant. The second attempt to test hydrant 5-22, this time with hydrant 5-4 as the flow hydrant was cancelled due to the fact that the valve was on the wrong side and flow could not be isolated. Also, hydrant test 5-17, which appears on Table 1 was found to be invalid. It was determined by the field personnel that the flow was backwards from the intended path they had assumed. This would account for the lower than average static and residual test results for hydrant 5-17. A copy of Table 1 used by the field personnel and which contains notes for the cancellation of the above tests is shown in Table 2 (Appendix B).

Along with the data tables, flow/pressure curves on semi exponential paper showing individual and combined flow rates are shown in Figures 2, 3, and 4 (Appendix A).

APPENDIX A - Tables

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Table 1 – Flow Test Data Sheet

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Table 2 – Field Note Data Sheet

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Bill Thorne

Matt Mattis

Tom DeWitt (secret)

FLOW TEST DATA SHEET

DATE	TIME	TEST HYDRANT			FLOW HYDRANT						FLOW at 20 psi (gpm)
		HYDRANT NUMBER	STATIC (psi)	RESIDUAL (psi)	HYDRANT NUMBER	PIVOT (psi)	DIA (inch)	THEOR FLOW (gpm)	HYDRANT COEFF	ACTUAL FLOW (gpm)	
2 Oct 01	0912	5-17	33	29	5-18	32	2-1/2		0.9		
2 Oct 01	0925	5-19	65	41	5-18	30	2-1/2		0.9		
2 Oct 01		5-3	66	57	5-1	38	2-1/2		0.9		
2 Oct 01		5-4	65	55	5-22	45	2-1/2		0.9		
2 Oct 01		5-22			5-22		2-1/2		0.9		
2 Oct 01		5-26	62	46	5-22	42	2-1/2		0.9		
2 Oct 01		5-22			5-26		2-1/2		0.9		

Hydrant 5-17: broken chain; hydrant nut (top) excessively tight

Hydrant 5-22: test cancelled, cannot isolate hydrant. 10-5-26

Hydrant 5-22: test cancelled, valve on wrong side, can't isolate

5-4

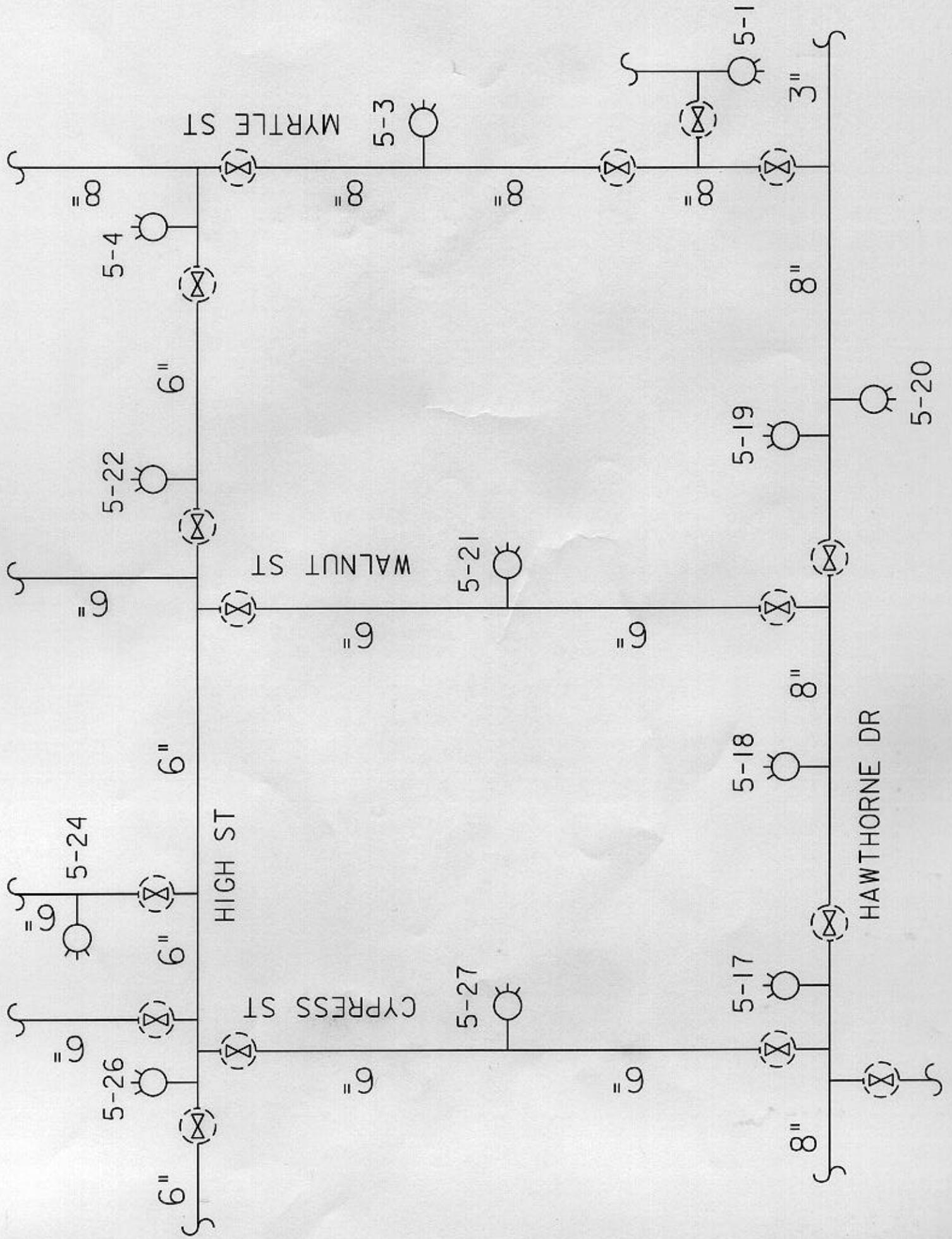
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APPENDIX B- Figures

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Figure 1 – Hydrant Locations and Tags

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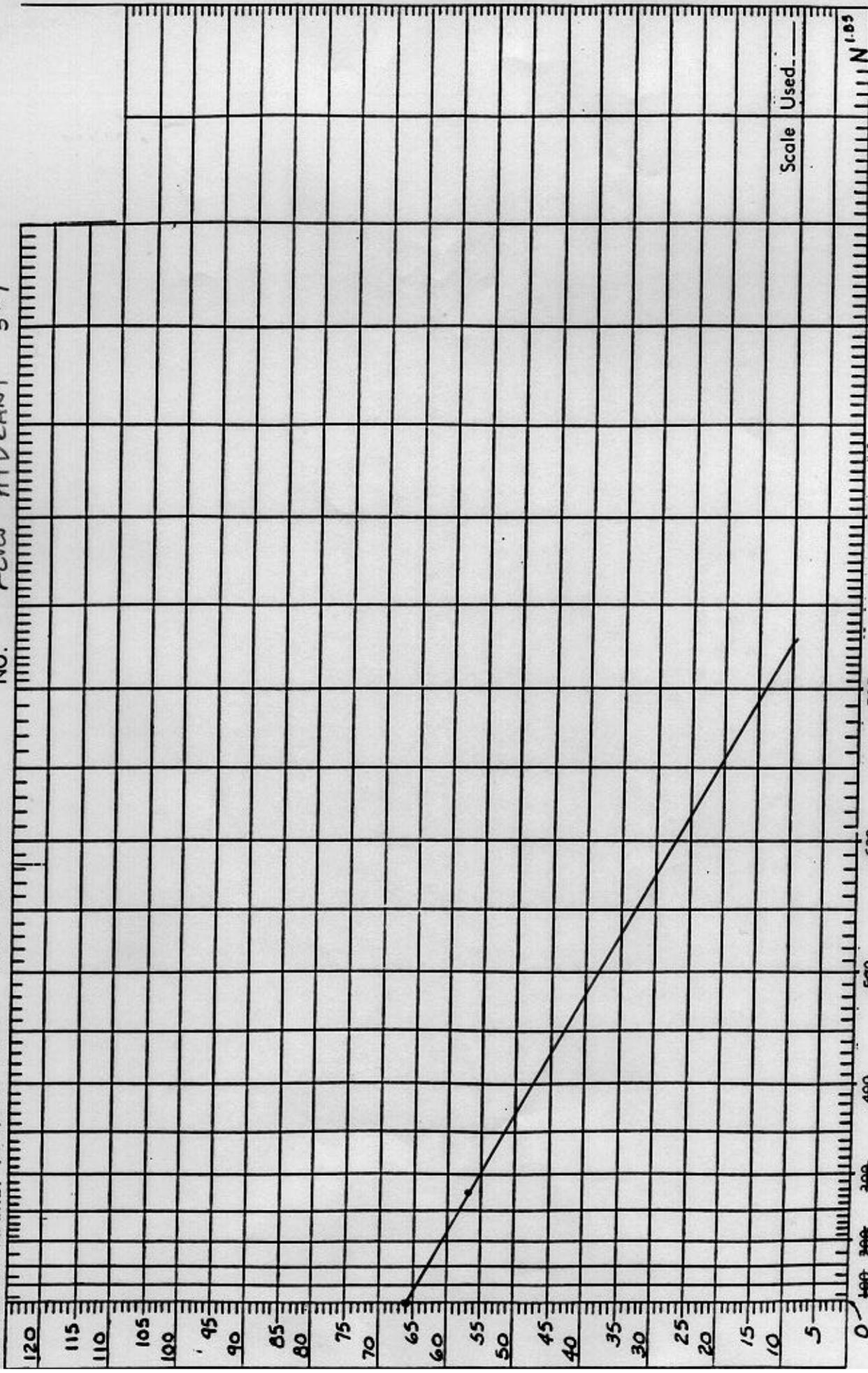
Figure 2 – Flow/Pressure Curves for Test Hydrant 5-3

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CONTRACT NAME: *Dover AFB - FAMILY HOUSING*

TEST HYDRANT *5-3*
FLOW HYDRANT *5-1*

NO:



Scale Used: _____
Scale A
Scale B
Scale C

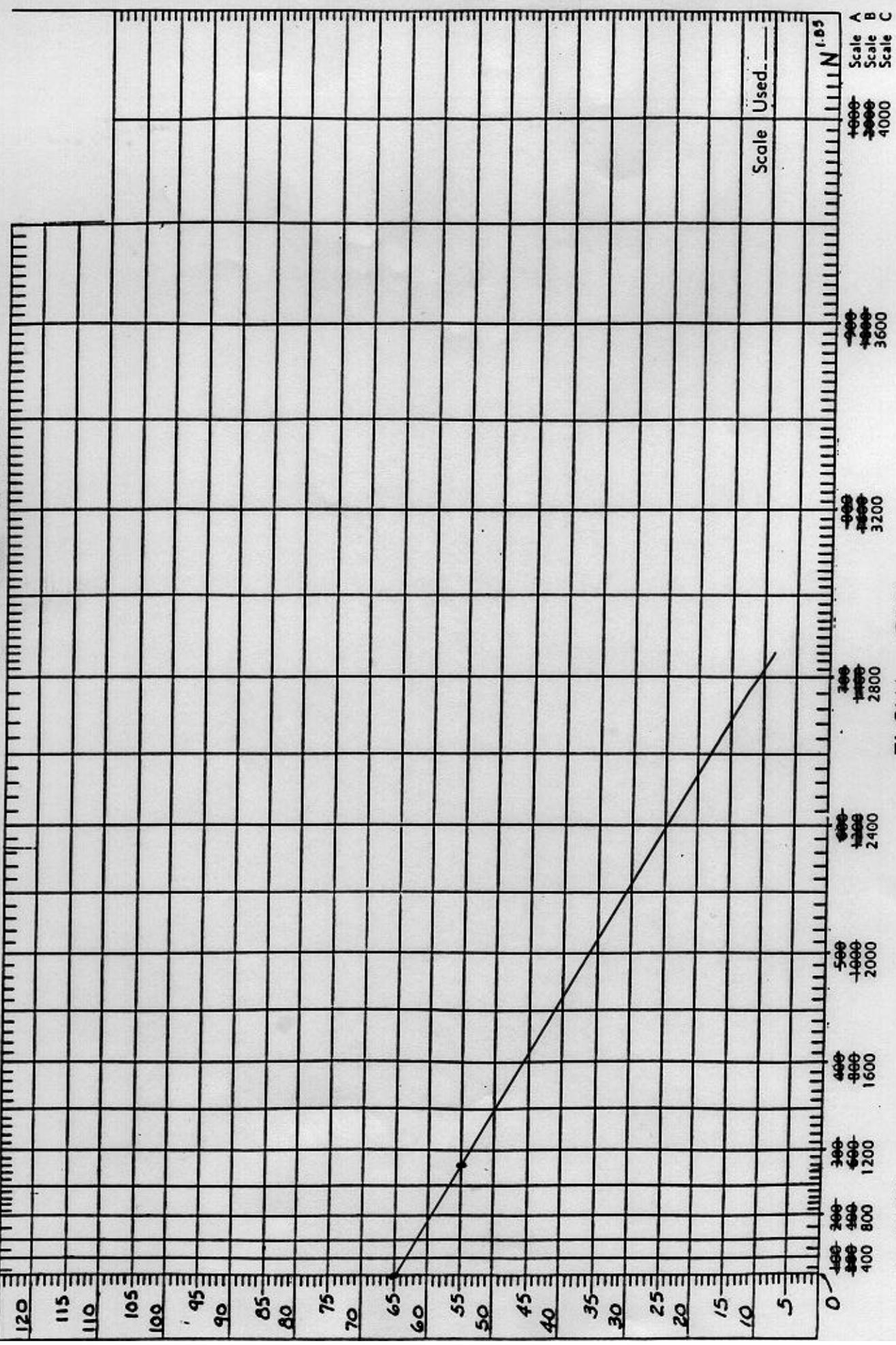
FLOW - GPM

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Figure 3 – Flow/Pressure Curves for Test Hydrant 5-4

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CONTRACT NAME: *Dover AFB Family Housing* NO: *TEST HYDRANT 5-4*
FLOW HYDRANT 5-22



FLOW - GPM

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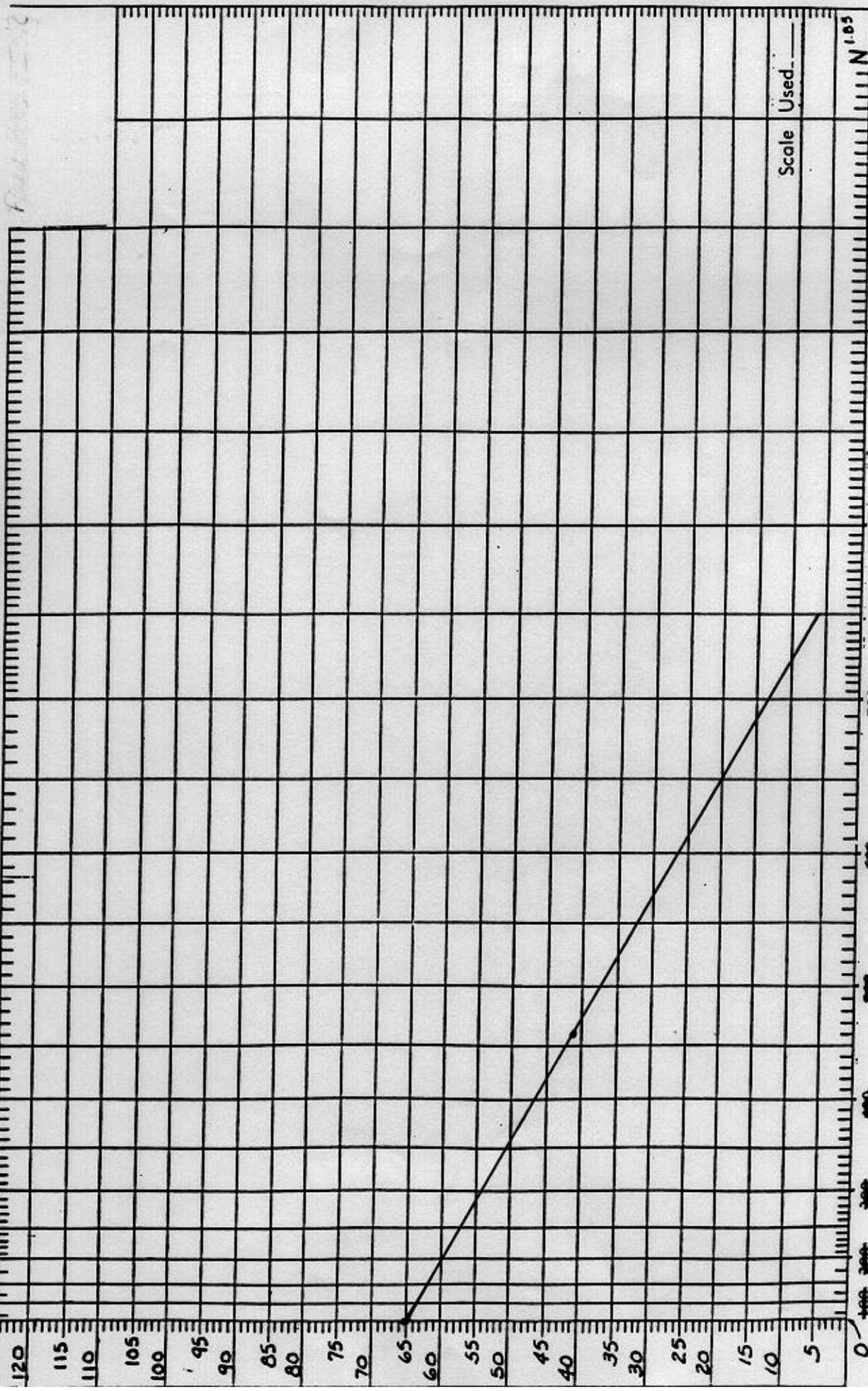
Figure 4 – Flow/Pressure Curves for Test Hydrant 5-19

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CONTRACT NAME: *Doyel AFB - Family Housing*

TEST HYDRANT 5-19
Flow HYDRANT 5-18

NO:



Scale Used

Scale A
Scale B
Scale C

FLOW - GPM

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ATTACHMENT 12
ASBESTOS AND PCB SURVEY RESULTS

Project Name REPLACE FAMILY HOUSING PHASES 1 & 2

Project No FJXT024002/034003
REQUEST FOR PROPOSAL
DACA61-02-R-0001

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1.0 Executive Summary/Project Overview

Criterion Laboratories, Inc. (Criterion) was contracted by Mr. John Taylor of Black & Veatch to perform an asbestos survey at the Dover Air Force Base located in Dover, Delaware. The purpose of this survey was to identify all asbestos-containing materials prior to demolition.

Three representative units and two boiler rooms were surveyed. Apartments 3000A, 3204 H, 3111B and boiler areas 3501 and 3002 were inspected by Criterion.

A total of seventy-nine (79) bulk samples were taken which were representative of each homogeneous material. Asbestos was detected in nine (9) samples. Any suspect homogeneous material that indicated no asbestos was sampled in different locations throughout the homogeneous area, and proven non-detected for asbestos-containing material (ACM).

Asbestos was found in black floor mastic, window caulk and roof flashing. No asbestos-containing materials (ACM) were found in the boiler areas.

Asbestos-containing materials are in good condition, with the exception of two (2) square feet of black floor mastic in the kitchen of Apartment 3111B. All asbestos materials inspected are non-friable and do not pose a health risk in their current condition. All ACM should be removed by a Delaware licensed asbestos abatement contractor prior to demolition.

The goals of this survey were as follows:

1. Review existing building construction documents and evaluate the possible locations of asbestos-containing materials (ACMs).
2. Provide an accurate and thorough inspection by an EPA-accredited Asbestos Building Inspector to identify locations of suspected friable ACM.
3. To take samples of all suspected ACMs and to conduct reliable laboratory analysis of bulk samples collected.
4. Provide a written assessment of all identified friable ACMs in the facility as well as response actions consistent with that assessment.

The survey of the Property was conducted by EPA certified, Asbestos Building Inspector Mr. Andrew Ward, under the direction of Project Manager Mr. Eric Wysocki.

Access & Security

The inspectors gained access to all locked rooms with the assistance of Mr. Mark Elliot.

2.0 Sampling And Assessment Procedures

The survey was initiated by conducting a preliminary walk-through of the Property for the purpose of developing a plan of action as well as to assign "functional space numbers" to all areas of the building. Functional space numbers were assigned with the intent that they resemble the existing facility room numbers.

As the inspectors entered each area, an evaluation began for suspicious materials, which may contain asbestos.

After compiling all information, general recommendations were formulated using the eight factors recommended by the Environmental Protection Agency (EPA). Building materials, which were suspected to contain asbestos were observed and assessed for the following environmental factors:

- Physical condition of material
- Water damage
- Friability
- Exposed surface area
- Accessibility
- Activity and movement
- Air plenum or direct air stream
- Asbestos content (determined through laboratory analysis)

The inspectors developed a sampling scheme for the Property. The materials were separated into homogeneous locations and a Homogeneous Identification Number (HID#) was then assigned. Sampling then began in the selected areas.

The inspectors collected a total of 79 bulk samples from the Property.

ACM quantities are considered estimates and contractors should verify totals for bid purposes.

3.0 Asbestos Inventory & Recommendations Per Functional Space

The recommendations as stated in the following chart of this report are based on the EPA-recommended environmental factors. Each homogeneous material within a specified functional space was assessed separately. Based on that assessment, an appropriate recommendation was made for that specific material. Recommendations were developed only for those materials, which are friable and tested positive for asbestos.

The chart headings are defined as follows:

<u>Chart Heading</u>	<u>Definition</u>
Functional Space/Room Name	The identification number and corresponding room name on each assessment cell (corridor, office space, mechanical area, etc.) as it appears on the material assessment forms.
Material Type	Type of the asbestos-containing material in the specific area of the facility (i.e., corrugated pipe insulation, floor tile, lagging).
Description	Description, color, size or function of identified ACM (i.e. 6", 9" gray, boiler).
Homogeneous Identification	A specific Homogeneous Identification Number, (HID#) assigned by the inspector to identify materials by homogeneous groupings.
Total Material	Total estimated amount of asbestos containing material per functional space as noted on the Assessment Form.
Damaged Material	Estimated amount of damaged asbestos containing materials per functional space as noted on the Assessment Form.
Recommendation and Comment	Description of the appropriate response action for each asbestos-containing material, based on the EPA recommended environmental factors.

4.0 Facility Asbestos Summary

The following chart catalogs total quantities of asbestos materials and the corresponding bulk sample numbers for the entire facility.

The chart headings are defined as follows:

<u>Chart Heading</u>	<u>Definition</u>
Material Type	Type of the asbestos containing material in the specific area of the facility (i.e. corrugated P.I., floor tile, lagging).
Description	Description, color, size or function of identified ACM (i.e. 6", 9" gray, boiler).
Homogeneous Identification Number (HID#)	A specific number assigned by the inspector to identify materials by their homogeneous groupings.
Total Material	Total estimated amount of asbestos containing material per functional space as noted on the Assessment Form. Not including totals that may exist in areas identified as inaccessible.
Damaged Material	Estimated amount of damaged asbestos containing materials per functional space as noted on the Assessment Form.
Asbestos	Type and percentage of asbestos detected through Polarized Light Microscopy analysis of bulk "CHR", "AMO", "AMP", samples (chrysotile, amosite or other amphibole). "ND" indicates none detected.
Bulk Sample Number	A specific number assigned to each bulk sample taken within the facility.

5.0 Asbestos Priority List Per Functional Space

The chart on the following page(s) lists all known asbestos-containing materials in order of action priority.

- | | |
|---|--|
| Priority #1
and
Priority #2 | Asbestos materials identified as Priority #1 or Priority #2 are in need of immediate action. The situation is such that in terms of both damage and exposure potential, immediate isolation of the space is warranted and the material should be removed as soon as possible by a certified Abatement Contractor. All access to these areas of the building should be limited until corrective action is complete. |
| Priority #3 | The asbestos materials identified as Priority #3 are also areas where repair or removal is necessary. However, removal may be conducted as part of the normal maintenance and repair cycle of the facility, by an asbestos trained and certified Abatement Contractor. |
| Priority #4
and
Priority #5 | The asbestos materials identified as Priority #4 or Priority #5 should be patched and repaired or removed by an asbestos trained and certified abatement contractor. If patched and repaired, the materials should then be periodically monitored to verify the integrity of the materials' condition. Number indicates priority if all repairs cannot be completed immediately. (Eg: Priority #4 materials should be addressed before Priority #5 materials). |
| Priority #6,
Priority #7
and
Priority #8 | The asbestos materials identified as Priority #6, Priority #7 or Priority #8 are in good condition. The materials show little or no damage and minimal exposure. These materials should be monitored to verify the integrity of the materials' condition and their protective coverings. The associated number indicates priority for removal. |

6.0 Cost Estimate

N/A

7.0 Cost Estimate For Remediation

N/A

8.0 Conclusion

Asbestos-containing materials (ACM) were found in the three representative apartment units inspected. These materials included black floor mastic, window caulk and roof flashing. All ACM was in good condition with the exception of two (2) square feet of black floor mastic in the Kitchen of Apartment 3111B. None of these materials are considered friable asbestos. All asbestos-containing materials should be removed by a Delaware certified asbestos abatement contractor prior to demolition. The two boiler areas inspected, for Apartments 3501 and 3002, contained no suspicious asbestos-containing materials. All ducts, tanks and pipes were either bare or covered with fiberglass insulation. Therefore, no asbestos removal is necessary in the boiler areas prior to demolition.

9.0 Assessment Sheets

The following pages contain information obtained in the field by building inspector. Copies of the actual data have been provided. In all instances, the original field data has been archived by Criterion Laboratories, Inc.

10.0 Photographs

11.0 Sampling Methodology

Bulk samples of suspected asbestos-containing material (ACM) were collected in accordance with guidelines set forth by the Environmental Protection Agency (EPA) and the National Institute for Occupational Safety and Health (NIOSH). The procedures for obtaining a bulk sample of suspected ACM are:

1. "Functional Spaces" in the Property were identified.
2. The total amount and location of each type of suspected ACM was tabulated.
3. The types of suspected ACM were then grouped as homogeneous materials. Each homogeneous material is defined as being uniform in texture and appearance. Based on these parameters, each homogeneous material was assigned a specific identification number as listed below.

Homogeneous Material I.D. #Reference List

Surfacing

0100 to 0199 - Sprayed-On
0200 to 0299 - Troweled-On
0300 to 0399 - Blown-In
0400 to 0499 - Other Surfacing
1900 to 1999 - Plaster Walls and Ceilings

Thermal

0500 to 0599 - Lagging
0600 to 0699 - Breeching
0700 to 0799 - Duct Insulation
0800 to 0899 - Tank Insulation
0900 to 0999 - Block Pipe Insulation
1000 to 1099 - Joints associated with Block Pipe Insulation
1100 to 1199 - Corrugated/Air Cell Pipe Insulation
1200 to 1299 - Joints associated with Corrugated Pipe Insulation
1300 to 1399 - Compressed Pipe Insulation
1400 to 1499 - Joints associated with Compressed Pipe Insulation
1500 to 1599 - Joints associated with Fibrous Glass Pipe Insulation
1600 to 1699 - Other Thermal

Miscellaneous

1700 to 1799 - Lay-In Ceiling Tiles
1800 to 1899 - Spline Ceiling Tiles
2000 to 2099 - Floor Tiles
2100 to 2199 - Drywall
2200 to 2299 - Linoleum
2300 to 2399 - Transite
2400 to 2499 - Expansion Joints
2500 to 2599 - Mastic Floor Tiles
2600 to 2699 - Other Miscellaneous
2700 to 2799 - Mastic Linoleum

4. A sampling scheme was devised based upon the amounts and locations of the different homogeneous materials in order to obtain representative samples.
5. Trained personnel using an appropriate sampling tool and a leak-tight, labeled sample container took the actual bulk samples. The sampling was conducted in areas of the building that are not readily visible to the building occupants. These areas included above lay-in ceiling tiles and beneath cabinets and desks, etc.
6. The personnel employed proper decontamination procedures to prevent contamination of the building environment and possible exposure to themselves and others.
7. Each location of suspicious asbestos-containing material (ACM) was documented on material assessment forms. This documentation included the location of suspicious materials, type of material located, square footage of suspicious ACM, as well as the square footage of damaged suspicious ACM. All bulk samples taken were documented on the Sample Log form and a Chain of Custody form. Each was completed for all samples taken by the inspector and handler.
8. The samples were then taken to the laboratory for analysis. The Certificates of Analysis and Chain of Custody relative to each sample are included in this report.
9. The inspector assessed the condition of the suspicious ACM using the eight EPA factors.

12.0 Analytical Techniques And Quality Control

All bulk samples obtained were analyzed using Polarized Light Microscopy (PLM) in accordance with "Test Methods for the Determination of Asbestos in Bulk Insulation Samples EPA-600/R-93/116," dated July 1993 and adopted by the National Voluntary Laboratory Accreditation Program (NVLAP), Title 15, Part 7, Code of Federal Register as affiliated with the National Institute for Standards and Technology (NIST). Two examinations were performed on each sample. When necessary, the EPA recommended "Improved Method" is used, EPA/600/R-93/116; Federal Register, Volume 59, Number 146, page 38970-38971, August 1, 1994.

The first examination was performed at 20x magnification using a stereo microscope equipped with an external illuminator. Each bulk sample was examined for layering, homogeneity and the presence of fibrous and non-fibrous materials. An estimation of the percentage of each component relative to the whole sample was made. When discrete layers are identified, each is treated as a separate material so that fibers are identified and quantified in that layer only. Results are provided for each layer separately.

The second examination was performed at a range of from 100x to 400x magnification using a Polarized Light Microscope equipped with two polarizing filters to observe specific optical characteristics. The use of plane polarized light allowed the determination of refractive indices along specific crystallographic axes. Morphology and color also were observed. A retardation plate was placed at a 45 degree angle between cross polars for determination of the sign of elongation using orthoscopic illumination. Orientation of the two filters such that their vibration planes were perpendicular (crossed polars) allowed observation of the birefringence and extinction characteristics of anisotropic particles.

Criterion Laboratories, Inc. is accredited by the American Industrial Hygiene Association (AIHA). We also successfully participate in the AIHA's, Proficiency Analytical Testing (PAT) Program and the U.S. Department of Commerce sponsored NIST/NVLAP for analysis of bulk asbestos samples.

13.0 Certificates Of Analysis/Chain of Custody Forms

14.0 DEFINITIONS/ACRONYMS

Abatement	Procedures to control fiber release from asbestos-containing material. This includes removal, encapsulation, enclosure and repair.
A.C.M.	Asbestos-Containing Material.
Actinolite	An asbestos fiber that is green in color. It is quite hard and has low tensile strength and flexibility when compared to other types of asbestos. Actinolite has little industrial or commercial use.
Action Level	An airborne concentration of asbestos 0.1 fibers per cubic centimeter (f/cc) of air circulated as an eight-hour time-weighted average (T.W.A.).
Aggressive Sampling	The method of sampling in which the person collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in the area of the building.
A.I.H.A.	American Industrial Hygiene Association.
Airlock	A system for permitting entrance and exit while restricting air movement between a contaminated area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway thereby preventing flow-through contamination.
Air Plenum	Space above a ceiling used for the circulation of air through a building.
Air Sampling	The process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400 or the provisional developed by the E.P.A. which are utilized for lower detectability and specific fiber identification.
Alveoli	Microscopic air sacs in the lung tissues where the transfer of gases occurs between the lungs and the blood system.
Amended Water	A water to which a surfactant has been added. A surfactant is a chemical wetting agent added to water to improve the penetration of water thus reducing the quantity of water required for a given operation or area.

Amosite	A gray to brown asbestos fiber type having a coarse needle-like structure. Amosite is highly resistant to heat and chemical corrosion which led to its popular use in and on heating systems.
A.M.P.	Asbestos Management Plan.
A.N.S.I.	American National Standards Institute.
Anthophyllite	A yellow-brown asbestos fiber type with poor flexibility and low tensile strength. Anthophyllite has no major industrial use.
Asbestos	A general term used to describe a group of naturally occurring minerals that separate into fibers. The asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above materials shall be considered as asbestos.
Asbestos Abatement	A method, including removal, encapsulation, enclosure, repair and operation and maintenance, that protects human health and the environment from friable asbestos containing materials.
Asbestos-Containing Material	Any material which contains more than one percent asbestos by weight.
Asbestos Inspection Report	A report on the condition of a building or structure in relation to the presence and condition of asbestos therein.
Asbestosis	A non-cancerous respiratory disease that consists of scarring of lung tissues. Symptoms of asbestosis include shortness of breath and rales and a dry crackling sound in the lungs during inhalation. Advanced asbestosis may produce cardiac failure and death. Asbestosis is rarely caused by neighborhood exposure.
A/W	Associated With, as in Joint Insulation A/W Pipe Insulation.
Barrier	Any surface that seals off the work area to inhibit the movement of fibers.
Block Insulation	Preformed block insulation was used as thermal insulation on boilers, hot water tanks and heat exchangers in industrial, commercial, institutional and residential applications.

Chrysotile	A gray to white asbestos fiber type that is very long and flexible and easily woven into fabric. Chrysotile asbestos is used in over ninety percent of all industrial and commercial applications.
C.O.A.	Certificate of Analysis
Competent Person	A competent person is one who is capable of identifying existing asbestos hazards in the work place and who has the authority to take corrective action. Duties include establishing the negative-pressure enclosure, controlling entry and exit of all employees, etc. The competent person must be trained in all aspects of asbestos abatement and the contents of the OSHA asbestos standard. Competent persons shall have attended a comprehensive asbestos training course (such as an EPA training center course or equivalent).
Containment	An area which has been sealed with polyethylene sheeting to prevent contamination of asbestos to the outside environment.
Contractor	The state, any political subdivision of the state, a public authority or any other governmental agency or instrumentality thereof, self-employed person, company, unincorporated association, firm, partnership or corporation and any owner or operator thereof which engages in an asbestos project or employs persons engaged in an asbestos project.
Controlled Area	An area which can be separated off from occupied areas of the building for the purpose of controlling fiber release to the occupied areas of the building. This area is controlled so as to limit access and to ensure that, when accessed, all appropriate health and safety protocols are utilized.
Critical Barriers	At least two sheets of polyethylene used to seal off the work area to inhibit the movement of fibers.
Crocidolite	A blue-colored asbestos fiber resistant to chemical corrosion which led to its use in the manufacture of battery boxes, acid pumps, valves and gaskets.
Damage Factors Damaged Friable Surfacing or Miscellaneous	An assessment and description of the current physical condition of ACM. Either type of ACM, which has deteriorated or sustained physical injury to result in inadequate internal structure (cohesion) or is delaminated from the substrate (adhesion), or for any other reason lacks fiber cohesion or adhesion qualities.
Damaged or Significantly Damaged Thermal System Insulation ACM	Thermal insulation on pipes, boilers, tanks, ducts, or other thermal systems where the structural integrity has been lost or its covering in whole or in part is crushed, water stained, gouged, punctured, missing or not intact such that it is unable to contain fibers.
Decontamination	A specific series of steps, actions or procedures to clean a contaminated

Procedure(s)	area and/or workers using specialized equipment, such as a HEPA vacuum and/or decontamination enclosure system (Decon).
Decontamination Enclosure System	A series of connected rooms, separated from the work area and from each other by airlocks for the decontamination of workers, materials and equipment.
Decon	Please see decontamination enclosure system above.
Decorative Insulating Products	Asbestos-containing thermal insulation generally refers to sprayed and troweled asbestos coatings. These coatings were commonly applied to steel I-beams and decks and concrete ceilings and walls. The coatings were applied primarily for thermal insulation although in many cases, the coating also provided acoustical insulation and a decorative finish.
Delaminate	To separate into layers. To separate from surface.
Demolition	The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.
Disposal Bag	A six millimeter thick, leak-tight plastic bag used for transporting asbestos waste from work to disposal site. Each shall be labeled as follows:

**CAUTION
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH**

Disturbance Factors	Refers to those conditions which may enhance the possibility of a building occupant causing a fiber release episode.
Encapsulant	<p>A liquid material applied to asbestos-containing materials that surrounds or embeds asbestos fibers in an adhesive matrix to prevent fiber release. Three types of encapsulant are described below:</p> <ol style="list-style-type: none">1. Bridging Encapsulant: An encapsulant that forms a discrete layer or membrane on the surface of an asbestos matrix.2. Penetrating Encapsulant: An encapsulant that is absorbed by the asbestos matrix without leaving a discrete surface layer and binds the matrix components together.3. Removal Encapsulant: A penetrating encapsulant specifically designed to aid in the removal of asbestos-containing materials rather than for encapsulation.

Enclosure	The construction of an airtight, impermeable, permanent barrier around asbestos-containing material to control the release of asbestos fibers into the air.
Engineering Control	Any technique, procedure, or mechanical device, which performs the function of controlling the release of asbestos fibers during abatement activities and containing asbestos contamination to the work place.
Environmental Air Monitoring	The process of measuring the asbestos fiber content of a known volume of air during a specific period of time. The procedure differs from standard air sampling in that environmental air monitoring is usually conducted as part of, or subsequent to a building assessment for the presence of asbestos. The intent of the sampling is to evaluate air quality. The method of analysis is Transmission Electron Microscopy. (TEM)
E.P.A.	Environmental Protection Agency (Federal).
Equipment Decontamination Enclosure Equipment Room	That portion of a decontamination enclosure system designated for the controlled transfer of materials and equipment consisting of a washroom and a holding area. A contaminated area or room which is part of the worker decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.
Facility Component	Any pipe, duct, boiler, tank, reactor, turbine or furnace at or in a facility or any structural member of a facility.
Filter	A media component used in respirators to remove solid or liquid particles from the inspired air.
Fireproofing Sealer	A liquid applied penetrating emulsion which, when dry, will adhere to and firmly bind the fibers of the fireproofing material.
Friable Asbestos Material	Asbestos materials (containing more than one percent asbestos by weight) applied to ceilings, walls, structural members, piping, duct work or other parts of the building structure which, when dry, may be crumbled, pulverized or reduced to powder by hand pressure.

Glove Bag Technique	A method for removing friable asbestos-containing material from heating, ventilation and air conditioning (H.V.A.C.) ducts, short piping runs, valves, joints, elbows and other non-planer surfaces in a work area which is not fully contained. The glove bag assembly is a manufactured device consisting of a glove bag (constructed of ten millimeter transparent plastic), two inward-projecting long sleeve rubber gloves; one inward projecting water wand sleeve; an internal tool pouch; and an attached, labeled receptacle for asbestos waste. The glove bag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all asbestos fibers released during the removal process.
Hazard Assessment Factors	Circumstances that affect the potential for damage to ACM, including physical factors, occupancy characteristics and the likelihood of disturbance.
HEPA Filter	Is an abbreviation for a filter rating. It stands for High Efficiency Particulate Air. These filters have a filtration efficiency of 99.97% down to 0.3 microns. HEPA filters can be utilized on vacuum cleaners, respirators and negative pressure equipment.
HEPA Vacuum	A special, very powerful industrial vacuum cleaner which is equipped with HEPA filtration on its exhaust ports. This allows the vacuum to be used for picking up dry asbestos dust without exhausting asbestos particles into the air.
Homogeneous Area Report	A sample area report and a sketch of the sample area.
Homogeneous Materials	Materials defined as being uniform in texture, appearance and date of application.
Homogeneous Material Identification #	A specific number assigned by the inspector to identify materials by their homogeneous groupings. Also known as HID#.
H.V.A.C.	Heating, Ventilating and Air Conditioning.
Industrial Hygiene	Shall mean the science applied to the recognition, evaluation and control of those environmental factors or stresses arising in or from the work place which may cause sickness, impaired health and well being or significant discomfort and inefficiency among workers or among the citizens of the community.

Industrial Hygienist	<p>Shall mean an individual having a college or university degree or degrees in engineering, chemistry, or physics or medicine or related biological sciences who, by virtue of special studies and training, has acquired competence in industrial hygiene. Such special studies and training must have been sufficient in all of the above cognate sciences to provide the abilities:</p> <ol style="list-style-type: none">1. To recognize the environmental factors and to understand their effect on people and their well being; and2. To evaluate, on the basis of experience and with the aid of quantitative measurement techniques, the magnitude of these stresses in terms of ability to impair people's health and well being; and3. To prescribe methods to eliminate, control, or reduce such stresses when necessary to alleviate their effects.
Inspection	<p>The process of locating ACM, determining its condition and reporting the results.</p>
Lagging	<p>An English term for thermal insulation. The covering formed; the material used.</p>
Large Asbestos Project	<p>A project involving the removal, disturbance, repair, enclosure or encapsulation of 160 square feet or more of asbestos-containing material or 260 linear feet or more of asbestos-containing material on covered piping.</p>
Lung Cancer	<p>Inhaled airborne asbestos fibers can produce lung cancer independent of the onset of asbestosis. In most lung cancer patients, a cough or change in cough habit is found. A persistent chest pain unrelated to coughing is the second most common symptom.</p>
Mesothelioma	<p>A rare cancer of the thin membrane lining of the chest and abdomen. Most incidents of mesothelioma have been traced directly to a history of asbestos exposure. Common symptoms include shortness of breath, pain in the walls of the chest, or abdomen pain. Mesothelioma is always fatal.</p>
N.B.S.	<p>Natural Bureau of Standards (establishes lab accreditation for bulk sampling) controls or supervisors.</p>
Negative Pressure	<p>Air pressure lower than the surrounding areas, generally caused by exhausting air from a sealed space (work area).</p>

Negative Pressure Respirator	A respirator in which the air pressure inside the respiratory inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.
Negative Pressure Ventilation System	A system of negative air filtration used for controlling pressure airborne asbestos fibers in asbestos-contaminated areas. These especially designed machines move volumes of air through a three stage filtering system, including as a third stage, a HEPA filter. This action cleanses the air of submicron size asbestos fibers while generally lowering the pressure within the asbestos work area. This in turn creates a situation where air movement is towards the asbestos-contaminated area and out through the negative air filtration system thereby minimizing the likelihood of asbestos contamination to adjacent areas of the building.
NESHAPS	The National Emission Standards for Hazardous Air Pollutants (40 C.F.R. Part 61).
NIOSH	The National Institute for Occupational Safety and Health CDC - NIOSH, Building J N.E., Room 3007, Atlanta, Georgia 3033.
Non-asbestos Material	Materials manufactured without knowingly introducing asbestos-containing materials and containing a maximum of less than one percent asbestos by weight.
Occupied Area	Area of the work-site where abatement is not taking place and where personnel or occupants normally function or where abatement project workers are not using personal protective equipment.
O & M	Operations and Maintenance (Program).
Operations and Maintenance (O&M) Program	A program of training, work practices and periodic surveillance to maintain friable ACM in good condition, ensure clean-up of asbestos fibers previously released and prevent further release by minimizing and controlling friable ACM disturbance or damage.
Outside Air	The air outside buildings and structures.
Owner or Operator	Any person who owns, leases, operates, controls or supervises.
Paper Products	Roofing felts, gaskets and other paper products are manufactured on conventional papermaking machinery using asbestos fibers instead of cellulose. The asbestos fibers in most paper products are significantly bound to prevent fiber release, however, when the material is cut or torn the release of asbestos dust occurs.

Personal Air Monitoring	A method used to determine employees' exposure to airborne fibers. The sample is collected outside the respirator in the worker's breathing zone. This form of sampling is required by the OSHA asbestos standards (29 CFR 1910.1001).
Pipe Insulation	Preformed pipe coverings were used for thermal insulation on steam pipes in industrial, commercial, institutional and residential applications. This product is usually white and chalky in appearance and was typically manufactured in three foot long half-round sections joined around the pipe using plaster, saturated canvas, or metal strips.
PLM	Polarized Light Microscopy.
PPE	Personal Protection Equipment.
QC	Quality Control
Recommendation	A method including removal, encapsulation, enclosure, repair, O&M that protects human health and the environment from friable ACM.
Record Keeping	Systematic collection and management of data for future use.
Regulated Areas	Areas that exceed or may exceed airborne concentrations beyond permissible exposure limits of (0.2 f/cc).
Removal	The stripping of any asbestos-containing material from surfaces or components of a facility or taking out structural components in accordance with 40 CFR 61 Subparts A and M.
Renovation	Alteration of any facility components; (demolition activities are excluded).
Repair	Corrective action using recommended work practices to minimize the likelihood of fiber release from small damaged areas of asbestos ceilings, pipe and boiler insulation. The act of encapsulating or enclosing to seal which includes the use of non-asbestos-containing materials such as rewettable fibrous glass cloth. Repair may include, but is not limited to, enclosure of pipe and boiler insulation, spot removal and replacement with non-asbestos materials, and spot encapsulation of ceiling materials with minor damage.
Respirator	A protective device, which filters harmful atmospheres from the air breathed by people working in a contaminated area. The minimum respirator protection required for asbestos is a half-faced, dual-cartridge respirator with HEPA filters.

Respirator Fit-Test	The process of using an irritant gas or smoke to insure that each person's respirator seats in an airtight manner on his/her face.
Significantly Damaged Friable Surfacing or Miscellaneous ACM	Damaged friable material of either type where the damage is extensive and severe.
Strip	To remove friable asbestos materials from any part of the facility.
Structural Member	Any load-supporting member of a facility, such as beams and load-supporting walls, or any non-load-supporting member, such as ceiling and non-load-supporting walls.
Surveillance Program	A constant check of any changes observed in the ACM within a specific facility.
Textile Products	Asbestos yarn, cloth and other textiles are made using conventional textile manufacturing equipment. These materials are used in the manufacturing of fire-resistant curtains and blankets, protective clothing, electrical insulation, thermal insulation and packing seals.
Visible Emissions	Any emissions containing particulate asbestos material that are visibly detectable without the aid of instruments. This does not include condensed, uncombined water vapor.
Wet Wiping	The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops or other cleaning tools which have been dampened with water and which are then disposed of as asbestos-contaminated waste.
Work Area	Designated rooms, spaces or areas of the project where asbestos abatement takes place. Refers to the space with the plastic temporary enclosures. If a plastic barrier is breached, the work area shall be considered to extend to the next plastic barrier or sealing building component. To be considered outside of the work area, a location must be continuously separated through contamination procedures.
Worker Decontamination	That portion of a decontamination enclosure system designed for controlled passage of workers and other personnel and unauthorized visitors consisting of a clean room, a shower room and an equipment room separated from each other and from the work area by airlocks and curtained doorways.
Work-site	Premises where asbestos abatement is taking place.
29 CFR 1926.58	OSHA Asbestos Standard for the Construction Industry.

15. Asbestos Bulk Sample Locations