BID CLARIFICATION #2
March 19, 2019

DUE DATE:	**April 10, 2019**
TIME:	**2:00 p.m.**
PROJECT:	**Northeast Residence Halls Security Camera System**
PROJECT NO:	**300020**
LOCATION:	**University of Connecticut** **Capital Projects & Facilities Procurement** **3 Discovery Drive, Unit 6076** **Storrs, CT 06269** **Attn: Cesar Alonzo**

Please note the following information must be incorporated into your bid for the Northeast Residence Halls Security Camera System, Project #300020:

1) **The RFI deadline has been extended. Please submit your questions in the proper RFI form to cesar.alonzo@uconn.edu no later than 2:00PM pm on Friday, March 29, 2019**
2) **The Bid Due Date has been extended. Please submit your proposal no later than 2:00PM pm on Wednesday, April 10, 2019. Bids will be received at the Purchasing front desk, at 3 Discovery Drive, Storrs, CT 06269**
3) **The University will expect the lowest qualified responsible bidder to attend a Scope Review Meeting on Friday, April 12, 2019 at 10:00AM. Location of the meeting will be communicated to the successful contractor after bid opening, once all bids have been reviewed and tabulated.**
4) **Enclosed are:**
    a. **Pre-bid Meeting and the Walkthrough sign-in sheets**
    b. **Revised Page 8 of the Form of Proposal, regarding Section E. Alternates. Page has been revised for clarity. Replace original page with this revised page**
    c. **Addendum #1 issued by Christopher Williams Architects on March 14, 2019**

The University of Connecticut Bid Submission Requirements:

- **All bidders must submit their Form of Proposal along with all required forms and any associated bid clarifications as your firm's bid proposal. All required forms must be completed.**
- **All bidders must initial the bottom of each page within their bid proposal and associated Bid Clarifications attesting to the fact that you have reviewed, read, understood, and accepted the information and terms and conditions within, without exception.**
- **YOUR BID PROPOSAL *MAY BE* CONSIDERED NON-RESPONSIVE AND *MAY* NOT BE REVIEWED FOR FAILURE TO SUBMIT ALL OF THE ABOVE DOCUMENTATION (ALONG WITH ANY OTHER DOCUMENTATION DETAILED IN THE BID DOCUMENTS AND SPECIFICATIONS)**
- **All bid awards must be approved by the University of Connecticut. After review of all factors, terms and conditions, including price, the University of Connecticut reserves the right to reject any and all proposal, or any part thereof, or waive defects in same, or accept any proposal deemed to be in the best interest of the University of Connecticut**

University of Connecticut
Cesar Alonzo
Capital Projects & Facilities Procurement

Pre-Bid Meeting Sign In Sheet	University of Connecticut	UCONN PROCUREMENT SERVICES CAPITAL PROJECTS AND CONTRACT ADMINISTRATION	
Project Name:	Northeast Dormitories Security Camera System		
Project #:	300020		
Date:	3/14/2019		
Name	Company	Phone	Email
Cesar Alonzo ✓	UConn - CPFP	860-486-0012	cesar.alonzo@uconn.edu
Veronica Cook	UConn - USDP	860-486-0990	veronica.cook@uconn.edu
Chuck Brome ✓	UConn - UPDC	860-486-7102	charles.brome@uconn.edu
~~Victoria Novak~~	~~UConn - USDP~~	~~860-486-2619~~	~~victoria.novak@uconn.edu~~
Kathleen Susca ✓	UConn- CPFP	860-486-4649	kathleen.susca@uconn.edu
Robert Pupa	Alarming Ideas Video & Security	860-887-2121	rkpupa@gmail.com
Joshua Cronin	D/E/F Services Group, LTD	860-376-4896	JCronin@DEFServicesGroup.com
David Hatch	↓	↓	DHatch@DEFWiring.com
Joe Guerin	AZ Corporation	860-855-789	JGuerin@A-ZCorp.com
Tom Adamson	Custom Electric	860.643.7110	TAdamson@CustomElectricUSA.com
Chris Williams	CWA	203 7601814	cwilliams@cwarchitectsllc.com
Diane Nazarko	CWA	203- " "	DNazarko@ " " "

Pre-Bid Meeting Sign In Sheet	University of Connecticut	UCONN PROCUREMENT SERVICES CAPITAL PROJECTS AND CONTRACT ADMINISTRATION	
Project Name:	Northeast Dormitories Security Camera System		
Project #:	300020		
Date:	3/18/2019		
Name	**Company**	**Phone**	**Email**
Cesar Alonzo	UConn - CPFP	860-486-0012	cesar.alonzo@uconn.edu
~~Veronica Cook~~	~~UConn - USDP~~	~~860-486-0990~~	~~veronica.cook@uconn.edu~~
Chuck Brome	UConn - UPDC	860-486-7102	charles.brome@uconn.edu
~~Victoria Novak~~	~~UConn - USDP~~	~~860-486-2619~~	~~victoria.novak@uconn.edu~~
~~Kathleen Susca~~	~~UConn- CPFP~~	~~860-486-4649~~	~~kathleen.susca@uconn.edu~~
Tom Adamson	Custom Electric	860.643.7140	TAdamson@CustomElectricUSA.com
Neal Kerr	Security Tech	8607985444	nkerr@sti-ct.com
Don Williams	Security Tech	(720)556-0640	williams@sti-ct.com
Dave Hatch	D/E/F Sales	8602130081	Dhatch@Defwiring.com
Joe Guerin	A/Z Corporation	860 854-7899	JGuerin@A-ZCorp.com

E. SCHEDULE OF ALTERNATES: **REV 03/19/2019**

Provide Alternate Prices which reflect the work of the bid package under which this bid proposal was submitted and shall remain valid for the life of the project and include all costs for a complete installation. All pricing is inclusive of all costs of wages, applicable taxes, benefits, and applicable insurance. The Prices herein shall remain valid for the life of the project and include all costs for a complete installation. Alternate prices are good for both adds and deducts.

A. Alternate #1: ALL EXTERIOR CAMERAS FOR PARKING LOTS

- **a. Alternate: Wall and pole mounted exterior parking lot cameras shown on EXTERIOR CAMERA SCHEDULE on Drawing A001 and Parking Lot Sheets C101 through C107.**
- **b. Add: $_____**

B. Alternate #2: ALL WORK IN DINING HALL SERVICES

- **a. Alternate: All cameras and wiring at dining halls, kitchens and related serving and receiving areas (except for Base Bid data room work related to student dormitory entrances) at the following buildings: See Drawings for additional information.**

    1. **Historic Campus**
        - **a. Whitney Hall: Sheet 0127-2: Rooms 130 and C1B (East wall)**
    2. **North Campus**
        - **a. McConaughy Hall: All work on Sheet 0157-1**
    3. **Towers Dining Hall**
        - **a. All work on Sheets 0259-0 and 0259-1**
    4. **Daily Campus**
        - **a. Shippee Hall: All work on Sheet 0261-0**
        - **b. Buckley Hall: All work on Sheet 0295-0 except at Porch 027 & Vest. V0A:**
    5. **Northwest Quad**
        - **a. Building G: All work on Sheet 0436-1 AND 0436-1**

- **b. Add: $_____**

C. Alternate #3: EXTEND EXTRA WIRING IN FOR CONNECTION TO EXISITNG DATA RACKS

- **a. Alternate: Extend wiring to new data rooms at the following buildings. Provide 20 feet of extra wiring in loops for connection to existing data racks.**

    1. **Historic Campus**
        - **a. Hicks Hall: Sheet 0176-0**
        - **b. Grange Hall: Sheet 0177-0**

- **b. Add: $_____**

END OF ALTERNATES

Contractor's Initials:_____

CHRISTOPHER WILLIAMS ARCHITECTS LLC
85 Willow Street New Haven, CT 06511
203 776 0184 cwarchitectsllc.com

ADDENDUM #1

VIA EMAIL .....

Date: March 14, 2019

Project: **1714 – Northeast Dormitories – Security Camera System**
UCONN Project No: 300020

Re: Constructions Documents - Misc. changes and clarifications

Issued by: Christopher Williams Architects LLC
85 Willow Street, Building 54
New Haven, CT 06511
(203) 776-0184

To:			
	Charles Brome	UCONN	charles.brome@uconn.edu
	Cesar Alonzo	UCONN	cesar.alonzo@uconn.edu

Cc: FILE 1714

No. of pages:

Notice to all Bidders:
This Addendum forms a part of and modifies the original documents issued for bidding, dated February 15, 2019 to the extent noted herein.

This Addendum supersedes all previous Drawings, General Documents, Specifications, Instructions and Addenda pertaining to these items.

Acknowledge receipt of this Addendum on the submitted Bid.

CHRISTOPHER WILLIAMS ARCHITECTS LLC
85 Willow Street New Haven, CT 06511
203 776 0184 cwarchitectsllc.com

ATTACHMENTS

Project Manual Revisions

Item #1: INSERT/ADD- Division 2-

Sections listed in the Table of Contents that were inadvertently omitted from CD Bid set.

02 0800 - Asbestos Abatement
02 8400 – Remediation of Presumed PCD Containing Caulks

Item #2: Revised Architectural Drawings

- **Cover Sheet**
  Sheet list revision to include Addendum #1

- **A-0476-1 – Towers – Dining Hall , First Floor Plan**
  Replaces previous drawing sheet : 0259-0 of the same name.
  Added notes, camera mounting locations, ceiling heights and types for clarification.

- **A-0476-2 – Towers – Dining Hall , Second Floor Plan**
  Replaces previous drawing sheet : 0259-1 of the same name.
  No changes to drawing, sheet number only.

- **REPLACE 0436- 1- Towers – Quad Building G- First Floor Plan**
  Added notes, camera mounting locations, ceiling heights and types for clarification.

Drawing Revisions –
Item # 3 Clarifications:

Drawings not reissued. Notation changed on drawing to correct site plan reference.

0069-0	HISTORIC CAMPUS - HOLCOMB HALL - GROUND FLOOR PLAN	ADDENDUM 1	3/14/2019	KEYED IN SITE PLAN FOR CAMERA LOCATION
0295-0	DAILY CAMPUS - BUCKLEY HALL - GROUND FLOOR PLAN	ADDENDUM 1	3/14/2019	KEYED IN SITE PLAN FOR CAMERA LOCATION
0157-1	0157 HURLEY HALL, 0158 BALDWIN HALL, 0159 McCONAUGHY HALL - FIRST FLOOR	ADDENDUM 1	3/14/2019	KEYED IN SITE PLAN FOR CAMERA LOCATION

0258-0	TOWERS - BUILDING 6 - GROUND FLOOR PLAN	ADDENDUM 1	3/14/2019	KEYED IN SITE PLAN FOR CAMERA LOCATION
0469-0	HUSKY VILLAGE - BUILDING A - GROUND AND FIRST FLOOR PLANS	ADDENDUM 1	3/14/2019	KEYED IN SITE PLAN FOR CAMERA LOCATION
0254-0	TOWERS - BUILDING 2 - GROUND FLOOR PLAN	ADDENDUM 1	3/14/2019	KEYED IN SITE PLAN FOR CAMERA LOCATION
0473-0	HUSKY VILLAGE - BUILDING E - GROUND AND FIRST FLOOR PLANS	ADDENDUM 1	3/14/2019	KEYED IN SITE PLAN FOR CAMERA LOCATION

0257-0	TOWERS - BUILDING 5 - GROUND FLOOR PLAN	ADDENDUM 1	3/14/2019	KEYED IN SITE PLAN FOR CAMERA LOCATION

END OF ADDENDUM #1

SECTION 02 0800 - ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. The University of Connecticut (UCONN) is planning the installation of security cameras and associated equipment within multiple buildings at the Northeast Dormitories located at the University of Connecticut Storrs Campus Storrs, Connecticut (Site).

B. Asbestos containing material (ACM) testing has identified building materials in areas scheduled to be impacted by the installation of the security cameras, security camera cable and wiring and security camera equipment that contain asbestos.

C. The work covered in this section includes the minimum procedures that shall be employed during abatement of materials containing <1% asbestos and >1% asbestos.

D. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this Section, whether or not such work is specifically mentioned herein.

E. Chris Liberti of Eagle Environmental, Inc. is the designer of this Specification. Mr. Liberti is a State of Connecticut Department of Public Health (CTDPH) Licensed Asbestos Project Designer (License #000261).

F. The Base Bid asbestos abatement work of this project is listed on the Asbestos Containing Materials Scope of Work and Hazardous Materials Abatement Plans HM-1 through HM-8.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Section 028400 Remediation of Presumed PCB Containing Caulk

1.3 PROJECT DESCRIPTION

A. The work to be performed includes but is not limited to the proper removal, handling, and disposal of all ACM that will be impacted by renovation work within the project scope buildings located throughout the UCONN Storrs Campus. Descriptions of materials and approximate locations of ACM scheduled for removal are shown on the Hazardous Materials Abatement Plans HM-1 through HM-8.

B. Base Bid asbestos abatement work shall include but not be limited to the ACM identified in the following Table 1- Base Bid. The quantities given below are for reference only and are being provided to establish the order of magnitude of the

abatement project. Actual quantities may vary. It is the sole responsibility of the Asbestos Abatement Contractor (AAC) to visit the site, review the Contract Documents and determine the quantities of ACM to be removed when developing their bid. Location, estimated quantities, and abatement phasing plan of specific items noted in paragraph A above include:

TABLE I – BASE BID

NOTE	LOCATION	MATERIAL	ESTIMATED IMPACTED QUANTITY
HARTFORD HALL - NORTH CAMPUS			
1	Room 018 - Potential impact to AC ceiling plaster skim coat	AC ceiling plaster	< 3 SF
2	Room C0C - Impact to AC ceiling plaster skim coat at riser up	AC ceiling plaster (Above 1' x 1' glued on ceiling tile)	< 1 SF
3	Room C0C - Impact to AC ceiling plaster skim coat at ceiling mounted J hooks	AC ceiling plaster (Above 1' x 1' glued on ceiling tile)	10 SF
4	Room V0A - Potential impact to AC ceiling plaster skim coat at ceiling mounted J hooks	AC ceiling plaster (Above 1' x 1' glued on ceiling tile)	1 SF
5	West stair 1st floor - Impact to floor tile at riser down	12" x 12" Floor tile and mastic (<1%)	1 SF
6	West stair 1st floor ceiling - Impact to AC ceiling plaster skim coat at camera mount	AC ceiling plaster	1 SF
NEW LONDON HALL - NORTH CAMPUS			
7	Room V0A - Potential impact to AC ceiling plaster skim coat	AC ceiling plaster (Above 1' x 1' glued on ceiling tile)	1 SF
8	Room S1B - Potential impact to AC ceiling plaster skim coat at camera mount and cable routing	AC ceiling plaster	< 3 SF
TOLLAND HALL - NORTH CAMPUS			
9	Rooms RR1A and RR2A (Level 1 and 2 Restrooms) - Impact to AC flooring at floor penetrations	AC 9" x 9" floor tile and mastic	2 at 1 SF Each

NOTE	LOCATION	MATERIAL	ESTIMATED IMPACTED QUANTITY
LITCHFIELD HALL - NORTH CAMPUS			
10	Rooms RR1A and RR2A (Level 1 and 2 Restrooms) - Impact to AC flooring at floor penetrations	AC 9" x 9" floor tile and mastic	2 at 1 SF Each
FAIRFIELD HALL - NORTH CAMPUS			
11	Rooms RR1A and RR2A (Level 1 and 2 Restrooms) - Impact to AC flooring at floor penetrations	AC 9" x 9" floor tile and mastic	2 at 1 SF Each
12	Room C2A - Impact to AC ceiling plaster skim coat at ceiling mounted J hooks	AC ceiling plaster	<3 SF
NEW HAVEN HALL - NORTH CAMPUS			
13	Room S1B - Impact to AC ceiling plaster skim coat at riser up	AC ceiling plaster	1 SF
14	Room S2B - Potential impact to AC ceiling plaster skim coat at camera mount and cable routing	AC ceiling plaster	< 3 SF
15	Room S2B - Impact to flooring at floor penetration	12" x 12" Floor tile and mastic (<1%)	1 SF
BALDWIN HALL - NORTH CAMPUS			
16	Room S0A Entry, S0A, C0B - Impact to AC plaster on walls and ceiling at wall penetrations and ceiling mounted camera and cable routing locations	AC wall and ceiling plaster	10 SF
MCCONAUGHY HALL - NORTH CAMPUS			
17	Room 027- Impact to AC plaster on walls and ceiling at wall penetrations and cable routing locations	AC wall and ceiling plaster (walls PACM)	< 3 SF

NOTE	LOCATION	MATERIAL	ESTIMATED IMPACTED QUANTITY
HURLEY HALL - NORTH CAMPUS			
18	Room V0A - Impact to AC plaster skim coat on concrete ceiling and AC glue daubs at camera mount location	AC ceiling plaster and AC glue daubs	1 SF
19	Room C0A and Apartment 001B - Impact to AC plaster skim coat on concrete ceiling and AC glue daubs at ceiling penetration, camera mount and cable routing locations	AC ceiling plaster and AC glue daubs	35 SF
BALDWIN HALL - NORTH CAMPUS			
20	Rooms 105 and 103A - Impact to AC floor tile and mastic at floor penetrations and to AC wall plaster at wall penetrations and cable routing	AC wall plaster / AC floor tile and mastic	2 SF / 1 SF
21	Room 103A - Impact to AC wall and ceiling plaster at wall penetrations and ceiling mounted cable routing locations	AC wall and ceiling plaster	< 3 SF
22	Room V1B and 110 - Impact to AC ceiling plaster at camera mount and ceiling mounted cable routing locations	AC ceiling plaster (Above 1' x 1' glued on ceiling tile)	10 SF
MCCONAUGHY HALL - NORTH CAMPUS			
23	Room 116 - Impact to flooring at four (4) floor penetrations	12" x 12" Floor tile and mastic (< 1%)	4 locations at 0.25 SF Each
HURLEY HALL - NORTH CAMPUS			
24	Rooms V1A, C1A, 104, 102 - Impact to AC glue daubs associated with 1' x 1' ceiling tiles at camera mount and cable routing locations	AC glue daubs on concrete ceiling	20 SF

NOTE	LOCATION	MATERIAL	ESTIMATED IMPACTED QUANTITY
HANKS HALL - NORTHWEST QUAD (BUILDING F)			
25	Rooms S1A, S1B, C1A, C1B, C1C - Impact to wall and ceiling plaster at wall penetrations and wall and/or ceiling mounted cable routing and camera mount locations	Wall plaster and ceiling plaster (<1%)	25 SF
ROGERS HALL - NORTHWEST QUAD (BUILDING B)			
26, 27, 28	Rooms S1A, S1B, L1A - Impact to flooring at floor penetrations	12" x 12" floor tile and mastic (<1%)	3 SF
TOWERS BUILDING 2 - COLT HALL			
29	Rooms 003, 004, C0B1, C0A - Impact to glue daubs associated with 1' x 1' ceiling tiles at camera mounts and cable routing locations	Glue daubs on concrete ceiling (<1%)	25 SF
30	Room 101 - Impact to residual glue daubs on concrete ceiling at camera mounts and cable routing locations	Glue daubs on concrete ceiling (<1%)	3 SF
TOWERS BUILDING 4 - KELLER HALL			
31	Rooms 004, C0D, S0D1 - Impact to glue daubs associated with 1' x 1' ceiling tiles at camera mounts and cable routing locations	Glue daubs on concrete ceiling (<1%)	25 SF
32	Room 101 - Impact to residual glue daubs on concrete ceiling at camera mounts and cable routing locations	Glue daubs on concrete ceiling (<1%)	3 SF
TOWERS BUILDING 5 - BEECHER HALL			
33	Rooms C0A, C0B, 004 - Impact to glue daubs associated with 1' x 1' ceiling tiles at camera mounts and cable routing locations	Glue daubs on concrete ceiling (<1%)	25 SF

NOTE	LOCATION	MATERIAL	ESTIMATED IMPACTED QUANTITY
HOLCOMB HALL - HISTORIC CAMPUS			
42, 43	Rooms 108, 128A - Impact to AC flooring at floor penetrations	AC 9" x 9" floor tile and mastic	2 SF
44	Room S1C - Impact to AC flooring at floor penetration	AC clay floor tile grout	1 SF
GRANGE HALL - HISTORIC CAMPUS			
45, 46, 49	Rooms S1B, S1A, L0A - Impact to AC wall and ceiling plaster at penetrations, camera mounts and cable routing locations	AC wall and ceiling plaster	<3 SF
47	Room 109 and Closet – Impact to AC wall and ceiling plaster and floor tile and mastic at penetrations and cable routing locations	AC wall and ceiling plaster/AC floor tile and mastic	<3 SF/<3 SF
48, 50	Room C0A, VOB, C1A - Impact to AC wall and ceiling plaster at penetrations, camera mounts and cable routing locations	AC wall/ceiling plaster	50 SF
HICKS HALL - HISTORIC CAMPUS			
51, 52, 53	Rooms S0A, S0B, L1A - Impact to AC wall and ceiling plaster at penetrations, camera mounts and cable routing locations	AC wall and ceiling plaster	5 SF
54, 55	Rooms C0A, V0A, C1A-Closet - Impact to AC wall plaster at penetrations and wall mounted cable routing locations	AC wall plaster	35 SF
BUCKLEY HALL - DAILY CAMPUS			
56, 57, 58	Rooms 150, 247, 248 - Impact to textured paint on corrugated metal deck at ceiling penetrations	AC textured paint	3 SF

NOTE	LOCATION	MATERIAL	ESTIMATED IMPACTED QUANTITY
TOWERS BUILDING 5 - BEECHER HALL			
34	Room 101 - Impact to residual glue daubs on concrete ceiling at camera mounts and cable routing locations	Glue daubs on concrete ceiling (<1%)	3 SF
SPRAGUE HALL - HISTORIC CAMPUS			
35	Rooms 001, C0A, 003, C0B - Impact to AC ceiling plaster at camera mount and ceiling mounted cable routing locations	AC ceiling plaster	25 SF
36	Room C0C - AC ceiling plaster debris on suspended acoustical ceiling tiles and AC ceiling plaster at ceiling mounted cable routing	AC ceiling plaster and associated debris on suspended ceiling tiles; stabilization of remaining plaster at ceiling	250 SF
37	Rooms 032, C0H, 030, 025 - Impact to AC ceiling plaster at camera mount and ceiling mounted cable routing locations	AC ceiling plaster	35 SF
38	Room 137 - Impact to AC flooring at floor penetration	AC 9" x 9" floor tile and mastic	1 SF
WHITNEY HALL - HISTORIC CAMPUS			
39	Room V1B - Impact to AC damp proofing membrane between interior and exterior brick walls at all penetrations	AC damp proofing membrane	1 SF
40, 41	Rooms S18, 118 - Impact to AC acoustical ceiling plaster at camera mount and ceiling mounted cable routing locations	AC acoustical ceiling plaster	5 SF

A. The Note Number and Location in Table I correspond to the locations on the attached drawings where the ACM has been identified.

B. The quantities presented in Table I are estimates only. The quantity of ACM within the identified locations that will be impacted by the work will depend upon the final installation location of routing cables and penetrations as well as the quantity of fasteners required.

C. It is anticipated that all surface mounted conduit will be attached to existing ceiling systems in areas identified on construction drawings. The installation of all fasteners into or the penetration through the identified ACM shall be performed following the procedures outlined within this Specification.

D. Where less than three (3) square feet of ACM will be impacted within an area, spot repair procedures shall be utilized. Spot repair procedures shall work within an OSHA approved glove bag or mini enclosure.

E. Where greater than three (3) square feet of ACM will be impacted within an area, full containment procedures shall be utilized following all State and Federal regulations.

F. All waste materials, including materials containing <1% asbestos, shall be disposed of as regulated asbestos waste.

G. If it is determined that asbestos containing glue daubs or ceiling tiles glued to asbestos containing plaster will require complete removal, full containment procedures shall be utilized.

H. Fire caulk identified within limited work areas may be impacted during the scope of this Project. The caulks have been assumed to contain concentrations of polychlorinated biphenyls (PCB) greater than fifty (50) parts per million. Refer to Section 028400 Remediation of Presumed PCB Containing Caulk for additional requirements where caulk will be impacted during asbestos abatement work.

I. Within select buildings, asbestos-containing materials have been identified adjacent to the work areas but are not anticipated to be impacted by the renovation work. The following is a list of buildings associated with this project and the known asbestos-containing materials identified within the vicinity of the work:

1. North Campus Dormitories – 9”x9” floor tiles and associated mastic; skim coat plaster on ceilings.
2. Towers Dormitories - 9”x9” floor tiles and associated mastic; mudded pipe fitting insulation; glue daubs associated with 1’x1’ acoustical ceiling tiles (limited buildings).
3. Historic Campus - 9”x9” floor tiles and associated mastic; mudded pipe fitting insulation; thermal system insulation; acoustical ceiling plaster (Whitney Hall); skim coat plaster on concrete walls and ceiling (Hicks and Grange Halls).

J. The AAC and General Contractor shall maintain on Site and be familiar with the asbestos testing reports for each structure. The AAC and General Contractor shall stop work immediately in the event that an untested suspect asbestos-containing building material is encountered. All untested materials shall be presumed to be ACM until appropriate laboratory testing is performed.

K. The AAC shall determine the quantities of asbestos-containing materials requiring removal prior to submission of bid. Any discrepancies must be submitted in writing in RFI format to the facility operator for interpretation prior to submission of bid.

L. The AAC shall coordinate the work of the Asbestos Abatement Section with that of the work of the General Contractor (GC) and all other Contractors. It is the AAC's responsibility to become familiar with the GC's construction phasing plan for the project and to include the required remobilization fees to support the phasing. The AAC shall comply with the overall project schedule established by the GC.

M. The plaster wall and ceiling systems within several buildings have been determined to contain asbestos in concentrations of <1% to >1% and will be impacted by the installation of cabling and penetrations through select floors and walls. The quantity in the table above is an estimate only; it is the AAC's responsibility to verify actual quantities and locations of walls and ceilings scheduled to be impacted by renovations prior to submitting bid. The following information is provided to assist in developing quantities and bid:

1. Stabilization of asbestos-containing plaster walls/ceilings shall be performed where indicated within negative pressure enclosures. Stabilization shall mean mechanically fastening loose plaster and rendering plaster intact by reducing raised paint edges, filling cracks, holes and openings in plaster by applying an infill material and compound suitable for sanding to a paintable condition.
2. All penetrations and installation of fasteners through the identified plaster walls and ceilings shall be performed following procedures outlined in this Specification.
3. The removal of all suspended ceiling tiles below damaged asbestos-containing plaster ceilings shall be performed within negative pressure enclosures, whether or not identified in this Specification and is included in the AAC's scope of work. Refer to the Architect's demolition plans and locations of security system components for additional work that may impact the asbestos-containing plaster within the identified buildings.
4. Where plaster is scheduled to be impacted, additional quantities of plaster may require removal to facilitate repairs or to stabilize plaster at identified penetrations. The AAC shall be responsible for the repair of all plaster that may become damaged during abatement activities.

N. Asbestos has been identified in the thermal system insulation identified within many of the buildings associated with this project at the Site but is not anticipated to be impacted by the scope of the renovations. If the insulation will be impacted as a result of modifications to work locations, removal work shall be performed by the AAC following all state and federal regulations.

O. The AAC shall be responsible for all selective demolition work required to access the ACM and complete the abatement work under this Contract.

P. If rental equipment will be utilized during abatement activities, the AAC shall provide written acknowledgement to the rental equipment provider and copy the Owner's Consultant stating that equipment will be used during asbestos removal and will be thoroughly decontaminated prior to being returned.

1.4 QUALITY ASSURANCE

A. The AAC shall be licensed by the State of Connecticut Department of Public Health to perform asbestos abatement.

B. The Asbestos Abatement Supervisor(s) and Asbestos Abatement Workers shall be accredited in accordance with EPA regulation 40 CFR Part 763, subpart E, Appendix

C. ; and shall be licensed by the State of Connecticut Department of Public Health.

1.5 APPLICABLE CODES

A. The AAC shall be solely responsible for conducting this project and supervising all work in a manner that will be in conformance with all federal, state and local regulations and guidelines pertaining to asbestos abatement. Specifically, the AAC shall comply with the requirements of the following:

1. USEPA NESHAP Regulations (40 CFR 61, Subpart M);
2. OSHA Asbestos Regulations (29 CFR 1910.1001 and 1926.1101);
3. Connecticut DEEP Regulations (Section 22a-209-8 (i) and Section 22a-220 of the Connecticut General Statutes);
4. Connecticut DPH Standards for Asbestos Abatement Sections 19a-332a-1 to 19a-332a-16;
5. Connecticut DPH Licensure and Training Requirements Section 20-440-1 to Section 20-440-9.
6. Connecticut Basic Building Code (BOCA);
7. Connecticut Fire Safety Code (NFPA);
8. Local health and safety codes, ordinances or regulations pertaining to asbestos remediation and all national codes and standards including ASTM, ANSI, and Underwriter's Laboratories.

1.6 EXEMPTIONS

A. This project was designed by a licensed State of Connecticut Department of Public Health (CTDPH) Asbestos Abatement Designer. Any deviation from these specifications requires the written approval and authorization from the Designer.

B. Any deviations from CTDPH Standards for Asbestos Abatement Sections 19a-332a-1 through 19a-332a-16 and CTDPH Asbestos-Containing Materials in schools regulations 19a-333-1 through 19a-333-13 must be requested in writing and must be approved in writing by CTDPH.

1.7 NOTIFICATIONS, POSTINGS AND PERMITS

A. The AAC shall make the following notifications and provide the submittals to the following agencies prior to the commencement of removal work. This notification is required ten (10) days (10 calendar days for CT DPH and 10 business days for USEPA) prior to the start of the abatement project for each building:

1. State of Connecticut
   Department of Public Health
   Indoor Air Program, MS #12 AIR
   410 Capitol Avenue
   P.O. Box 340308
   Hartford, CT 06134-0308

2. USEPA New England Headquarters
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Note: Effective December 14, 2017, EPA needs to be notified directly for all asbestos abatement projects involving >160 square feet or >260 linear feet or 35 cubic feet of ACM.

B. The minimum information included in the notification includes:

1. Name and address of building owner/operator
2. Building location
3. Building size, age, and use
4. Amount of friable asbestos
5. Work schedule, including proposed start and completion date
6. Asbestos removal procedures to be used
7. Name and location of disposal site for generated asbestos waste, residue, and debris

C. The AAC may submit a single ten day notification to CT DPH for the project with a list of buildings, building addresses and start and completion dates for each building. The AAC shall be required to submit the initial $100 fee plus one percent (1%) of the total abatement cost for the project. Ten day notifications shall be posted at each building associated with the project where greater than 10 linear and 25 square feet of ACM is to be removed.

1.8 WORK SITE SAFETY PLAN

A. The AAC shall establish a set of emergency procedures and shall post them in a conspicuous place at the work site. The safety plan should include provisions for the following:

1. Evacuation of injured workers.
2. Emergency and fire exit routes from all work areas.
3. Emergency first aid treatment.
4. Local telephone numbers for emergency services including ambulance, fire, and police.
5. A method to notify workers in the event of a fire or other emergency requiring evacuation of the building.
6. Confined space entry program.
7. 24 hour site security program.

B. The AAC is responsible for training all workers in these procedures.

1.9 ALTERNATIVE WORK PRACTICES (AWP)

A. Any deviations from these specifications require the written approval and authorization from the Owner and Consultant.

B. No AWPs have been approval for this project.

C. Any deviations from CTDPH Standards for Asbestos Abatement Sections 19a-332a-1 through 19a-332a-16 must be requested in writing to the Owner prior to submission for approval by CTDPH. Approval by CTDPH shall be submitted in writing to the Owner and the Owner's Consultant prior to the start of any work at the Site.

1.10 RE-OCCUPANCY CLEARANCE

A. Re-occupancy air sampling will be required within all interior work areas where greater than three (3) linear or three (3) square feet of ACM is removed. The Owner's Consultant reserves the right to collect re-occupancy air samples within spot repair work areas where less than three (3) linear or three (3) square feet of ACM is removed.

B. The Owner shall be responsible for payment of the sampling and analysis of initial final air clearance samples only. The AAC shall be responsible for payment of all costs associated with the collection and analysis of additional final air clearance samples for areas that failed the initial test. This shall also include the laboratory charges for preparation of slides for samples that are "overloaded" and cannot be analyzed due to heavy particulate loading.

C. Phase Contrast Microscopy (PCM) air samples will be analyzed by the Owner's Consultant. Transmission Electron Microscopy (TEM) air samples are not anticipated to be utilized for this project.

1.11 CONTROL OVER REMOVAL WORK

A. All AAC work procedures shall be monitored by the AAC's "Competent Person" to ensure that areas outside the designated work locations do not become contaminated. The following controls shall be implemented each working day to help ensure this:

1. Prior to work on any given day, the AAC's designated "Competent Person" shall evaluate job tasks with respect to safety procedures and requirements specified to prevent contamination of the building or the employees. This includes a visual survey of the work area and the decontamination enclosure systems.

B. The AAC shall maintain control of and be responsible for access to all work areas to ensure the following requirements:

1. Nonessential personnel are prohibited from entering the area;
2. All approaches to the work area are properly posted with asbestos warning signs;
3. All authorized personnel entering the work area shall sign the work area access log;
4. All authorized personnel entering the work area shall read the "worker protection procedures" which are posted at the entry points to the enclosure system, and shall be equipped with properly fitted respirators and protective clothing;
5. All personnel who are exiting from the decontamination enclosure system or mini containment shall be properly decontaminated;
6. Asbestos waste that is taken out of the work area must be properly bagged and labeled in accordance with these specifications. The surface of the bags shall be decontaminated. Asbestos waste leaving the enclosure system must be transported off site or immediately placed in locked, posted temporary storage on site, and be removed within 24 hours of the project conclusion.

7. Any material, equipment, or supplies that are brought out of the decontamination enclosure system shall be cleaned and decontaminated by wet cleaning and/or HEPA vacuuming of all surfaces.

1.12 SITE SECURITY

A. The AAC shall be responsible for the security of regulated areas. Post asbestos abatement warning signs at all approaches and entrances to the work area including but not limited to the waste load out, the worker decontamination system and negative air exhausts. The AAC shall have a supervisor monitoring the entrance of the worker decontamination system during abatement work.

B. The supervisor shall maintain a work area access log for each work area. The access log shall document each person that enters the work area, the time entered and the time exited. Copies of the work area access logs shall be provided to the Owner's Consultant during the course of the project.

C. The AAC Asbestos Supervisor shall not supervise active abatement in more than two (2) buildings at a time. The AAC shall provide additional Asbestos Supervisors for the project as necessary to comply with this requirement.

1.13 PERSONNEL PROTECTION

A. Prior to commencing work, instruct all workers in all aspects of personnel protection, work procedures, emergency procedures use of equipment including procedures unique to this project.

B. Respiratory protection shall meet the requirements of OSHA as required in 29 CFR 1910.134,29 CFR 1926.11,29 CFR 1926.62 and the requirements of the CTDPH Standards for Asbestos Abatement (19a-332a-1 through 16) A formal respiratory protection program must be implemented in accordance with 29 CFR 1926.1101 and 29 CFR 1910.134. The AAC shall conduct exposure assessment air sampling, analysis and reporting to ensure the workers are using appropriate respiratory protection.

C. The AAC shall provide appropriate respiratory protection for each worker and ensure usage during potential asbestos exposure.

D. The AAC shall provide respirators from among those approved as being acceptable for protection by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part II.

E. The AAC shall provide an adequate supply of filter for respirators in use.

F. Minimum respiratory protection shall be as follows:

Air borne Asbestos Level:	Required Respirator:
Not in excess of 1 f/cc (10 x PEL)	Half mask air purifying or otherwise as required respirator other than a disposable respirator, equipped with HEPA P 100 filters.

Not in excess of 5 f/cc (50 x PEL)	Full facepiece air purifying respirator equipped with HEPA P 100 filters.
Not in excess of 10 f/cc (100 x PEL)	Any powered air purifying respirator equipped with HEPA P 100 filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1000 x PEL)	Full facepiece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1000 x PEL)	Full facepiece supplied air respirator unknown operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

Notes:

1. Respirators assigned for higher airborne fiber concentrations may be used at lower concentrations.
2. A high efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.
3. In addition to the selection criteria in paragraph 1.13F, the AAC shall provide a tight-fitting powered air purifying respirator equipped with high efficiency filters or a full facepiece supplied air respirator operated in the pressure demand mode equipped with HEPA egress cartridges or an auxiliary positive pressure self-contained breathing apparatus for all employees within the regulated area where Class I work is being performed for which a negative exposure assessment has not been produced and the exposure assessment indicates the exposure level will not exceed 1 f/cc as an 8-hour time weighted average. A full facepiece supplied air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus shall be provided under such conditions if the exposure assessment indicates exposure levels above 1 f/cc as an 8 hour time weighted average.
4. If compresses air is used for supplied air respirators, this air will meet the requirements for grade D breathing air as described by the Compresses Gas association commodity Specification G-7.1-1966. The compressor will be equipped with the necessary safety devices and sorbends/filters, and be situated to avoid entry of contaminated air. In addition, the compressor will be equipped with alarms to indicate failure or overheating, and additional alarms for indicating the presence of carbon monoxide. Air line couplings will be incompatible with outlets for other gas system to prevent inadvertent servicing of airline respirators with non-respirable gases.

G. The AAC shall provide and require all workers to wear protective clothing in Work Areas where asbestos fiber concentration exceeds permissible limits established by the OSHA or where contamination exists. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings.

H. The AAC shall ensure that all authorized persons entering contaminated areas are equipped with proper respirators and protective clothing.

1.14 WORKER PROTECTION PROCEDURES

A. The AAC shall monitor airborne asbestos concentrations in the workers' breathing zone to establish conditions and work procedures for maintaining compliance with OSHA Regulations 29 CFR 1910.1001 and 1926.1001.

B. The AAC's air sampling professional shall document all air sampling results and provide all air sampling reports as soon as feasible. OSHA air monitoring results shall be posted at a conspicuous location at the job site.

C. All personnel air sampling shall be conducted in accordance with methods described in OSHA standards 29 CFR 1910.1001 and 1926.1101.

1.15 SUBMITTALS

A. The AAC will submit two (2) copies of the following submittals to the Owner's Consultant ten (10) calendar days prior to the commencement of removal work:

1. AAC's construction schedule
2. Shop drawings showing work area configuration with decontamination facility, negative air exhaust locations and estimated quantities of ACM impacted within each area
3. Waste generator label to be used with Owner and Contractor information; labels to be building specific
4. Waste shipment and disposal form to be used with generated information
5. Waste hauling contractor
6. Asbestos abatement training, licenses and medical records of each employee who may be on the project Site
7. The qualifications of the hygiene firm that the AAC proposes to use for this project to analyze AAC employee OSHA monitoring samples
8. Copies of all notifications and permits
9. Copies of the written respirator plan compliant with the most current issue of OSHA 1910.134
10. Copies of all SDS sheets for materials to be used on site
11. Work Site Safety Plan
12. Negative Exposure Assessment
13. AAC's State of Connecticut Asbestos Contractor license
14. State and EPA Notifications

B. The AAC will submit the following to the Consultant during the work:

1. Results of all personal air sampling
2. Certificate, training, medical, and fit-test records for new employees to start work (24 hours in advance of work)
3. AAC site logs and containment access logs
4. Revised Notifications, if any
5. Completed Waste Shipment Records (WSR) for all asbestos waste transported from the Site; WSRs shall be provided for each individual building by address.

C. The following shall be submitted to the Consultant at the completion of work:

1. Completed copies of WSR per building signed by the landfill owner/operator
2. Remaining personal air sampling results and site logs

1.16 DEFINITIONS

A. ABATEMENT - Procedures to control fiber release from asbestos-containing materials; includes removal, encapsulation, and enclosure.

B. AIRLOCK - A system for permitting ingress and egress while assuring air movement to a contaminated area from an uncontaminated area. Two curtained doorways spaced a minimum of six feet apart can form an airlock.

C. AIR MONITORING - The process of measuring the fiber concentration of an area or of a person.

D. AIR SAMPLING PROFESSIONAL – A licensed professional capable of developing air sampling protocols and conducting air monitoring and analysis. This individual should be an industrial hygienist, an environmental scientist, or an engineer with experience in asbestos air monitoring and worker protection equipment and procedures. This individual should have demonstrated proficiency in conducting air sample collection in accordance with 29 CFR 1910.1001 and 1926.1101.

E. ADEQUATELY WETTED - means sufficiently mixed or coated with water, amended or an aqueous solution; or the use of removal encapsulant to prevent dust emissions.

F. AMENDED WATER - Water to which a surfactant has been added.

G. ASBESTOS - The name given to a number of naturally occurring fibrous silicates. This includes the serpentine forms and the amphiboles and includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite, or any of these forms that have been chemically altered.

H. ASBESTOS ABATEMENT - Means the removal, encapsulation, enclosure, renovation, or repair of asbestos-containing materials except activities that are related to the removal or repair of asbestos cement pipe and are performed by employees of a water company as defined in Section 25-32a of the Connecticut General Statutes.

I. ASBESTOS ABATEMENT SITE SUPERVISOR - Means any licensed individual who is employed or engaged by an AAC to supervise an asbestos abatement project.

J. ASBESTOS ABATEMENT WORKER - Means any employee of an AAC who engages in asbestos abatement.

K. ASBESTOS CONSULTANT - Any person who engages in any activity directly involved with asbestos consultation services and who has been issued a certificate by the commissioner and a license by the department.

L. ASBESTOS CONTAINING MATERIAL (ACM) - A material composed of asbestos of any type and in an amount greater than one percent be weight, either alone or mixed with other fibrous or non-fibrous material.

M. ASBESTOS CONTRACTOR (AAC) – The entity engaged in asbestos abatement who is licensed by the State of Connecticut Department of Public Health to perform asbestos abatement and whose employees actually perform asbestos abatement work.

N. ASBESTOS CONTROL AREA - An area where asbestos abatement operations are performed which is isolated by physical boundaries to prevent the spread of asbestos dust, fibers, or debris.

O. ASBESTOS FIBERS - Those particles with a length greater than five (5) microns and a length to diameter ratio of 3: 1 or greater.

P. ASBESTOS PERMISSIBLE EXPOSURE LIMIT (PEL) - The maximum airborne concentration of asbestos fibers to which an employee is allowed to be exposed. The current level established by OSHA is 0.1 fibers per cubic centimeter of air as an eight (8) hour time weighted average and 1.0 fibers/cc averaged over a sampling period of 30 minutes as an excursion limit. The AAC is responsible for maintaining work areas in a manner that this standard is not exceeded.

Q. ASBESTOS PROJECT MONITOR - The licensed asbestos consultant who is certified as a project monitor and who functions as an on-site representative of the facility Owner or other persons by over-seeing the activities of the asbestos abatement contractor.

R. AUTHORIZED VISITOR - Any person authorized by the Owner to enter the building.

S. BUILDING OWNER - For this Contract only, the building Owner is the University of Connecticut.

T. CLEAN ROOM - An uncontaminated area or room, which is a part of the workers' decontamination enclosure with provisions for storage of workers' street clothes and protective equipment.

U. CLEARANCE SAMPLING - Final air sampling performed aggressively after the completion of the abatement project in a regulated area. Five (5) air samples collected by the asbestos abatement project monitor inside the work area, and having a fiber concentration of less than 0.010 fibers/cc of air will denote acceptable clearance sampling by Phase Contrast Microscopy. Five air samples collected by the asbestos abatement project monitor having an average asbestos concentration of less than 70 asbestos structures mm/sq. will denote acceptable clearance sampling for Transmission Electron Microscopy.

V. COMMISSIONER - Means the Commissioner of the Connecticut Department of Health Services or his/her authorized agent.

W. COMPETENT PERSON - A representative of the AAC who is capable of identifying an asbestos hazard and who has the authority to take prompt corrective measures to eliminate the hazard during asbestos removal.

X. CONFINED SPACE - A work zone where access and egress are restricted, a potential for gaseous vapors to accumulate exist, an area where or space where there is a threat of engulfment, an area or space where a potential for low oxygen content exists.

Y. DECONTAMINATION ENCLOSURE SYSTEM - A series of connected areas, with curtained doorways between any two adjacent areas, for the decontamination of workers and equipment. A decontamination enclosure system always contains at least one airlock and is adjacent and connected to the regulated area, where possible.

Z. DEPARTMENT - The Department of Public Health.

AA. EPA - Means the U.S. Environmental Protection Agency.

BB. ENCAPSULANT - A liquid material that can be applied to asbestos-containing material that controls the possible release of asbestos fibers from the materials by either creating a membrane over the surface (bridging encapsulant) or penetrating the material and binding its components together (penetrating encapsulant).

CC. ENCAPSULATION - A specified asbestos remediation strategy involving the application of an encapsulant to asbestos containing materials to control the release of asbestos fibers into the air.

DD. EQUIPMENT DECONTAMINATION ENCLOSURE - That portion of a decontamination enclosure system designed for controlling the transfer of materials and equipment, typically consisting of a washroom and a holding area.

EE. EQUIPMENT ROOM - A contaminated area or a room, which is part of the workers' decontamination enclosure with, provisions for storage of contaminated clothing and equipment.

FF. FACILITY - Means any private or public building or structure including but not limited to those used for institutional, residential (including single family homes), commercial or industrial purposes and vessels while ashore or in dry-dock.

GG. FIXED OBJECT - A unit of equipment or furniture in the work areas which cannot be removed from the work area.

HH. FRIABLE ASBESTOS MATERIAL - Any material that contains more than 1% asbestos by weight, that can be crumbled, pulverized or reduced to powder by hand pressure.

II. GLOVE BAG - An impervious 6-mil thick plastic bag-like enclosure affixed around asbestos containing material, with glove-like appendages through which materials and tools may be handled.

JJ. HAZARDOUS MATERIALS ABATEMENT CONTRACTOR (AAC) - Means the Asbestos Contractor, Lead Based Paint Abatement Contractor and or PCB/DEHP and Mercury Vapor Lighting Removal Contractor.

KK. HEPA FILTER - A high efficiency particulate air (HEPA) filter in compliance with ANSI Z9.2-1979.

LL. HEPA VACUUM EQUIPMENT - Vacuum equipment with a HEPA filter system for filtering the effluent air from the unit.

MM. HOLDING AREA - An air-locked chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.

NN. INSPECTOR (ASBESTOS ABATEMENT PROJECT MONITOR)- An individual, retained by the Building Owner, who is a "qualified asbestos abatement project monitor" as defined by the State of Connecticut Department of Public Health, and who will be responsible for monitoring the AAC during the asbestos abatement project.

OO. MINI CONTAINMENT – A small asbestos work area within a facility consisting of air tight barriers or glove bag where not more than three (3) linear feet or three (3) square feet of asbestos-containing material will be removed.

PP. MOVABLE OBJECT - A unit of equipment or furniture in the work area, which can be removed from the work area.

QQ. NEGATIVE AIR FILTRATION EQUIPMENT - A portable local exhaust system equipped with HEPA filtration used to create negative pressure in a regulated area (negative with respect to adjacent unregulated areas) and capable of maintaining a constant, low velocity air flow into regulated areas from adjacent unregulated areas.

RR. OWNER'S REPRESENTATIVE -The Asbestos Consultant for the project.

SS. NESHAPS - National Emissions Standard for Hazardous Air Pollutants regulations enforced by the EPA.

TT. PLASTICIZE - To cover floors and walls with plastic sheeting as specified herein.

UU. SEPARATION BARRIER - A rigid barrier sealed with two (2) layers of six (6) mil polyethylene sheeting installed between an occupied area and the asbestos abatement work area.

VV. SHOWER ROOM - A room between the clean room and the equipment room in the workers' decontamination enclosure with hot/cold running water and suitably arranged for employee showering during decontamination. The shower room is located in an airlock between the contaminated area and the clean area.

WW. SPOT REPAIR – Any asbestos abatement in a facility involving no more than three (3) linear feet or three (3) square feet of asbestos-containing material.

XX. STRIPPING - Removing asbestos materials from any structural member, pipe surface, HVAC, or other equipment.

YY. WASHROOM - A room between the work area and the holding area in the equipment decontamination enclosure with provisions for storage of contaminated clothing and equipment.

ZZ. WET CLEANING - The process of reducing asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools, which have been dampened by amended water, and by then disposing of these cleaning items as asbestos contaminated waste.

AAA. WORK AREA - Designated rooms, spaces, or areas of the project in which asbestos abatement actions are occurring and which may become contaminated as a result of such abatement actions. The work area must be totally self-contained by sealing, plasticizing and equipping the area with a decontamination enclosure system.

BBB. WORKER DECONTAMINATION ENCLOSURE SYSTEM - That portion of a decontamination enclosure system designated for controlled passage of workers, other personnel, and authorized visitors, typically consisting of a clean room, a shower room, and an equipment room.

CCC. WORK STOPPAGE CLEANUP PROCEDURE - A process following the issuance of a written stop work order, whereby the AAC thoroughly cleans and decontaminates the work area, the decontamination enclosure system, and any other areas of the building affected by the removal project, to the satisfaction of the Asbestos Project Monitor.

DDD. WORK ZONE - The area of the decontamination enclosure system where asbestos is being removed.

1.17 PRECONSTRUCTION MEETING

A. The AAC shall be required to attend a preconstruction meeting with his site supervisor, project manager and any subcontractor they employ on site for the purpose of reviewing the contract requirements.

B. Project submittals shall be provided by the AAC prior to the pre-construction meeting.

PART 2 - MATERIALS AND EQUIPMENT

2.1 MATERIALS

A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be decontaminated or disposed of as asbestos waste.

C. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating 4 or 6 mil.

D. Polyethylene disposable bags shall be true six (6) mil with preprinted labels.

E. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

F. Surfactant (wetting agent) - shall consist of fifty (50) percent polyoxyethylene ether and fifty (50) percent polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one (1) ounce surfactant to five (5) gallons of water or as directed by manufacturer.

G. Impermeable containers are to be used to receive and retain any asbestos-containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with OSHA Standard 29 CFR 1926-1101.) Containers must be both air and watertight.

H. Labels and signs, as required by OSHA Standard 29 CFR 1926.1001 will be used.

I. Encapsulant shall be bridging or penetrating type which has been found acceptable to the Consultant. Usage shall be in accordance with manufacturer's printed technical data.

J. Disposal labels shall be preprinted on self-adhesive labels with the generator name, abatement site and AAC's name and address. Labels shall not be photocopied and applied with spray adhesive.

K. Glove bags shall be a minimum of 6-mil thick and shall comply with OSHA standards.

2.2 TOOLS AND EQUIPMENT

A. Provide suitable tools for asbestos removal, encapsulation and enclosure.

B. The AAC shall have air monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

C. The AAC shall have available sufficient inventory on site for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape, and air filters.

D. The AAC shall provide temporary electrical power sources such as generators (when required).

E. The AAC shall have available shower stalls and sufficient hose length and a drain system equipped with 5-micron filters.

F. Exhaust air filtration system units shall contain HEPA filter(s) capable of sufficient air exhaust to create negative pressure of 0.02 inches of water within the enclosure with respect to the outside area. Equipment shall be checked for proper operation by smoke tubes or a differential pressure gauge before the start of each shift and at least twice during the shift. Adequate exhaust air shall be provided for a minimum of four (4) air changes per hour within the enclosure. No air movement system or air filtering equipment shall discharge unfiltered air outside.

G. Vacuum units, of suitable size and capacities for project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

H. The AAC will have reserve exhaust air filtration system units in order to maintain negative air filtration in the event that a unit malfunctions during use.

I. The AAC shall have available and use recording manometers to monitor pressure differential between the work area and occupied areas of the building. A minimum negative pressure differential of 0.02 inches of water column shall be maintained.

J. The AAC shall have available spray equipment capable of mixing a wetting agent with water and capable of generating sufficient pressure and volume and having sufficient hose length to reach all areas with asbestos.

K. HEPA filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports where asbestos-containing materials may be disturbed.

L. Drills shall be equipped with shrouds specifically designed to adapt to vacuum nozzles. Vacuum units attached to the drill shroud shall be of suitable size and capacities for the project and shall be fitted with HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

PART 3 - EXECUTION

3.1 INTERIOR WORK AREA PREPARATION (>3 LF/SF ACM) - GENERAL

A. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All temporary installations are to be made by a licensed electrician.

B. Shut down electrical power, including receptacles and light fixtures. Lock and tag out circuits associated with the electrical components in the work area(s). Under no circumstances during the abatement procedures will lighting fixtures be permitted to be energized.

C. Shut down and/or isolate heating, cooling, and ventilation air systems or zones to prevent contamination and fiber dispersal to other areas of the structure. Lock and tag out circuits associated with heating and cooling units. During the work, vents within the work area shall be sealed with duct tape and polyethylene sheeting.

D. Seal off all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grills, diffuser, and any other penetration of the work areas, with polyethylene sheeting minimum of six (6) mil thick sealed with duct tape. This includes doorways and corridors which will not be used for passage during work areas and occupied areas. Install 5 micron water filtration socks in all floor drains and toilet waste drains prior to sealing.

E. Where friable asbestos containing materials are present, establish worker decontamination facility, air tight barriers and negative air filtration prior to conducting pre-cleaning activities. Pre-clean fixed objects within the work areas, using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and enclose with minimum six (6) mil plastic sheeting sealed with duct tape.

F. Pre-clean movable objects within the work areas, using HEPA vacuum equipment and wet cleaning methods as appropriate. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

G. After HEPA vacuum pre-cleaning, conduct work area preparation in accordance with this Specification section.

H. Where fixed walls are not used, one layer of six (6) mil polyethylene sheeting will be applied to a rigid framework of wood, metal, or PVC.

I. Install two (2) layers of four (4) mil polyethylene wall sheeting over all wall surfaces and air tight barriers (where wall materials are not being removed as ACM). All overlaps shall be sealed with tape or spray adhesive.

J. Spray glue shall not be permitted on walls to remain. Protect all walls from damage during installation and removal of wall sheeting and associated tape. The AAC shall be responsible for all repairs to walls damaged by installation or removal of wall sheeting and associated tape. Repairs to asbestos-containing plaster and associated visual inspections and re-occupancy air testing (if required) shall be at the AAC's expense.

K. Cover all floors in the work area with two (2) layers of six (6)-mil polyethylene sheeting (where flooring materials are not being removed as ACM). Extend the polyethylene flooring a minimum of twelve (12) inches up the walls. Ensure that the wall sheeting overlaps the floor sheeting from the top.

L. Maintain emergency and fire exits from the work area, or establish alternative exits satisfactory to fire officials.

M. Create pressure differential between work areas and occupied areas by the use of acceptable negative air pressure equipment. The AAC shall ensure required negative air pressure is obtained throughout the containment and the total volume of air within the work area is changed every fifteen (15) minutes.

N. Install and maintain a manometer for each negative pressure enclosure where Class I work will be performed.

O. Post all approaches to each work area with Asbestos Warning signs. Warning signs shall be of size and type that are easily readable and are visible from all approaches to the work areas.

P. Establish work area access log at clean room to worker decontamination system.

3.2 INTERIOR WORK AREA PREPARATION (<3 LF/SF ACM) - GENERAL

A. Establish a regulated work area in consultation with the Owner and the General Contractor prior to the start of any work and isolate the area to prevent unauthorized entry.

B. Spot repair work shall not involve the abatement of greater than three (3) linear feet of three (3) square feet of ACM. Spot repair work shall be performed within a mini containment or glove bag.

C. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All temporary installations are to be made by a licensed electrician.

D. Where necessary, shut down electrical power, including receptacles and light fixtures.

E. Shut down and/or isolate heating, cooling, and ventilation air systems or zones to prevent contamination and fiber dispersal to other areas of the structure. Lock and tag out circuits associated with heating and cooling units. During the work, vents within the work area shall be sealed with duct tape and polyethylene sheeting.

F. Seal off all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grills, diffuser, and any other penetration of the work areas, with polyethylene sheeting minimum of six-mil thick sealed with duct tape. This includes doorways and corridors which will not be used for passage during work areas and occupied areas.

G. For mini containments, construct an air lock between the work area and non work area at the limits of each work area on a given day. Entry chamber shall consist of two (2) layers of six-mil polyethylene sheeting with curtained doorways. Install HEPA vacuum within entry chamber for worker decontamination.

H. Install a six-mil polyethylene drop cloth on the floor under each area where holes will be drilled. Drop cloths shall be a minimum of 8'x8' in size. Extend the drop cloth to 1' up the wall to contain all the debris.

I. Provide hand held spray equipment with surfactant. One sprayer shall be required in each work area. Sprayers shall be inside the regulated work area as part of the pre-commencement inspection.

J. Install glove bags in accordance with OSHA Asbestos in Construction Standard 29 CFR 1926.1101.

K. Post transport vehicles with asbestos warning signs during loading and unloading.

L. Post all approaches to each work area with Asbestos Warning signs. Warning signs shall be of size and type that are easily readable and are visible from all approaches to the work areas.

3.3 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM

A. In areas where greater than three (3) linear of square feet of ACM will be removed, the AAC shall establish contiguous to each work area, where feasible, a personnel decontamination system consisting of equipment room, shower room and clean room in series. Access between the contaminated and uncontaminated areas shall be through this decontamination enclosure only. The decontamination system shall be constructed of two (2) layers of six-mil polyethylene sheeting.

B. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed ensuring that the sole source of air flow through this area originates from uncontaminated areas outside the work area.

C. The shower unit shall be equipped with an adequate supply of warm water. A shower filtration pump containing two (2) 5-micron sock filters or the best available technology shall be installed to filter shower water. Filtered shower water shall be discharged into sanitation drains and shall not be discharged into storm drains or onto floor or ground surfaces.

D. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.

3.4 REMOTE PERSONNEL DECONTAMINATION SYSTEM

A. The AAC shall establish a remote personnel decontamination system where contiguous decontamination systems are not feasible and where spot repair procedures will be performed. The use of such remote decontamination unit must be indicated in the State Notification. The decontamination system shall be constructed of two (2) layers of six-mil polyethylene sheeting. Pre-fabricated "pop-up" decontamination chambers will not be permitted on this project. Two (2) contiguous chambers shall be established at the entry to each containment when remote decontamination unit is utilized.

B. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed ensuring that the sole source of air flow through this area originates from uncontaminated areas outside the work area.

C. The shower unit shall be equipped with an adequate supply of warm water. A shower filtration pump containing two (2) 5-micron sock filters or the best available technology shall be installed to filter shower water. Filtered shower water shall be discharged into sanitation drains and shall not be discharged into storm drains or onto floor or ground surfaces.

D. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.

E. The remote personnel decontamination unit shall be located in the vicinity of the asbestos abatement work for easy access by asbestos workers.

3.5 WASTE LOAD OUT SYSTEMS

A. The AAC shall establish waste load out systems, where feasible, attached to the work areas. Waste load out systems shall consist of a minimum of two (2) chambers that are of suitable size for transporting waste out of the work area. Waste load out systems shall be constructed of two (2) layers of six-mil polyethylene sheeting.

B. Access between rooms in the waste load out system shall be through double flap-curtained openings. The waste load out system shall be used for decontaminating waste containers, bags, bundles, etc. prior to removal from the work area and transporting waste from the work area to the non-work area.

C. Persons working inside the contaminated work area are not permitted to pass from the work area to the non-work area through the waste load out system. Persons inside the contaminated work area shall not be permitted to enter into the clean area of the waste load out system.

D. The waste load out system shall remain sealed at all times except during decontamination of waste containers and transport of waste from the work area to the non-work area.

3.6 ASBESTOS REMOVAL PROCEDURE - GENERAL

A. The AAC shall have a designated "Competent Person" on the job at all times to ensure establishment of a proper enclosure system and proper work practices throughout the project. At a minimum, the AAC Competent Person shall perform or supervise the following duties, as applicable:

1. Ensure the integrity of the containment or enclosure.
2. Set up procedures to control entry to and exit from the enclosure.
3. Supervise employee exposure monitoring.
4. Ensure that employees set up, use and remove engineering controls, use work practices and personal protective equipment in compliance with OSHA regulations.
5. Ensure that employees use the worker decontamination facilities and observe decontamination procedures.

B. Abatement work will not commence until all work area preparation is completed in accordance with this technical specification section.

C. Spray asbestos materials with amended water using airless spray equipment or apply approved removal wetting agent to reduce the release of fibers during removal operation. The Owner's Consultant will pre-approve use of amended water as the wetting agent.

D. Spraying of amended water shall be adequate enough to allow the ACM to absorb the water. Actual removal of ACM shall not be allowed until all ACM has become adequately wet.

E. Do not create any visible emissions during asbestos removal. Ensure all ACM is adequately wet prior to removal.

F. Fill disposal containers as removal proceeds, seal filled containers before moving to waste load out system. Wet clean each container thoroughly, double bag, drum or use other approved containerization methods and apply a caution label before moving to holding area.

G. Remove and containerize all visible accumulations of asbestos-containing and/or asbestos- contaminated debris.

H. Solidify all liquid waste prior to containerization for disposal.

I. Sealed disposal containers and all equipment used in the work area shall be included in the cleanup and shall be removed from work areas, via the waste load out system at an appropriate time in the cleaning sequence.

J. At any time during asbestos removal, should the competent person suspect contamination of areas outside the work area(s), they shall cause to stop all abatement work until steps to decontaminate these areas and eliminate causes of such contamination are completed. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections certify decontamination.

K. The on-site Asbestos Project Monitor shall perform a final visual inspection of each work area to review the work area for completeness of abatement and visible residue. The final visual inspection shall be performed by the Asbestos Project Monitor once the AAC's Asbestos Supervisor has performed their own initial final visual inspection and certifies the abatement work complete and there is no visible residue in the work area.

L. The AAC's Asbestos Supervisor shall be required to sign the Asbestos Project Monitor's final visual inspection form at the completion of each final visual inspection.

M. Upon acceptance of the work area by the Asbestos Project Monitor and the AAC's Asbestos Supervisor, the AAC shall apply an even coating of bridging encapsulant with airless spray equipment to all abated surfaces within the work area. Apply encapsulant in accordance with manufacturer's recommendation.

N. Seal all exposed edges of asbestos containing plaster at penetrations with a bridging encapsulant such as CP-10 or equivalent.

O. Each work area shall undergo aggressive re-occupancy air clearance sampling by the Asbestos Project Monitor.

3.7 SPECIFIC REQUIREMENTS – SPOT REPAIR GLOVE BAG

A. Under the scope of this project, it is anticipated that floor tiles and associated mastic will be removed utilizing the glove bag method within areas of floor penetrations prior to the coring of the concrete floors. The glove bag method may also be utilized to remove plaster from walls and ceilings prior to coring or for the installation of fasteners through ACM in localized areas.

B. Where less than three (3) linear/square feet of ACM is to be removed by glove bag operation, post asbestos abatement warning signs and erect temporary barricades to create regulated areas. Regulated areas should be kept clear of any persons not fully trained and protected against exposure.

C. Provide GFCI devices and temporary power installed in compliance with the applicable electrical codes.

D. Pre-clean surfaces contaminated with ACM, using HEPA vacuum equipment or wet wiping as appropriate. Where friable asbestos containing materials are present, establish worker decontamination facility, air tight barriers and negative air filtration prior to conducting pre-cleaning activities.

E. Install one layer of six (6) mil polyethylene sheeting on the ground below the work inside the regulated area. All overlaps shall be sealed with tape or spray adhesive.

F. Install six (6) mil glove bag in accordance with OSHA 1926.1101.

G. Post all approaches to each work area with Asbestos Warning signs. Warning signs shall be of size and type that are easily readable and are visible from all approaches to the work areas.

H. A minimum of two (2) workers will be required to perform glove bag removal activities. Perform removal in accordance with OSHA 1926.1101.

3.8 MINIMUM SPECIFIC REMOVAL PROCEDURE – ASBESTOS PLASTER WALL AND CEILING SYSTEMS / GLUE DAUBS (<3 LF/SF ACM) SPOT REPAIR

A. Prior to the removal of or installation of fasteners through any asbestos plaster wall or ceiling system or asbestos glue daubs, the AAC shall ensure the work area is prepped in accordance with the requirements of Part 3.2 INTERIOR WORK AREA PREPARATION (<3 LF/SF ACM) – GENERAL.

B. The AAC shall have a designated "competent person" on the job at all times to ensure establishment of a proper enclosure system and proper work practices throughout project.

C. Ensure that all required equipment is present inside the regulated area.

D. Utilize shrouded drill with HEPA vacuum attachment when penetrating any ACM.

E. Lightly mist the ceiling or wall area that will be drilled. Utilize hand held spray bottles.

F. Carefully drill the holes at the drill points designated by the general trades once location of conduit is determined.

G. Once the holes are drilled, place the vacuum nozzle against the ceiling or wall and vacuum out any remaining debris.

H. Following hole drilling procedures or when fastening directly into ACM, utilize shrouded drill with HEPA vacuum attachment when penetrating ceiling or wall.

I. Lightly mist the ceiling or wall where fastener will be inserted. Utilize hand held spray bottles.

J. Carefully fasten bracket to attach conduit.

K. Once the fasteners are in place, place the vacuum nozzle against the ceiling or wall and vacuum out any remaining debris.

L. Remove all waste from work area in accordance with Section 3.10 WASTE PACKAGING AND REMOVAL PROCECURE

M. Final clean the entire work area through a combination of HEPA vacuuming and wet wiping until no visible residue remains.

N. The Asbestos Project Monitor reserves the right to perform re-occupancy air clearance monitoring in each Spot Repair work area.

3.9 MINIMUM SPECIFIC REMOVAL PROCEDURE – ASBESTOS PLASTER WALL AND CEILING SYSTEMS / GLUE DAUBS PENETRATIONS (>3 LF/SF ACM) FULL CONTAINMENT

A. Prior to the removal of any asbestos plaster wall or ceiling system or asbestos glue daubs, the AAC shall ensure the work area is prepped in accordance with the requirements of Part 3.1 INTERIOR WORK AREA PREPARATION – GENERAL.

B. Perform all selective demolition that may impact ACM within negative pressure enclosure and dispose of all materials as required. Clean and remove all applied objects from the work area prior to starting asbestos removal. Suspended ceiling tiles that will be disposed of as construction debris and all metal items that will be recycled shall be decontaminated and visually inspected by the Asbestos Project Monitor prior to being removed from work area.

C. Where overlying wall and ceiling systems are to be removed, ensure that the containment will not be breeched when ceilings or walls are demolished. Install additional air tight barriers as required prior to removal activities.

D. Where asbestos plaster debris is identified on top of suspended acoustical ceiling tiles, ensure the work area below acoustical ceiling is prepped in accordance with the requirements of Part 3.1 INTERIOR WORK AREA PREPARATION – GENERAL prior to the disturbance of the contaminated acoustical ceiling tiles.

E. Spray amended water on to contaminated acoustical ceiling tiles prior to removal from grid system. Carefully remove in whole pieces and adequately wet ceiling tiles and dispose of as asbestos waste.

F. Where glue daubs will be removed, remove glue from substrate in its entirety so no visible residue remains.

G. Containerize debris in polyethylene lined sturdy cardboard drums, boxes or nylon grain bags with two additional six (6) mil asbestos disposal bags.

H. Stabilize plaster walls and ceilings where indicated. Mechanically fasten loose plaster and render plaster intact by reducing raised paint edges, filling cracks, holes and openings in plaster by applying an infill material and compound suitable for sanding to a paintable condition.

I. Encapsulate all exposed plaster edges with bridging encapsulant.

J. Remove asbestos waste from work area enclosure in conformance with Part 3.10 – WASTE PACKAGING AND REMOVAL PROCEDURE.

K. Final clean the entire work area through a combination of HEPA vacuuming and wet wiping until no visible residue remains.

L. The Asbestos Project Monitor shall perform re-occupancy air clearance sampling within each abatement work area.

3.10 WASTE PACKAGING AND REMOVAL PROCEDURE

A. The AAC shall strictly adhere to the requirements of this section for ACM waste packaging and transporting waste from the work area enclosure to the disposal dumpster.

B. Waste disposal bags and drums shall be affixed with pre-printed OSHA warning labels, DOT labels and NESHAP labels.

C. Each container of ACM waste shall be made adequately wet prior to sealing the container. Bags shall be sealed immediately following additional wetting procedures. Bags of ACM waste shall not be permitted to remain unsealed while in the work area enclosure.

D. Each bag of ACM waste shall be double-bagged during waste load out procedures. The following waste load out procedure shall be strictly adhered to:

1. Wet wipe inner bag or drum to remove all ACM contamination. Ensure the inner bag is sealed.
2. Transport bag or drum to the equipment room located in the worker decontamination enclosure.
3. One worker, equipped with personal protective equipment, shall be inside the clean room of the worker decontamination enclosure.
4. The worker in the clean room of the decontamination enclosure shall open a six-mil disposal bag and hold it open inside the shower room where the inner bag containing the ACM waste shall be placed.
5. The outer bag shall be sealed with duct tape inside the shower room.
6. The double bagged or drummed waste shall be removed from the decontamination enclosure and waste generator labels shall be immediately affixed to the outer bag or drum.
7. Waste generator labels shall be printed self-adhering labels and shall contain the Owner's name, the site location address, and the AAC's name.
8. The properly labeled waste shall be transported directly to the lined waste container.
9. The waste container shall be double lined with 6-mil polyethylene sheeting.
10. OSHA warning signs shall be secured to the waste container prior to any loading and unloading operations.
11. The waste container shall be kept locked at all times other than loading and unloading.

3.11 FINAL CLEANING AND ENCAPSULATION

A. Upon completion of gross removal of all ACM specified for removal, the AAC shall begin final cleaning of the effected work area. The AAC shall HEPA vacuum and wet wipe all surfaces contained within the work area.

B. All tools or equipment that are not necessary for final cleaning shall be decontaminated or bagged and removed from the work area enclosure.

C. The intake and exhaust ports of HEPA vacuums shall be sealed prior to removing from the work area.

D. Ladders and vacuums shall be cleaned free of visible residues.

E. Hand held tools shall be cleaned and placed in sealed containers for transport to next work area

F. The AAC shall begin final cleaning procedures at the furthest and highest most points from the personnel decontamination unit and move towards the unit. The AAC shall ensure that all exposed building components and or surfaces are thoroughly HEPA vacuumed and wet wiped.

G. The AAC shall HEPA vacuum and wet wipe any component specified to remain inside the work area enclosure.

H. The AAC shall thoroughly wet wipe all polyethylene sheeting inside the work area enclosure.

I. Once all surfaces and components within the work area have been thoroughly cleaned, AND THE WORK AREA IS DRY, the AAC's Competent Person shall perform a visual inspection of all surfaces and components within the work area enclosure. The AAC's Competent Person shall sign off on the work area stating that all abatement has been completed for that portion of work and that the work area has met the no visible residue criteria.

J. The AAC's Competent Person shall then request a final visual inspection to be performed by the Owner's Consultant. The Owner's Consultant shall visually inspect all surfaces and components in the work area for residual debris and or visible residue. Work areas must be dry for final visual inspection. Inspections will not be performed in work areas where there is standing water or wet surfaces. Additional cleaning shall be performed at the AAC's expense if the Owner's Consultant identifies visual debris and/or visible residue during the visual inspection. Additional cleaning shall be performed until the work area meets the no visible residue/dust criteria.

K. All residual debris and visible residue shall be considered asbestos containing.

L. Upon acceptance of the work area by the Owner's Consultant, the AAC shall apply an even layer of bridging encapsulant to all surfaces contained within the work area. The Owner's Consultant shall verify the completeness of work area encapsulation.

3.12 DISPOSAL OF ASBESTOS AND ASBESTOS CONTAMINATED WASTE

A. All disposal of asbestos containing and or asbestos contaminated material must be in compliance with requirements of the Office of the Department of Environmental Protection, State of Connecticut Department of Public Health and the USEPA NESHAP regulations.

B. Disposal approvals shall be obtained from the CTDEEP before commencing asbestos removal if waste will be disposed of in Connecticut.

C. Waste container storage locations shall be pre-approved by the Owner and Owner's Consultant.

D. A copy of approved disposal authorization shall be provided to the Owner and Owner's Consultant and any required federal, state or local agencies.

E. Waste shipment records shall be generated for each individual facility address where asbestos waste is generated even if waste is being stored in a common on-site waste container.

F. The AAC shall maintain a running log of WSR's, which shall include the WSR number, generation locations (by address), off-site shipment date and landfill destination.

G. Copies of all landfill receipts will be retained by the Owner's Consultant as part of the project file. The receipts will be signed by the landfill operator on receipt, and the quantity of asbestos debris leaving the job site and arriving at the landfill acknowledged.

H. All asbestos debris shall be transported in covered, sealed vans, boxes or dumpsters, which are physically isolated from the driver by an airtight barrier. All vehicles must be properly licensed to meet United States Department of Transportation (USDOT) requirements.

I. Friable ACM waste shall be placed in double lined enclosed waste containers equipped with a lockable hasp. Waste containers shall be posted with OSHA warning signs during loading and unloading.

J. All liquid waste generated during the work shall be solidified. At no time will liquid wastes be permitted to be stored on site. Liquid waste generated during this project shall be solidified prior to the end of each work shift.

K. Completed Waste Shipment Records (WSR) signed by the landfill must be returned to the Owner or Owner's Consultant no later than 45 days from the time the waste was transported off-site. Completed waste shipment records that are not received by the Owner within 35 days shall require the AAC to begin tracking the waste. The AAC must notify the Owner of intentions on tracking the waste.

L. The AAC must take appropriate actions as outlined in 40 CFR Part 61 NESHAP regulations when completed WSR are not forwarded to the Owner or Owner's Consultant within 45 days from the time the waste was transported off-site.

3.13 REOCCUPANCY AIR CLEARANCE MONITORING

A. After the presealant visual inspection has passed and all surfaces in the abatement area have dried, re-occupancy air clearance monitoring will be performed. The primary and secondary barriers, worker decontamination
enclosure and negative air filtration units shall remain in place. At no time shall tools, ladders, vacuums or waste remain inside the work area enclosure during final air clearance sampling.

B. Once the work area has dried, the Owner's Consultant shall collect aggressive re-occupancy air clearance samples. Aggressive air monitoring will be used. Selection of location and of samples shall be the responsibility of the Owner's Consultant. Air monitoring volumes shall be sufficient to provide a detection limit of 0.010 f/cc (fiber per cubic centimeter of air) using NIOSH-approved method. For air clearance by Transmission Electron Microscopy, air monitoring volumes shall be sufficient to provide a detection limit of 0.005 s/cc (structure per cubic centimeter of air) using the AHERA Level II Yamate Method.

C. Areas that do not comply with the re-occupancy air clearance criteria shall continue to be cleaned by and at the AAC's expense until the specified re-occupancy air clearance criteria is achieved as evidenced by results of air testing as previously specified.

D. Laboratories conducting analysis of final air clearance samples shall be approved by the State of Connecticut Department of Health.

3.14 OWNER'S CONSULTANT RESPONSIBILITY

A. The Owner has retained the services of Eagle Environmental, Inc. to perform limited monitoring and all final visual inspections during this project. The Owner's Consultant shall collect and analyze air samples to ascertain the

integrity of controls, which protect the building from asbestos contamination. Independently, the AAC shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.

B. The Owner's Consultant shall collect and analyze air samples following the completion of all asbestos abatement work and final visual inspections within each work area. If requested by the Owner, the Consultant may perform limited daily monitoring activities and air sampling which will include:

1. Abatement Period: If onsite during abatement work, the Asbestos Abatement Project Monitor shall collect samples during the work period. A sufficient number of background samples shall be taken outside of the work area, at the exhaust of the negative pressure filtration equipment, and outside of the building to evaluate the degree of cleanliness or contamination of the building during asbestos removal. Additional samples may be taken inside the work area and decontamination enclosure system, at the discretion of the Asbestos Abatement Project Monitor.

    a. The Asbestos Abatement Project Monitor shall provide a continual evaluation of the air quality of the building during asbestos abatement, using his/her best professional judgments in respect to the State Department of Public Health guideline of 0.010 f/cc and the background air quality established during the pre-abatement period.
    b. If the Asbestos Abatement Project Monitor determines that the building air quality has become contaminated from the project, he/she shall immediately inform the AAC to cease all removal operations and implement a work stoppage clean up procedure. The AAC shall conduct a thorough cleanup of areas of the building designated by the Asbestos Abatement Project Monitor. No further asbestos abatement work shall take place until the Asbestos Abatement Project Monitor has determined that the building's air has been decontaminated.
    c. Background air samples shall be collected for a minimum period of ninety minutes at a minimum flow rate of 12 liters per minute, or as required to obtain a volume of 1,000 liters. Samples shall be analyzed by phase contrast microscopy (PCM) using the NIOSH 7400 protocol.

2. Elevated fiber counts: If elevated fiber counts exceeding the establish pre-abatement level or 0.01 f/cc are recorded, the cause for such elevated readings shall be investigated. If necessary, the AAC shall be responsible for cleaning the affected area and will provide additional support to lower the air born fiber levels. All cost incurred by the AAC for the decontamination work shall be borne by the AAC.

3. Re-occupancy Clearance Period: The Asbestos Abatement Project Monitor shall conduct air sampling following the final cleanup phase of the project, once the "no visible residue" criterion as established by the site supervisor and the Asbestos Abatement Project Monitor has been met.

a. Transmission Electron Microscopy (TEM) - For work areas containing greater than 500 linear feet or 1500 square feet of ACM, post abatement analysis of the samples to determine if re-occupancy clearance standards have been met shall be conducted by TEM. A minimum of five (5) samples shall be collected inside containment utilizing aggressive methods to comply with State of Connecticut DPH Standard for Asbestos Abatement sections 19a-332a-12, and 19a-332a-13. An asbestos abatement project shall be considered complete when the average concentration of asbestos fibers of five air samples collected within the work area and analyzed by the TEM method in Appendix A of 40 CFR Part 763 subpart E is less than 70.0 structures per square millimeter (s/mm^2) of filter surface or is not statistically significantly different, as determined by the Z-test calculation found in Appendix A of 40 CFR Part 763, subpart E, from the average asbestos concentration of five air samples collected at the same time outside the work area and analyzed in the same manner, and the average asbestos concentration of the three field blanks described in Appendix A of 40 CFR Part 763, subpart E, is below the filter background level, as defined in Appendix A of 40 CFR Part 763 subpart E, of 70 s/mm^2.

b. Phase Contrast Microscopy (PCM) - For work areas containing less than 500 linear feet or 1500 square feet of ACM, post abatement analysis of the samples to determine if re-occupancy clearance standards have been met shall be conducted by PCM. A minimum of five (5) samples shall be collected inside containment utilizing aggressive methods to comply with State of Connecticut DPH Standard for Asbestos Abatement sections 19a-332a-12, and 19a-332a-13. The project shall be considered complete when the results of samples collected in the work area and analyzed by phase contrast microscopy using the most current National Institute for Occupational Safety and Health (NIOSH) method 7400, to show that the concentration of fibers for each of the five samples is less than or equal to a limit of quantification for PCM (0.010 fibers per cubic centimeter of air).

C. Inspections shall be conducted by the Owner's Consultant throughout the progress of the abatement project. Inspections shall be conducted in order to document the progress of the abatement work as well as the procedures and practices employed by the AAC. The Asbestos Abatement Project Monitor shall perform the following inspections during the course of abatement activities.

1. Precommencement Inspection: Precommencement inspections shall be performed at the time requested by the AAC. The Asbestos Abatement Project Monitor shall be informed 24 hours prior to the time the inspection is needed. During the course of the precommencement inspection, the Asbestos Abatement Project Monitor shall inspect the containment. This shall include, but not be limited to, inspection of barrier integrity, the worker decontamination, facility, negative air filtration equipment etc. If during the course of the precommencement inspection, deficiencies are found, the AAC shall perform the necessary adjustments in order to obtain compliance.
2. Work Area Inspections: Work area inspections shall be conducted when the Asbestos Abatement Project Monitor is onsite. During the course of the work area inspections, the Asbestos Abatement Project Monitor shall observe the AAC removal procedures, verify barrier integrity, monitor negative air filtration devices, assess project progress, and inform the AAC of specific remedial activities if deficiencies are noted.

3. Presealant Inspection: Upon the request of the AAC and following the final visual inspection by the onsite Asbestos Abatement Supervisor, the Asbestos Abatement Project Monitor shall conduct a presealant inspection of each work area. The presealant inspection shall be conducted after completion of the initial final cleaning procedures, but prior to work area encapsulation. The presealant inspection shall verify that all ACM and residual debris have been removed from the work area. If, during the course of the presealant inspection, the Asbestos Abatement Project Monitor identifies residual dust or debris, the AAC shall comply with the request of the Asbestos Abatement Project Monitor in order to render the area is free of visible residue.
4. Final Visual Inspection: Following receipt of acceptable re-occupancy air monitoring results and concurrent with removal of the work area containment, the Asbestos Abatement Project Monitor shall conduct a final visual inspection. If residual dust or debris is identified during the course of the final inspection, the AAC shall comply with the request of the Asbestos Abatement Project Monitor, in order to render the area free of visible residue.

END OF SECTION 02 0800

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SECTION 02 8400 – REMEDIATION OF PRESUMED PCB CONTAINING CAULK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Section 020800 Asbestos Abatement

1.3 PROJECT DESCRIPTION

A. Suspect PCB-containing caulk was identified at wall penetrations, wall seams, and covering previously installed cable sleeves through masonry walls in several of the buildings associated with the Northeast Dormitories Security System Project (Project) at the University of Connecticut (UCONN) Storrs Campus in Storrs, Connecticut (Site).

B. The caulks are presumed to have been installed prior to the 1979 ban on use of PCB's and are presumed to contain polychlorinated biphenyls (PCB) in excess of fifty (50) parts per million (ppm). The caulks are defined as PCB Bulk Product waste under 40 CFR 761.3.

C. The Hazardous Materials Abatement Contractor (HMAC) shall remove and dispose of the presumed PCB containing caulk as PCB Bulk Product Waste. The actual locations and quantities of caulk requiring removal will be determined in the field at the time of construction.

D. The actual cable routing locations and camera and equipment mounting locations will determine where presumed PCB containing caulk will be impacted. Since the exact location of cabling and penetrations are not known and may be modified during installation, a quantity allowance has been established to assist the HMAC in their Bid.

E. The cleanup and disposal of the PCB Bulk Product Waste shall be performed in accordance with the Toxic Substances Control Act (TSCA) 40 CFR §761.62(b) *disposal in a solid waste* landfill.

1.4 SCOPE OF WORK

A. An allowance of thirty (30) linear feet and thirty (30) square feet of caulk shall be included in the Hazardous Materials Abatement Contractor's (HMAC) Scope of Work for all of the buildings associated with this Project. It should be anticipated that the HMAC will complete the remediation work in sixty (60) separate locations utilizing a mini enclosure or glove bag to remove the presumed PCB-containing caulk.

B. Only caulks within the designated work areas of each building were evaluated. All caulks that will be encountered with this Project are defined as PCB Bulk Product Waste.

C. The scope of the Project was provided to Eagle Environmental, Inc. (Eagle) by the University of Connecticut (UCONN) Planning, Architectural, and Engineering Services (Client).

D. Within limited buildings associated with the Project, caulks are applied to asbestos containing substrates including wall and ceiling plaster. The HMAC shall refer to Section 020800 Asbestos Abatement for additional requirements for work area preparation, removal and disposal where asbestos containing materials will be impacted during caulk removal.

E. PCB Waste Dispositions:

1. The HMAC shall remove and dispose of the PCB Bulk Product Waste under §761.62(b)(i), *disposal in a solid waste landfill.* The waste shall be disposed of in a non-hazardous waste landfill permitted by the State in which it is disposed to accept the waste under§761.62(b)(i).
2. Where caulk and asbestos-containing substrate are removed concurrently, waste shall be properly packaged and disposed of as regulated asbestos and PCB Bulk Product Waste in an approved landfill permitted to accept such waste.

F. PCB Remediation Plans:

1. The placement of the security cameras and cabling routes are provided on the Hazardous Materials Abatement Plans HM-1 through HM-8.
2. Specific locations of presumed PCB containing caulk are not shown on the plans since the exact location of cable and camera installation may change in the field.

1.4 GENERAL REQUIREMENTS

A. The HMAC shall furnish all labor, materials, facilities, equipment, installation services, employee training, notifications, permits, licenses, certifications, agreements and incidentals necessary to perform the specified work. Work shall be performed in accordance with the Contract Documents, the latest regulations from the Occupational Safety and Health Administration (OSHA), the EPA, the State of Connecticut, and all other applicable federal, state and local agencies. Whenever the requirements of the above references conflict or overlap, the more stringent provision shall apply.

B. All project personnel engaged in the remediation work covered under this section shall be trained with OSHA 40-Hour HAZWOPER training as described in OSHA Regulations 29 CFR 1910 and 1926.

C. The HMAC shall provide a Project Health and Safety Officer having a minimum of eight (8) hours of supervisor training in hazardous waste site operations as described in 29 CFR 1910. The supervisor shall be on site at all times during remediation work.

1.5 GENERAL SCOPE OF WORK

A. The HMAC shall be responsible for removal and disposal of PCB Bulk Product Waste where caulks will be impacted under the overall scope of the Project.

B. The HMAC shall be responsible for decontaminating all tools and equipment used in the PCB remediation work. Tools shall be decontaminated using the methods prescribed by 40 CFR 761 Subpart S. The HMAC shall capture all decontamination fluids and handle them in accordance with this Specification.

C. The HMAC shall be responsible for disposal of all disposable clean-up materials (i.e. used PPE, used containment barriers, etc.) in accordance with this Specification.

1.6 SUBMITTALS

The following documents shall be submitted to the Owner's Consultant prior to the start of the Project:

A. Training Documentation: Documentation of 8-Hour HAZWOPER Supervisor Training for the designated on-site Health and Safety Officer and 40 Hour HAZWOPER for all engaged personnel.

B. Work Plan: A written work plan that details the means and methods to be used for the removal and disposal of scheduled materials, waste container staging, ground protection, and the HMAC's plan to protect workers and prevent PCB migration from work areas. The work plan shall include the following elements:

1. Floor plans indicating the proposed work areas and containment barriers, and signage for all PCB removal work as outlined in this Specification;
2. Specific procedures to be used to remove and dispose of scheduled items and decontamination of equipment, and tools;
3. Detailed plans and procedures for removal of scheduled materials from in situ positions, transport of the materials to waste containers, reduction of waste materials for disposal requirements;
4. Detailed plans and procedures to ensure that further contamination of the Site does not occur as the result of remediation procedures;
5. Detailed procedures for personnel and equipment decontamination including procedures for the capture and containment of decontamination fluids.
6. A detailed proposed schedule for all remediation and disposal activities.

C. PCB Disposal Plan: A written plan that details the HMAC's plan for transportation and disposal of PCB-containing wastes generated during the project. The Disposal Plan shall identify:

1. Waste packaging, labeling, placarding and manifesting procedures,
2. A list of anticipated waste profiling procedures and samples and identification of the firms that will collect and analyze the samples.
3. The name, address, 24-hour contact number, and EPA TSCA Approval (if applicable) for the proposed treatment or disposal facilities to which wastes generated during the project will be transported.
4. The name, address, contact person(s) and state-specific permit numbers for proposed waste transporters.
5. A site plan indicating where waste disposal containers will be staged and how they will be labeled and secured.
6. The route(s) by which the waste will be transported to the designated disposal facility, and states or territories through which the waste will pass if the waste is to be disposed of outside of the State of Connecticut.
7. Safety Data Sheets: Safety Data Sheets (OSHA Form 174 or equivalent) and manufacturer's information shall be provided for all chemicals and materials to be used during the project including decontamination fluids.

D. Health and Safety Plan

1. The HMAC is responsible and liable for the health and safety of all on-site personnel and the off-site community affected by the Project. All on-site workers or other persons entering the abatement work areas, decontamination areas or waste handling and staging areas shall be knowledgeable of and comply with the requirements of the site-specific Health and Safety Plan (HASP) at all times. The HMAC's HASP shall comply with all applicable federal, state and local regulations protecting human health and the environment from the hazards posed by the work to be performed under this project.
2. The HASP shall carry the endorsement and signature of a health and safety professional.
3. The HMAC shall not initiate on-site work in the contaminated areas until the HASP has been finalized and reviewed and accepted by the Owner's Consultant.
4. Consistent disregard for the provisions of the HASP shall be deemed as sufficient cause for immediate stoppage of work and termination of the Contract or any Subcontracts without compromise or prejudice to the rights of the Owner or the Architect.
5. Any discrepancies between the HMAC's HASP and these specifications or federal and state regulations shall be resolved in favor of the more stringent requirements that provide the highest degree of protection to the project personnel and the surrounding community and environment, as determined by the Owner's Consultant.
6. In addition to exposure concerns relating to the presence of PCB, other health and safety considerations will apply to the work. The HMAC shall be responsible for recognizing such hazards and shall be responsible for the health and safety of HMAC employees at all times. It is the HMAC's responsibility to comply with all applicable health and safety regulations.
7. The HMAC shall prepare and submit a site-specific HASP to the Owner's Consultant a minimum of ten (10) business days prior to commencement of abatement work. The HASP shall govern all work conducted at the Site during the remediation of caulk; waste handling, sampling, and management; and waste transportation.
8. At a minimum, the HASP shall address the requirements set forth in 29 CFR 1910.120, as further outlined below:

    a. Health and Safety Organization
    b. Site Description and Hazard Assessment
    c. Training (HAZWOPER)
    d. Medical Surveillance
    e. Work Areas
    f. Personal Protective Equipment
    g. Personal Hygiene and Decontamination
    h. Standard Operating Procedures and Engineering Controls
    i. Emergency Equipment and First Aid Provisions
    j. Equipment Decontamination
    k. Air Monitoring
    l. Telephone List
    m. Emergency Response and Evacuation Procedures and Routes
    n. Site Control
    o. Permit-Required Confined Space Procedures(If Applicable)
    p. Spill Containment Plan
    q. Heat and Cold Stress
    r. Record Keeping
    s. Community Protection Plan

9. The HASP shall be reviewed by all persons prior to entry into the abatement, decontamination, or waste staging areas, whether a representative of the HMAC, Owner, Architect/Engineer, Environmental Consultant, sub-HMACs, waste transporter or Federal, State or local regulatory agency. Such review shall be acknowledged and documented by the HMAC's Health and Safety Officer by obtaining the name, signature and affiliation of all persons reviewing the HASP.
10. The HASP shall be maintained so as to be readily accessible and reviewable by all site personnel throughout the duration of the-abatement project and until all waste materials are removed from the site and disposed of at the appropriate disposal facility.
11. The HMAC's on-site Health and Safety Officer shall be responsible for ensuring that project personnel and site visitors are informed of and comply with the provisions of the HASP at all times during the project.

E. The following documents shall be submitted to the Owner's Consultant within seven (7) calendar days following removal of waste from the Site:

1. Waste Profile Sheets
2. Pre-Disposal Analysis Test Results (if testing is conducted)
3. Manifests signed by the disposal facility
4. Tipping Receipts provided by the disposal facility
5. Certification of Final Disposal signed by the responsible disposal facility official.

1.7 APPLICABLE STANDARDS AND REGULATIONS

A. 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. Where a conflict or overlap among regulations and/or these specifications exist, the most stringent requirements shall apply. The Owner's Consultant will determine which requirements are most stringent.

1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

a. ANSI.Z89.1 Personnel Protective Equipment-Protective Headwear for Industrial Workers- Requirements (Latest Revision)ANSI.Z87 CODE OF FEDERAL REGULATIONS (CFR)U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
b. 29 CFR Subpart D Walking -Working Surface
c. 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response
d. 29 CFR 1910.134 Respiratory Protection Standard
e. 29 CFR 1910.1200 Hazard Communication
f. 29 CFR 1926.20 General Health and Safety Provisions
g. 29 CFR 1926.57 Ventilation
h. 29 CFR 1926.59 Hazard Communication Program
i. 29 CFR 1926.62 Lead Exposure in Construction
j. 29 CFR 1926.65 Hazardous Waste Operations and Emergency Response
k. 29 CFR 1926.95 Criteria for Personal Protective Equipment
l. 29 CFR 1926, Subpart H Materials Handling, Storage, Use and Disposal
m. 29 CFR 1926, Subpart L Scaffolding

n. 29 CFR 1926, Subpart M Fall Protection
o. 29 CFR 1926, Subpart X Ladders
p. 29 CFR 1926, Subpart Z Toxic and Hazardous Substances

3. U.S. ENVIRONMENTAL PROTECTION AGANECY (US EPA)

a. 40 CFR 50.6 National Primary and Secondary Ambient Air Quality Standards for Particulate Matter
b. 40 CFR 260 Hazardous Waste Management System: General
c. 40 CFR 261 Identification and Listing of Hazardous Waste
d. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
e. 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste
40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
f. 40 CFR 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
g. 40 CFR 268 Land Disposal Restrictions
h. 40 CFR 700 Toxic Substances Control Act (TSCA)
i. 40 CFR 761 PCBs Manufacturing, Processing, Distribution in Commerce and Use Prohibitions

4. U.S. DEPARTMENT OF TRANSPORTATION (DOT)

49 CFR 105 Hazardous Materials Program. Definitions and General Procedures
a. 49 CFR 171 General Information, Regulations and Definitions
49 CFR 172 Hazardous Material Tables. Special Provisions, Hazardous Materials Communications Emergency Response Information and Training Requirements
b. 49 CFR 173 Shippers-General Requirements for Shipments and Packaging
c. 49 CFR 177 Carriage by Public Highway
d. 49 CFR 178 Specifications for Packaging

5. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

a. Publication Number 87-10B Respiratory Decision Logic NIOSH/OSHA Booklet 3142 Lead in Construction
b. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH Publication 85-115)

6. U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

a. PUB 3126 Working with Lead in the Construction Industry
b. 29 CFR 1910, Subpart I, Appendix B-Non-Mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection

7. REGULATIONS OF CONNECTICUT STATE AGENCIES (RCSA)

a. Hazardous Waste 22a-449(c)-100 through 119
b. Hazardous Waste Transporter Permits 22a-449(c)-11
c. Permit Fees for Hazardous Waste Materials Management 22a-454-1

8. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY GUIDANCE

a. Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act

1.8 POSTING AND RECORD MAINTENANCE REQUIREMENTS

A. The following items shall be conspicuously displayed proximate to but outside of abatement work areas. The HMAC shall assure that the posted regulations are not altered, defaced or covered by other materials.

B. Exit Routes

1. Emergency exit procedures and routes

C. Emergency Phone Numbers

1. A list Indicating the telephone numbers and locations of the local hospital(s); the local emergency squad; the local fire department; the local police department; the Poison Control Center; Chemical Transportation Emergency Center (CHEMTREC); the Connecticut State Department of Public Health's office; the HMAC (on-site and after hours numbers); and the environmental consultant (on-site and after hours numbers).

D. Warning Signs

1. Warning signs shall be posted in English and in the language of any workers on-site who do not speak English, and be of sufficient size to be clearly legible and display the following:

WARNING:
HAZARDOUS WASTE WORK AREA
PCBs-POISON
NO SMOKING, EATING OR DRINKING
AUTHORIZED PERSONNEL ONLY
PROTECTIVE CLOTHING IS REQUIRED IN THIS AREA

E. Items Available On-Site

1. The HMAC shall maintain the following items on-site and available for review by all employees and authorized visitors:

a. The HMAC’s Work Plan
b. The HMAC’s Disposal Plan
c. The Project Health and Safely Plan (HASP)
d. Certificates of Training for all workers and the project Supervisor
e. Copies of applicable codes, standards, and publications

f. Safety Data Sheets (SDS) for all chemicals used during the project.
g. Copies of the HMAC's written hazard communication, respiratory protection, and confined space entry programs.

1.9 WORK ZONES

A. The HMAC shall establish and clearly identify work zones in the field. Access by equipment, site personnel, and the public to the work areas shall be limited as follows:

1. Abatement Zone - The Abatement Zone(s) shall consist of all areas where remediation, waste handling and staging activities are ongoing and the immediately surrounding locale or other areas where contamination could occur. Abatement Zones shall be visibly delineated with caution tape at a minimum, and restricted from access by all persons except those directly necessary to the completion of the respective remediation tasks. Within each interior Abatement Zone, small quantities (<3SF/3LF) of presumed PCB containing caulk shall be performed in a mini containment or glove bag. Each mini containment shall consist of polyethylene sheeting (6 mil), warning signs, and negative air filtration equipment with HEPA filtered exhaust systems. The Abatement Zones shall be relocated and delineated as necessary as work progresses from one portion of the project Site to another, to limit access to each remediation area and to minimize risk of exposure to site workers and the general public. Access shall be controlled at the periphery of the Abatement Zones to regulate the flow of personnel and equipment into and out of each zone and to help verify that proper procedures for entering and exiting are followed. All persons within the Abatement Zones shall have all required training and wear the appropriate level of protection established in the HASP.
2. Decontamination Zone - The Decontamination Zone is the transition zone between the remediation area and the “clean” Support Zone, and is intended to reduce the potential for contaminant dispersal from the Abatement Zone to clean areas of the site. The Decontamination Zone shall consist of a buffer area surrounding each Abatement Zone through which the transfer of equipment, materials, personnel and containerized waste products will occur and in which decontamination of equipment, personnel, and clothing will occur. The Decontamination Zones shall be clearly delineated with caution tape at a minimum and labeled with signage as provided in Part 1.8 of this Section. All emergency response and first aid equipment shall be readily maintained in these Zones. All protective equipment and clothing shall be removed or decontaminated in the Decontamination Zone prior to exiting to the Support Zone.
3. Support Zone - The Support Zone will consist of the area outside the Decontamination Zones and the remainder of the project site. Administrative and other support functions and any activities that by nature need not be conducted in the Abatement or Decontamination Zone related to the project shall occur in the Support Zone. Access to the Abatement and Decontamination Zones shall be controlled by the Health and Safety Officer and limited to those persons necessary to complete the remediation work and who have reviewed and signed the HASP.

1.10 PERSONAL PROTECTIVE EQUIPMENT

A. The HMAC shall be responsible to determine and provide the appropriate level of personal protective equipment in accordance with applicable regulations and standards necessary to protect the HMAC's employees and the general public from all hazards present.

B. The HMAC shall provide all employees with the appropriate safety equipment and protective clothing to ensure an appropriate level of protection for each task, taking into consideration the chemical, physical, ergonomic and biological hazards posed by the Site and work activities.

C. The HMAC shall establish criteria for the selection and use of personal protective equipment (PPE) in the HASP.

D. The PPE to be utilized for the project shall be selected based upon the potential hazards associated with the project site and the work to be performed. Appropriate protective clothing shall be worn at all times within the Abatement Zone.

E. The HMAC shall provide the appropriate level of respiratory protection to all field personnel engaged in activities where respiratory hazards exist or there is a potential for such hazard to exit.

F. The HMAC shall provide, as necessary, protective coveralls, disposable gloves and other protective clothing for all personnel that will be actively involved in abatement activities or waste handling activities or otherwise present in the Abatement Zones. Coveralls shall be of Tyvek or equivalent material. Should the potential for exposure to liquids exist, splash-resistant disposable suits shall be provided and utilized.

G. Protective coveralls, and other protective clothing shall be donned and removed within the Decontamination Zone and shall be disposed of at the end of each day. Ripped coveralls shall be immediately replaced after appropriate decontamination has been completed to the satisfaction of the Health and Safety Officer. Protective clothing shall not be worn outside of the Decontamination Zone.

H. Hard Hats, protective eyewear, rubber boots and/or other non-skid footwear shall be provided by the HMAC as required for workers and authorized visitors, Safety shoes and hard hats shall be in conformance with ANSI Z89.1 (1969) and ANSI 241.1 (1967), respectively.

I. All contaminated protective clothing, respirator cartridges and disposable protective items shall be placed into proper containers to be provided by the HMAC for transport and proper disposal in accordance with 40 CFR 262.

1.11 EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

A. The HMAC shall provide and maintain at the site, at a minimum, the following Emergency and First Aid Equipment:

1. Fire Extinguishers-a minimum of one (1) fire extinguisher shall be supplied and maintained at the site by the HMAC throughout the duration of the project. Each extinguisher shall be a minimum of a 20-pound Class ABC dry fire extinguisher with Underwriters Laboratory approval per 29 CFR 1910.157.
2. First Aid Kit-a minimum of one (1) first aid kit meeting the requirements of 29 CFR 1910.151 shall be supplied and maintained at the site by the HMAC throughout the duration of the project.
3. Communications (either cellular or radio) shall be provided by the HMAC for use by site personnel at all times during the project.

B. The Health and Safety Officer shall be notified immediately in the event of personal injury, potential exposure to contaminants, or other emergency. The Health and Safety Officer shall then immediately notify the Owner's Consultant of same.

C. If a member of the work crew demonstrates symptoms of heat or cold stress, injury, chemical exposure or other similar issue, another team member present within the delineated Abatement Zone (i.e., suitably equipped with appropriate PPE provisions) should remove the affected person from the delineated work site and signal/communicate to the Health and Safety Officer of the incident. Precautions should be taken to avoid exposure of other individuals to contaminated media.

D. An evaluation of the person's condition shall be made by the Health and Safety Officer, to determine the appropriate course of action to administer first aid or other emergency response provision. The Health and Safety Officer shall assess the seriousness of the injury, give first aid treatment if appropriate, and arrange for appropriate emergency response from outside emergency services, it warranted.

E. If soiled clothing cannot be removed, the injured person will be wrapped in a blanket while transported from the Site.

F. The Health and Safety Officer shall monitor the affected person to determine whether there are symptoms resulting from the exposure or injury. If there is a visible manifestation of exposure such as skin irritation, the affected party shall be referred to a medical facility for treatment and evaluation as to whether the manifestation may be indicative of a delayed or acute exposure, a secondary response to exposure such as skin infection or occupational dermatitis. All incidents of injuries and/or obvious chemical exposure shall be evaluated by the Health and Safety Officer and the Owner's Consultant to determine whether modifications to work practices and/or protective provisions are warranted.

1.12 STANDARD SAFETY AND HEALTH PROCEDURES AND ENGINEERING CONTROLS

A. The following provisions shall be employed to promote overall safety, personnel hygiene and personnel decontamination:

1. Each HMAC or subcontractor shall ensure that all safety equipment and protective clothing to be utilized by its personnel is maintained in a clean and readily accessible manner at the Site.
2. All prescription eyeglasses in use on this project shall be safety glasses conforming to ANSI Standard Z87.1. No contact lenses shall be allowed on the site.
3. Prior to exiling the delineated Decontamination Zone(s), all personnel shall remove protective clothing, and place disposable items in appropriate disposal containers to be dedicated to that purpose. Following removal of PPE, personnel shall thoroughly wash and rinse their face, hands, arms and other exposed areas with soap and tap water wash and subsequent tap water rinse. A fresh supply of tap water shall be provided at the site on each work day by the HMAC for this purpose.
4. All PPE used on site shall be decontaminated or disposed of at the end of each work day. Discarded PPE shall be placed in the appropriate waste stream.
5. Respirators, if necessary, shall be dedicated to each employee, and not interchanged between workers without cleaning and sanitizing.
6. Eating, drinking, chewing gum or tobacco, smoking, and any other practice that increases the likelihood of hand to mouth contact shall be prohibited within the delineated abatement and decontamination work zones. Prior to performing these activities, each employee shall thoroughly cleanse their face, hands, arms and other exposed areas,

7. All personnel shall thoroughly cleanse their face, hands, arms and other exposed areas prior to using toilet facilities.
8. No alcohol, tobacco, illegal drugs, weapons, or firearms will be allowed on the Site at any time.
9. All personnel that are on non-prescription (i.e., over-the-counter) or prescription medication of any kind shall notify the Health and Safety Officer prior to conducting work at the site. The Health and Safety Officer will make a determination as to whether such individuals will be allowed to work on the Site, and, if so, in what capacity. The Health and Safety Officer may require signed documentation from the Individual's personal physician stating what limitations may be posed by the medication or condition that may apply to that individual's work activities.
10. Contact with potentially contaminated surfaces should be avoided, if possible. Field personnel should minimize walking through standing water/puddles, mud or other wet or discolored surfaces; kneeling on ground; and placing equipment, materials or food on ground or other potentially contaminated surface.
11. The use of the "Buddy System'` shall be employed at all times while conducting work at the site. Each employee shall frequently monitor other workers for signs of heat stress or chemical exposure or fatigue; periodically examine others PPE for signs of wear or damage; routinely communicate with others; and notify the Site Safety Officer in the case of an emergency.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. All materials shall be delivered in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be decontaminated or disposed of as asbestos waste.

C. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating six (6) mil.

D. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

E. All proper labeling and placards for waste receptacles shall be maintained on site in a sufficient quantity to support the project.

F. Pre-printed caution tape shall be maintained on site in a sufficient quantity to support the project.

G. Six-mil polyethylene glove bags.

H. Non-chlorinated organic solvent.

I. Appropriate labels and signage.

J. Appropriate waste containers.

2.2 TOOLS AND EQUIPMENT

A. Provide suitable tools for PCB removal.

B. The HMAC shall have air monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

C. The HMAC shall have available sufficient inventory on site for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape, and air filters.

D. The HMAC shall provide temporary electrical power sources such as generators (when required).

E. Vacuum units and negative pressure exhaust fans of suitable size and capacities for project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter or larger.

PART 3 - EXECUTION

3.1 SEQUENCE OF SITE WORK

A. The HMAC shall coordinate all remediation and disposal activities with the Building Owner (or Owner's Representative) and the General Contractor.

B. If there will be changes to the initial schedule or sequencing, the HMAC shall inform the Owner's Consultant in writing and confirm all dates on submitted schedules.

C. The HMAC shall coordinate all work with the General Contractor and confirm weatherization or security requirements of the building following remediation activities.

D. Public access to the building shall not be restricted by the work.

3.2 PREPARATION OF ABATEMENT ZONES

A. The Site shall be restricted to authorized personnel with temporary fencing.

B. The remediation of PCB-containing materials shall be addressed in the HMAC's Work Plan.

C. For interior work areas, the HMAC shall establish Abatement Zones, Decontamination Zones, and Support Zones in accordance with Section 1.9 of this Specification and the following:

1. A mini containment or glove bag, at a minimum, will be required for the removal of interior caulks that will be impacted during this Project. Where quantities of caulk scheduled for removal exceed 3/LF or 3/SF, the HMAC shall establish a negative pressure enclosure of sufficient size to contain the work area.
2. Install six-mil polyethylene drop cloths under all glove bag removal locations and within mini containments.

3. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All temporary installations are to be made by a licensed electrician.
4. Shut down electrical power, including receptacles and light fixtures. Lock and tag out circuits associated with the electrical components in the work area(s).
5. Shut down and isolate heating, cooling, and ventilation air systems to prevent contamination or particle dispersal to other areas of the structure. Lock and tag out circuits associated with heating and cooling units. During the work, vents within the work area shall be sealed with duct tape and polyethylene sheeting.
6. Seal off all openings, including but not limited to operable windows, corridors, doorways, skylights, ducts, grills, diffusers, and any other penetration of the work areas, with two (2) layers polyethylene sheeting minimum of six (6) mils thick sealed with duct tape. In addition to the polyethylene sheeting, place hard barriers at doorways and corridors which will not be used for passage between Abatement Zones and non-abatement areas. Seal all floor drains.
7. Cover all walls and floors within Abatement Zone with a minimum of one (1) layer of six (6) mil polyethylene sheeting.
8. Maintain emergency and fire exits from the work area, or establish alternative exits satisfactory to fire officials.
9. Create pressure differential between Abatement Zones and non-abatement areas by the use of acceptable negative air pressure equipment. The HMAC shall ensure required negative air pressure is obtained throughout the containment and the total volume of air within the work area is changed every fifteen (15) minutes.
10. Utilize six-mil polyethylene glove bags for small removal areas.
11. Post all approaches to each work area with PCB Warning signs. Warning signs shall be of size and type that are easily readable and are visible from all approaches to the work areas.
12. Install drop cloths to facilitate the cleanup.
13. Refer to Section 020800 Asbestos Abatement for additional requirements where asbestos containing materials will be impacted during caulk removal.

D. For exterior work areas, the HMAC shall establish Abatement Zones, Decontamination Zones, and Support Zones in accordance with Section 1.9 of this Specification and the following:

1. Intact or Outdoor Remediation: PCB-Negative Pressure Enclosures (PCB-NPEs) will not be required in the Abatement Zones for the remediation if the PCB-containing materials are removed intact or (isolated) outdoors.
2. All approaches to work areas shall be restricted with barriers (i.e. orange construction fencing) properly posted with signage.
3. The HMAC shall establish the Abatement Zone, Decontamination Zone and Support Zone in accordance with Part 1.9 of this Specification. The boundaries of the three (3) zones shall be designated and segregated by orange construction fencing and posted with proper signage at a minimum.
4. To ensure that exterior work will not contaminate interior areas of the building, exterior abatement zones shall be isolated from the interior areas of the building with critical barriers consisting of two (2) layers of six (6) mil polyethylene sheeting or equivalent to prevent accidental entry and air exchange into the building. Within each exterior Abatement Zone, openings into the building interior such as door and window openings shall be securely sealed. The sheeting shall be sturdy enough to withstand inclement weather conditions. Utilize wood framing or hard barriers as necessary to support the sheeting.

5. Where necessary, weather screens shall be constructed to prevent the dispersion of particulate or debris due to wind or rain. The construction and placement of the weather screens shall be addressed in the HMAC's Work Plan.
6. Where necessary, ground cover and erosion controls shall be established to prevent the migration of remediation dust or debris due to water from rain or remediation activities. The construction and placement of the ground cover and erosion controls shall be addressed in the HMAC's Work Plan.
7. Catch basins within remediation work zones shall be sealed to prevent solids or liquids from entering.

3.3 PREPARATION OF DECONTAMINATION ZONES

A. Preparation of Contiguous Personnel Decontamination System

1. The HMAC shall establish contiguous to each Abatement Zone, where feasible, a personnel decontamination system consisting of equipment room, shower room and clean room in series. Access between the contaminated and uncontaminated areas shall be through this decontamination enclosure only. The decontamination system shall be constructed of two layers of six-mil polyethylene sheeting. Pre-fabricated "pop-up" decontamination chambers shall be clean and not showing signs of wear or deterioration. Metal shower surrounds shall be required for this project.
2. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed ensuring that the sole source of air flow through this area originates from uncontaminated areas outside the work area.
3. The shower unit shall be equipped with an adequate supply of warm water. Shower waste water shall be captured into fifty-five gallon drums or other suitable containers for waste profiling and disposal.
4. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.

B. Preparation of Remote Personnel Decontamination System

1. In instances where construction of a contiguous decontamination facility is not feasible, the HMAC shall establish a remote personnel decontamination system. Access routes between the Abatement Zone and the shower shall be secured and restricted to authorized personnel and protected from contamination. The decontamination system shall be constructed of two (2) layers of six-mil polyethylene sheeting.
2. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed.
3. The shower unit shall be equipped with an adequate supply of warm water. Shower waste water shall be captured into fifty-five gallon drums or other suitable containers for waste profiling and disposal.
4. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.
5. When a remote personnel decontamination system will be utilized, a minimum of two (2) chambers shall be constructed contiguous to each Abatement Zone and be equipped with a HEPA vacuum and clean protective clothing.

C. Preparation of Waste Load Out Systems

1. The HMAC shall establish waste load out systems, where feasible, contiguous to Abatement Zones. The waste load system shall, at a minimum be restricted and consist of protective ground cover, weather protection as described in Part 3.2.C.2, 5, 6, and 7 of this Specification.
2. The waste load out system shall be used for decontaminating waste containers, bags, bundles, etc. prior to removal from the work area and transporting waste from the work area to the non-work area.
3. Persons working inside the contaminated work area are not permitted to pass from the work area to the non-work area through the waste load out system. Persons inside the contaminated work area shall not be permitted to enter into the clean area of the waste load out system.
4. Appropriate PCB waste containers shall be placed adjacent to Abatement Zones. Containers shall be lined, labeled, covered and secured.
5. Decontamination of all non-disposable equipment and tools employed in the course of the project will be performed in accordance with §761 Subpart S prior to removal from the enclosure system.
6. Liquid wastes generated as a result of the decontamination procedures shall be collected in fifty-five (55) gallon steel drums or other suitable contains for waste profiling or treatment or incineration in accordance with §761.60 (if required).

3.4 PREPARATION OF SUPPORT ZONES

A. Establish one (1) point of access into the Support Zone where the work area access log will be maintained.

B. For outdoor work areas, establish orange construction fence to delineate the Support Zone from unrestricted areas and post with applicable warning signs. Establish one (1) point of access into the Support Zone where the work area access log will be maintained.

C. Each work area shall contain an access log in order to maintain a list of personnel accessing the work area. Each person entering and exiting the work area shall sign the access log.

3.5 REMEDIATION PROCEDURES - GENERAL

A. Work shall be performed using appropriate engineering controls including HEPA filter equipped tools and misting to prevent exposure from the work and migration of contaminants.

B. All debris generated during operations including but not limited to visible caulking, dust and debris shall be HEPA vacuumed continuously throughout the work shift and at the end of the work shift to avoid accumulation. Any tears or rips that occur in polyethylene barriers or floor coverings shall be repaired or removed and replaced with new protections.

C. Ladders, scaffolding, or lifts utilized in the remediation shall be properly decontaminated as addressed in the HMAC's work plan prior to removal from the work area.

D. Abrasive actions performed on contaminated materials and masonry shall not be allowed.

E. All working surfaces of tools and equipment that contacts contaminated material shall be decontaminated using the methods prescribed by §40 CFR 761 Subpart S prior to removal from the regulated area.

3.6 CAULK REMEDIATION

A. The HMAC shall establish the Abatement Zone, Decontamination Zone, and Support Zone in accordance with this Specification prior to the remediation of caulk.

B. The HMAC shall mist all contaminated materials with water prior to and during removal. The standard shall be no visible emissions. Water shall be controlled and not allowed to pool or run off of the protective ground coverings.

C. Where electrical, telecommunication or data cables exist in wall sleeves or in close proximity to caulk removal, omit water usage. Utilize the nozzle end of a HEPA vacuum directly at the removal point to capture debris and dust generated during caulk removal.

D. Utilize hand held tools to manually remove caulk from substrate. Utilize a nylon brush to remove all visible caulk residue.

E. The waste shall be placed into a lined container. Any part of tools or equipment that comes into contact with PCB-containing materials will be subject to §40 Subpart S decontamination.

F. The HMAC shall immediately containerize all waste.

G. All surfaces from which PCB was removed shall be HEPA vacuumed and final cleaned until no visible residue remains.

H. Liquid materials, including equipment or personal decontamination fluids or similar liquids generated during work at the Site shall be placed directly into appropriately sized and sealed vessels immediately upon generation.

I. Liquid Wastes generated as a result of the PCB remediation and personnel or equipment decontamination shall be characterized by testing and analysis and disposed of accordingly. Regulated PCB liquid wastes shall be burned in a high temperature incinerator in accordance with §761.60 or managed (treated) in accordance with §761.60.

3.7 FINAL WORK AREA CLEANING

A. Upon completion of remediation and removal of tools, waste, and supplies from each work area, the HMAC shall use wet wiping and HEPA vacuuming methods to remove all visible dust, debris and residue from all surfaces within the abatement and decontamination zones.

B. Decontaminate substrate with a non-chlorinated organic solvent and perform second HEPA vacuuming of surface.

C. Upon completion of the final work area cleaning, a visual inspection shall be conducted by the Contractor's Site Supervisor for visible evidence of residual PCB product and dust and debris. Following the Site Supervisor's visual inspection, the Owner's Consultant shall perform a final visual inspection of the work area. The visual inspection shall provide verification that remediation work has been completed in accordance with this specification.

D. Any surface exhibiting evidence of contamination, dust or debris, or incomplete abatement of specified PCB-containing materials shall be re-cleaned by the HMAC at no cost to the Owner.

3.8 ON-SITE WASTE MANAGEMENT

A. SOLID WASTES

1. All solid waste materials shall be placed directly in appropriate waste receptacles immediately upon removal from in-situ positions. Solid wastes shall include used containment barriers, personnel protective equipment, and other solid wastes generated during the work, Suitable waste receptacles may consist of CTDOT-approved 5 to 55-gallon containers.
2. Containers shall consist of suitable DOT-approved containers that are watertight and free of corrosion, perforations, punctures, or other damage. All containers shall have ring lock lids and shall be sealed at the conclusion of each workday.
3. The waste containers shall remain staged at the site with a secure impermeable cover in place until the materials are transported from the site to be delivered to the designated disposal facility.
4. A waste staging area shall be designated prior to initiation of the remediation work and approved by the Owner's Consultant.
5. PCB Waste at any concentration shall be stored in compliance with the time constraints, container, inspection, and labeling requirements, and all other requirements set forth in §761.65. On-site temporary storage of PCBs shall be limited to thirty (30) days per §761.65(C)(1).

B. DECONTAMINATION FLUIDS AND LIQUID WASTE MATERIALS

1. All working surfaces of tools and equipment that contacts contaminated materials shall be decontaminated using the methods prescribed by §40 CFR 761 Subpart S.
2. Liquid Wastes generated as a result of the PCB remediation and equipment or personnel decontamination shall be profiled and if necessary, burned in a high temperature incinerator in accordance with §761.60 or managed (treated) in accordance with §761.60 if necessary.
3. Under no circumstances shall decontamination fluids or liquid wastes be discharged to the ground surface or subsurface at the site.
4. Liquid materials, including equipment or personal decontamination fluids or similar liquids generated during work at the site shall be placed directly into appropriately sized and sealed vessels immediately upon generation.
5. Acceptable vessels for the storage of liquid wastes may include DOT approved 55-gallon barrels, steel or polyethylene tanks, fractioning tanks or tank trucks. All proposed vessels shall be compatible with the intended liquid contents.
6. Container staging areas shall be designated prior to initiation of the removal work and approved by the Owner's Consultant.

7. All storage vessels to be used in the containerization and transportation of liquid waste materials shall be free of corrosion, perforations, punctures or other condition that may impair its ability to securely contain liquid.
8. Temporary staging of liquid waste vessels at the site shall be in a manner that will prevent freezing of contained liquids. Should the potential exist for liquid containers to freeze during exterior storage at the site, arrangements shall be made with the Owner's Consultant to identify and utilize an appropriate alternate storage location acceptable to the Owner's Consultant.
9. All liquid storage vessels utilized and staged at the site shall be stored in an area on the property that will not interfere with facility operations or normal flow of vehicle or pedestrian traffic, and in a manner that will minimize the potential for tipping, vandalism or damage by vehicular traffic.
10. All characterization of waste, testing, analytical fees for disposal purposes shall be borne by the HMAC.

C. LABELING OF WASTE CONTAINERS

1. All waste containers and temporary waste storage areas shall be labeled in accordance with §761.40 and §761.45.
2. All waste containers shall be posted with signage indicating the disposition of the waste (i.e. "PCB Bulk Product Waste).
3. All waste containers must be labeled with the name of the waste contained; the date in which the first material was placed in the vessel; and the last date at which addition of waste occurred.
4. All waste containers containing caulk or caulk debris, containment system components, used personnel protective equipment, personal and equipment wash water and decontamination fluids, or other wastes generated during the remediation work shall be labeled as follows:

HAZARDOUS WASTE-Federal law prohibits improper disposal.
If found, contact the nearest police or public safety authority or the
U.S. Environmental Protection Agency.
Generator's Name:
Manifest Document No.:

5. Such marking must be durable, in English and printed on or affixed to the surface of the package or on a label, tag or sign; displayed on a background of sharply contrasting color; un-obscured by labels or attachments and located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

3.8 WASTE TRANSPORTATION AND DISPOSAL

A. All waste packaging, labeling and transportation activities shall be performed in accordance with applicable State of Connecticut and US Department of Transportation Regulations at 49 CFR Parts 171, 172, 173, 177, and 178, and any and all other applicable federal, state and local laws and regulations.

B. All wastes shall be shipped using state-specific standard manifest documents. The HMAC shall supply and complete the manifest documents in accordance with all applicable state and federal regulations. All manifest documents shall be signed by a representative of the Owner and appropriate copes shall be provided to the Owner's representative prior to removing the waste from the site.

C. The HMAC or their designated waste disposal sub-contractor providing waste transportation services shall possess a valid Waste Hauler's Permit issued by the State of Connecticut Department of Energy and Environmental Protection (CTDEEP). In addition, if the waste is to be transported and disposed of out of Connecticut State, applicable permits for those states or territories through which the waste will be transported and for where it will be disposed will be required. It is the responsibility of the HMAC to identify the appropriate disposal facility and associated travel route(s) and to identify the pertinent permits that will be required and to provide copies of the applicable permits to the Owner's Consultant prior to removing the waste from the site.

D. The HMAC shall be responsible for applying for, obtaining and payment of all permits and temporary hazardous waste generator identification numbers to support the project.

3.9 CERTIFICATION OF REMEDIATION WORK

A. The HMAC shall certify in writing to the Owner's Consultant that all remediation work and waste disposal has been completed in accordance with this specification and all applicable federal and state regulations.

B. The HMAC shall certify in writing to the Owner's Consultant that each piece of equipment used in the Abatement Zones or which has come in or potential come into contact with PCB-contaminated material has been decontaminated in accordance with 40 CFR 761 Subpart S prior to removal from the Site.

END SECTION 02 8400

Z:\2018 Files\2018 Specs\UCONN\NE Dormitories Security System\Section 028400 Remediation of Presumed PCB Containing caulks.docx

STATE OF CONNECTICUT
UNIVERSITY OF CONNECTICUT

SUSAN HERBST
PRESIDENT

NORTHEAST DORMITORIES - SECURITY CAMERA SYSTEM

STORRS CAMPUS
NORTHEAST DORMITORIES

STORRS, CT 06269

PROJECT NO.: 300020

PREPARED FOR:

UCONN CAPITAL PROJECTS & CONTRACT ADMINISTRATION

3 DISCOVERY DRIVE. UNIT 6076
STORRS, CT 06269-6076
860-486-2619

ISSUED FOR BID: February 15, 2019

PROJECT CONSULTANTS

Architect:

CHRISTOPHER WILLIAMS ARCHITECTS
85 Willow Street New Haven, CT 06511
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Security Consultant:

Atriade
221 River Street, Suite 900
Hoboken, NJ 07030
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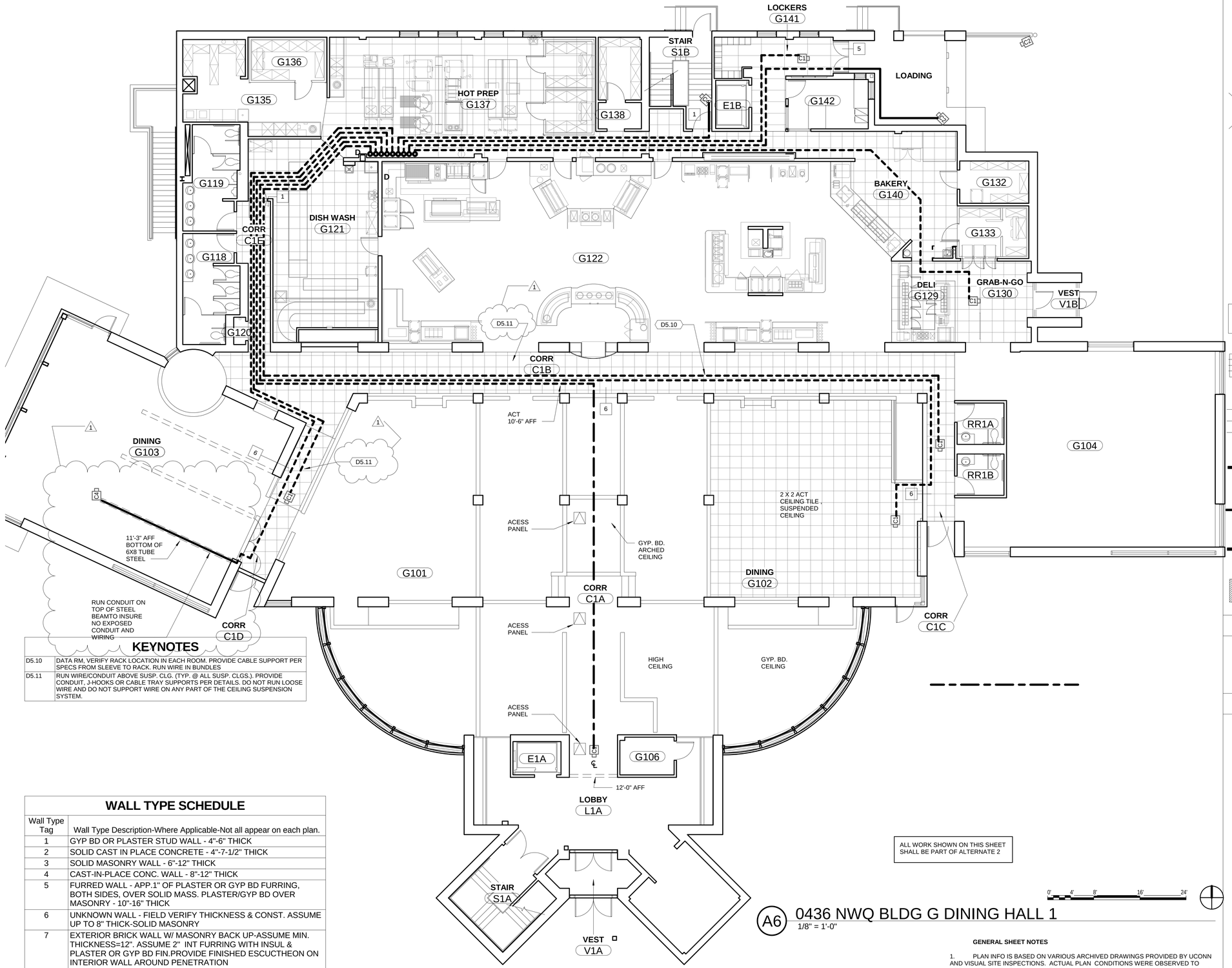
0473-0	HUSKY VILLAGE - BUILDING E - GROUND AND FIRST FLOOR PLANS	•	

REVISIONS:

MARK	DATE	DESCRIPTION

STATE OF CONNECTICUT
CHRISTOPHER WILLIAMS
6429
LICENSED ARCHITECT

PROJECT SITE LOCATION
NOT TO SCALE



KEYNOTES

D5.10	DATA RM, VERIFY RACK LOCATION IN EACH ROOM. PROVIDE CABLE SUPPORT PER SPECS FROM SLEEVE TO RACK. RUN WIRE IN BUNDLES
D5.11	RUN WIRE/CONDUIT ABOVE SUSP. CLG. (TYP. @ ALL SUSP. CLGS.). PROVIDE CONDUIT, J-HOOKS OR CABLE TRAY SUPPORTS PER DETAILS. DO NOT RUN LOOSE WIRE AND DO NOT SUPPORT WIRE ON ANY PART OF THE CEILING SUSPENSION SYSTEM.

WALL TYPE SCHEDULE

Wall Type Tag	Wall Type Description-Where Applicable-Not all appear on each plan.
1	GYP BD OR PLASTER STUD WALL - 4"-6" THICK
2	SOLID CAST IN PLACE CONCRETE - 4"-7-1/2" THICK
3	SOLID MASONRY WALL - 6"-12" THICK
4	CAST-IN-PLACE CONC. WALL - 8"-12" THICK
5	FURRED WALL - APP.1" OF PLASTER OR GYP BD FURRING, BOTH SIDES, OVER SOLID MASS. PLASTER/GYP BD OVER MASONRY - 10"-16" THICK
6	UNKNOWN WALL - FIELD VERIFY THICKNESS & CONST. ASSUME UP TO 8" THICK-SOLID MASONRY
7	EXTERIOR BRICK WALL W/ MASONRY BACK UP-ASSUME MIN. THICKNESS=12". ASSUME 2" INT FURRING WITH INSUL & PLASTER OR GYP BD FIN.PROVIDE FINISHED ESCUCTHEON ON INTERIOR WALL AROUND PENETRATION
8	EXTERIOR STONE FOUNDATION / EXTERIOR WALL ~ 24 IN. THICK

ALL WORK SHOWN ON THIS SHEET SHALL BE PART OF ALTERNATE 2

A6 0436 NWQ BLDG G DINING HALL 1
1/8" = 1'-0"

0' 4' 8' 16' 24'

GENERAL SHEET NOTES

1. PLAN INFO IS BASED ON VARIOUS ARCHIVED DRAWINGS PROVIDED BY UCONN AND VISUAL SITE INSPECTIONS. ACTUAL PLAN CONDITIONS WERE OBSERVED TO LOCATE DEVIATIONS FROM THE ORIGINAL PLANS, INCLUDING, BUT ARE NOT LIMITED TO, ADDITIONAL PARTITIONS, VARYING WALL THICKNESSES, OBSTRUCTIONS, ETC. EVERY EFFORT HAS BEEN MADE TO INCLUDE THESE VARIATIONS IN THESE DRAWINGS, HOWEVER **FIELD VERIFICATION** IS NECESSARY.

2. **WIRE RUNS ARE FOR ILLUSTRATION PURPOSES TO INDICATE HOMERUNS TO PANEL NOT TO DENOTE CONDUIT RUNS**

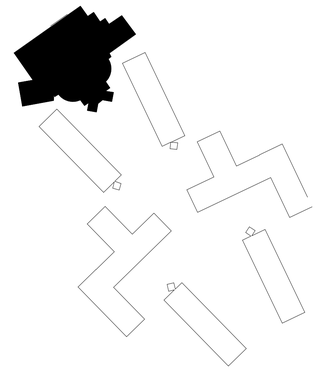
LEGEND

- UP CABLE OR CONDUIT RUN - FREE CABLE IN WALL OR CHASE. CONDUIT IF SURFACE MOUNTED
- DOWN CABLE OR CONDUIT RUN - FREE CABLE IN WALL OR CHASE. CONDUIT IF SURFACE MOUNTED
- CAMERA TYPE. SEE CAMERA SCHEDULE
- CAMERA - CEILING MOUNTED UNLESS NOTED OTHERWISE. SEE CAMERA SCHEDULE & SPECS.
- CAMERA TYPE. SEE CAMERA SCHEDULE
- EXTERIOR CAMERA INDICATING GENERAL DIRECTION OF VIEW. SEE CAMERA SCHEDULE FOR PARTICULAR HORIZONTAL & VERTICAL FIELD OF VIEW.
- WALL TAG SYMBOL
- FENCE LINE
- TELEPHONE LINE
- HYDRANT LATERAL
- STORM LINE
- WATER LINE
- SEWER LINE
- "HARD" CEILING SURFACE
- 1x1 ACCOUSTICAL CEILING TILE GLUED TO SUBSTRATE. LIGHTING FIXTURES, SPRINKLER HEADS & OTHER CLG MOUNTED DEVICES ARE NOT SHOWN. SURFACE MOUNT WIRE MOLD AS CLOSE TO WALL/CLG CORNER AS POSSIBLE. PAINT TO MATCH EXISTG. REPLACE ANY TILE DAMAGED DURING ENTIRE PROCESS W/MATCHING NEW.
- 2x2 OR 2x4 SUSPENDED CEILING. LIGHTING FIXTURES, SPRINKLER HEADS & OTHER CLG MOUNTED DEVICES ARE NOT SHOWN. REMOVE/RE-INSTALL AC TILES TO RUN WIRE ABOVE CLG. INSTALL J-HOOKS TO WALLS &/OR UNDERSIDE OF FLOOR STRUCTURE ABOVE. RE-INSTALL TILE. REPLACE ANY TILE OR GRID DAMAGED DURING ENTIRE PROCESS W/MATCHING NEW.
- WIRE RUN IN CONDUIT/SURFACE MOUNTED CONDUIT. MOUNT TO GYP BD, PLASTER OR U/S OF FINISHED, NON-SUSPENDED CLG OR FLOOR STRUCTURE. ASSUMES SPACE ABOVE CEILING DOES NOT EXIST OR IS INACCESSIBLE WITHOUT CUTTING / PATCHING FINISHES
- WIRE RUN ABOVE SUSPENDED A.C. TILE CLG. WHEN SHOWN ABOVE GRIDDED SUSPENDED CEILING, SUPPORT ON J HOOKS, WALL MOUNTED OR ATTACHED TO U/S OF FLOOR ABOVE. DO NOT REST ON GRID SYSTEM OR ATTACH TO HANGER WIRE.
- WIRE RUN ABOVE SUSPENDED GYP BD / PLASTER CLG. WHEN SHOWN W/ NO GRID, CUT / PATCH GYP BD TO "SNAKE" WIRE THROUGH CLG SPACE. EXIST ACCESS PANELS CAN VE USED WHERE IN CONVENIENT LOCATIONS
- PAVED PARKING AREAS GENERALLY COVERED BY ASSOCIATED CAMERAS. NOT ALL HATCHED AREAS MAY BE VISIBLE FROM THE CAMERA(S) COVERING THE AREA.

BUILDING KEY

HOLCOMB — BUILDING NAME
0069 — BUILDING NUMBER
BSMT — DATA RM LOCATION

KEY PLAN



CERTIFICATION:

STATUS:

CONSULTANT:

CHRISTOPHER WILLIAMS ARCHITECTS
85 Willow Street New Haven, CT 06511
203 776 0184 cwarchitectsllc.com

REVISIONS:

MARK	DATE	DESCRIPTION
1	03-14-2019	ADDENDUM 1

UNIVERSITY OF CONNECTICUT
ARCHITECTURAL & ENGINEERING
BUILDING SERVICES
31 LEDYOT ROAD UNIT 3038,
STORRS, CONNECTICUT 06269-3038
TELEPHONE: (860) 486-3127
FACSIMILE: (860) 486-5177

PROJECT:

NORTHEAST DORMITORIES SECURITY CAMERA SYSTEM

Storrs CT. 06269-3038

Issued for Bid

February 15, 2019

PROJECT NO: 1714
WORK ORDER NO:
FILE NAME:

AUTHOR: Designer
DRAFTER:Author
SCALE: 1/8" = 1'-0"
PRINT DATE:01/16/18
SHEET TITLE:

NORTHWEST QUAD - BUILDING G - FIRST FLOOR PLAN

SHEET:

0436-1

SHEET: ___ of ___

3/15/2019 3:20:50 PM C:\Users\dnazarko\Documents\1714 UN-NE Residence Halls Security Camera System_dnazarko.rvt

KEYNOTES

D5.11	RUN WIRE/CONDUIT ABOVE SUSP. CLG. (TYP. @ ALL SUSP. CLGS.). PROVIDE CONDUIT, J-HOOKS OR CABLE TRAY SUPPORTS PER DETAILS. DO NOT RUN LOOSE WIRE AND DO NOT SUPPORT WIRE ON ANY PART OF THE CEILING SUSPENSION SYSTEM.
D5.12	RUN WIRE/CONDUIT ABOVE GYP. BD. CLG. CUT, PATCH & PAINT GYP. BD.

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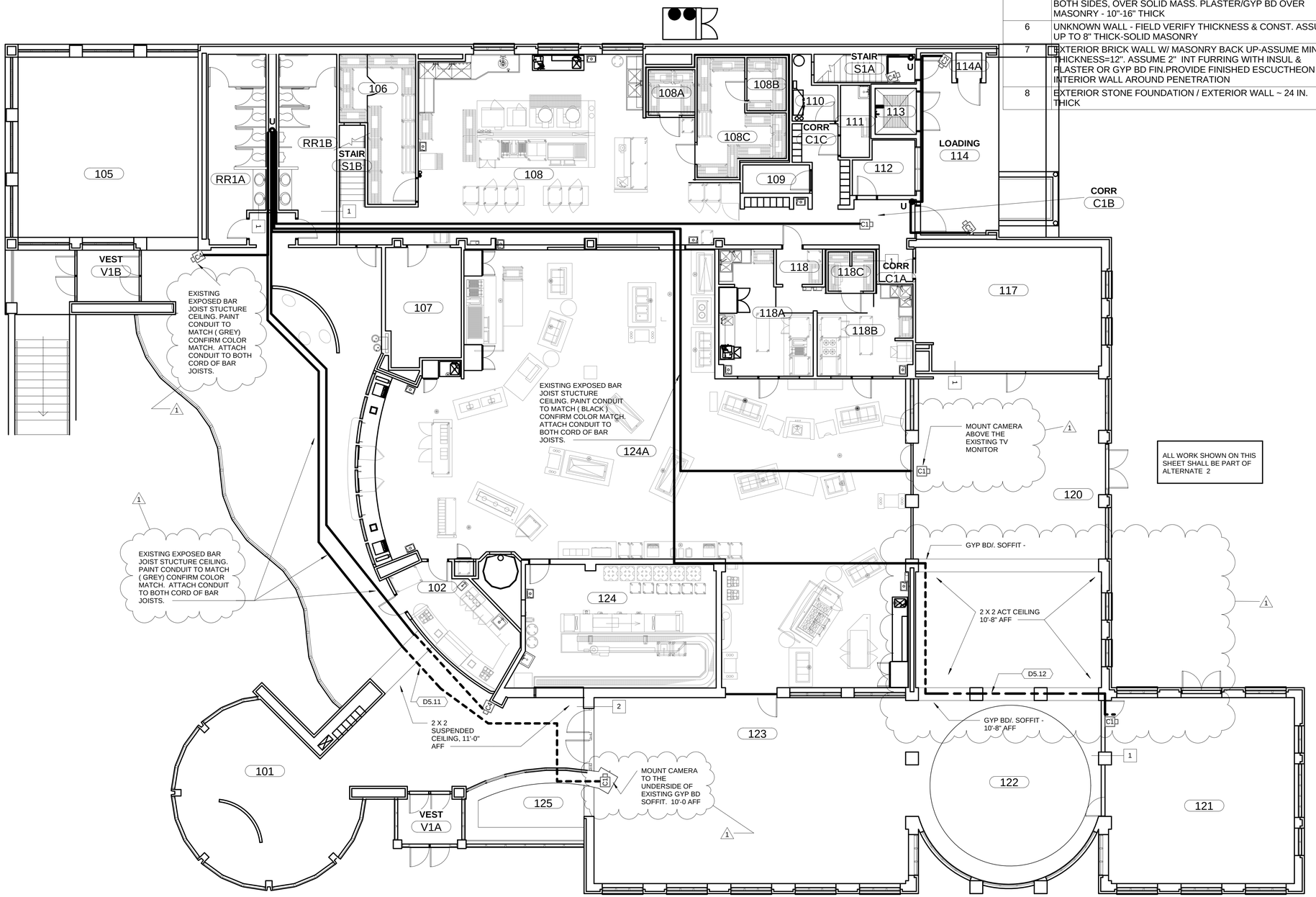

ALL WORK SHOWN ON THIS SHEET SHALL BE PART OF ALTERNATE 2

LEGEND

- UP CABLE OR CONDUIT RUN - FREE CABLE IN WALL OR CHASE. CONDUIT IF SURFACE MOUNTED
- DOWN CABLE OR CONDUIT RUN - FREE CABLE IN WALL OR CHASE. CONDUIT IF SURFACE MOUNTED
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- CAMERA - CEILING MOUNTED UNLESS NOTED OTHERWISE. SEE CAMERA SCHEDULE & SPECS.
- CAMERA TYPE. SEE CAMERA SCHEDULE
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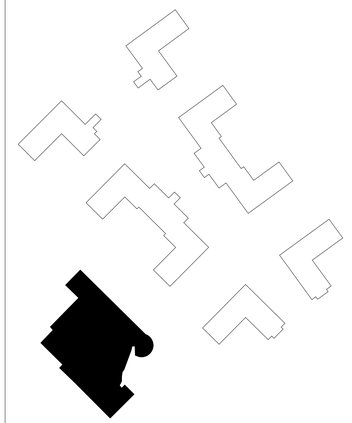
BUILDING KEY

HOLCOMB — BUILDING NAME
0069 — BUILDING NUMBER
BSMT — DATA RM LOCATION

KEY PLAN



1 0476 TW DINING HALL 1
1/8" = 1'-0"

*** ALL DINING SERVICES WORK SHALL BE PRICED AS ALTERNATE 2 ***

0' 4' 8' 16' 24'

GENERAL SHEET NOTES

1. PLAN INFO IS BASED ON VARIOUS ARCHIVED DRAWINGS PROVIDED BY UCONN AND VISUAL SITE INSPECTIONS. ACTUAL PLAN CONDITIONS WERE OBSERVED TO LOCATE DEVIATIONS FROM THE ORIGINAL PLANS, INCLUDING, BUT ARE NOT LIMITED TO, ADDITIONAL PARTITIONS, VARYING WALL THICKNESSES, OBSTRUCTIONS, ETC. EVERY EFFORT HAS BEEN MADE TO INCLUDE THESE VARIATIONS IN THESE DRAWINGS, HOWEVER **FIELD VERIFICATION** IS NECESSARY.

2. **WIRE RUNS ARE FOR ILLUSTRATION PURPOSES TO INDICATE HOMERUNS TO PANEL NOT TO DENOTE CONDUIT RUNS**

CERTIFICATION:

STATUS:

CONSULTANT:

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REVISIONS:

MARK	DATE	DESCRIPTION
1	03-14-2019	ADDENDUM 1

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PROJECT:

NORTHEAST DORMITORIES SECURITY CAMERA SYSTEM

Storrs CT. 06269-3038

Issued for Bid

February 15, 2019

PROJECT NO: 1714
WORK ORDER NO:
FILE NAME:

AUTHOR: Designer
DRAFTER:Author
SCALE: As indicated
PRINT DATE:01/16/18
SHEET TITLE:

TOWERS - DINING HALL - FIRST FLOOR PLAN

SHEET: 0476-1

SHEET: ___ of ___

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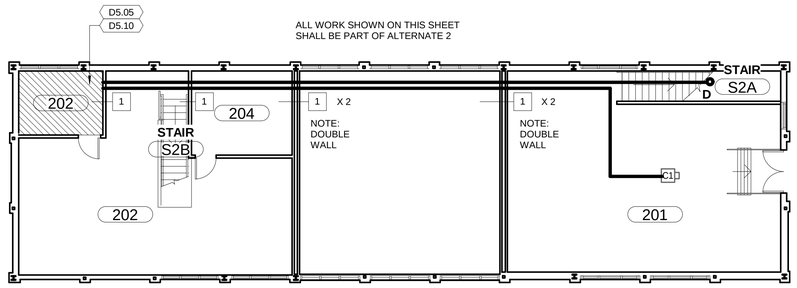
KEYNOTES

D5.05	DATA RM, RUN NEW CAMERA WIRE THROUGH EXISTING SLEEVES AFTER VERIFYING AVAILABLE SPACE. CONTRACTOR TO COORDINATE AVAILABILTY AND RUN WIRES ACCORDINGLY. FIRESTOP AROUND WIRES & FIRESTOP UN-USED SLEEVES. SEE FIRESTOPPING DETAILS
D5.10	DATA RM, VERIFY RACK LOCATION IN EACH ROOM. PROVIDE CABLE SUPPORT PER SPECS FROM SLEEVE TO RACK. RUN WIRE IN BUNDLES

WALL TYPE SCHEDULE

Wall Type Tag	Wall Type Description-Where Applicable-Not all appear on each plan.
1	GYP BD OR PLASTER STUD WALL - 4"-6" THICK
2	SOLID CAST IN PLACE CONCRETE - 4"-7-1/2" THICK
3	SOLID MASONRY WALL - 6"-12" THICK
4	CAST-IN-PLACE CONC. WALL - 8"-12" THICK
5	FURRED WALL - APP.1" OF PLASTER OR GYP BD FURRING, BOTH SIDES, OVER SOLID MASS. PLASTER/GYP BD OVER MASONRY - 10"-16" THICK
6	UNKNOWN WALL - FIELD VERIFY THICKNESS & CONST. ASSUME UP TO 8" THICK-SOLID MASONRY
7	EXTERIOR BRICK WALL W/ MASONRY BACK UP-ASSUME MIN. THICKNESS=12". ASSUME 2" INT FURRING WITH INSUL & PLASTER OR GYP BD FIN.PROVIDE FINISHED ESCUCTHEON ON INTERIOR WALL AROUND PENETRATION
8	EXTERIOR STONE FOUNDATION / EXTERIOR WALL ~ 24 IN. THICK



A6 0476 TW DINING HALL 2

1/8" = 1'-0"

*** ALL DINING SERVICES WORK SHALL BE PRICED AS ALTERNATE 2 ***

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LEGEND

- UP CABLE OR CONDUIT RUN - FREE CABLE IN WALL OR CHASE. CONDUIT IF SURFACE MOUNTED
- DOWN CABLE OR CONDUIT RUN - FREE CABLE IN WALL OR CHASE. CONDUIT IF SURFACE MOUNTED
- CAMERA TYPE. SEE CAMERA SCHEDULE
- CAMERA - CEILING MOUNTED UNLESS NOTED OTHERWISE. SEE CAMERA SCHEDULE & SPECS.
- CAMERA TYPE. SEE CAMERA SCHEDULE
- EXTERIOR CAMERA INDICATING GENERAL DIRECTION OF VIEW. SEE CAMERA SCHEDULE FOR PARTICULAR HORIZONTAL & VERTICAL FIELD OF VIEW.
- WALL TAG SYMBOL

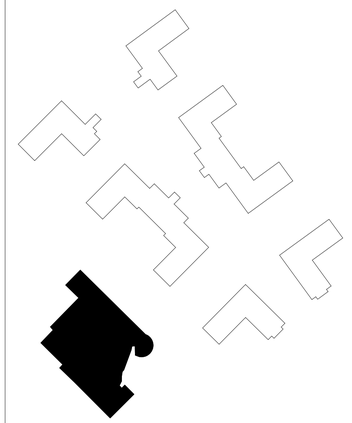
F	F	FENCE LINE
T	T	TELEPHONE LINE
H	H	HYDRANT LATERAL
S	S	STORM LINE
W	W	WATER LINE
SWR	SWR	SEWER LINE

- "HARD" CEILING SURFACE
- 1x1 ACCOUSTICAL CEILING TILE GLUED TO SUBSTRATE. LIGHTING FIXTURES, SPRINKLER HEADS & OTHER CLG MOUNTED DEVICES ARE NOT SHOWN. SURFACE MOUNT WIRE MOLD AS CLOSE TO WALL/CLG CORNER AS POSSIBLE. PAINT TO MATCH EXISTG. REPLACE ANY TILE DAMAGED DURING ENTIRE PROCESS W/MATCHING NEW.
- 2x2 OR 2x4 SUSPENDED CEILING. LIGHTING FIXTURES, SPRINKLER HEADS & OTHER CLG MOUNTED DEVICES ARE NOT SHOWN. REMOVE/RE-INSTALL AC TILES TO RUN WIRE ABOVE CLG. INSTALL J-HOOKS TO WALLS &/OR UNDERSIDE OF FLOOR STRUCTURE ABOVE. RE-INSTALL TILE. REPLACE ANY TILE OR GRID DAMAGED DURING ENTIRE PROCESS W/MATCHING NEW.
- WIRE RUN IN CONDUIT/SURFACE MOUNTED CONDUIT. MOUNT TO GYP BD, PLASTER OR U/S OF FINISHED, NON-SUSPENDED CLG OR FLOOR STRUCTURE. ASSUMES SPACE ABOVE CEILING DOES NOT EXIST OR IS INACCESSIBLE WITHOUT CUTTING / PATCHING FINISHES
- WIRE RUN ABOVE SUSPENDED A.C. TILE CLG. WHEN SHOWN ABOVE GRIDDED SUSPENDED CEILING, SUPPORT ON J HOOKS, WALL MOUNTED OR ATTACHED TO U/S OF FLOOR ABOVE. DO NOT REST ON GRID SYSTEM OR ATTACH TO HANGER WIRE.
- WIRE RUN ABOVE SUSPENDED GYP BD / PLASTER CLG. WHEN SHOWN W/ NO GRID, CUT / PATCH GYP BD TO "SNAKE" WIRE THROUGH CLG SPACE. EXIST ACCESS PANELS CAN VE USED WHERE IN CONVENIENT LOCATIONS
- PAVED PARKING AREAS GENERALLY COVERED BY ASSOCIATED CAMERAS. NOT ALL HATCHED AREAS MAY BE VISIBLE FROM THE CAMERA(S) COVERING THE AREA.

BUILDING KEY

HOLCOMB	BUILDING NAME
0069	BUILDING NUMBER
BSMT	DATA RM LOCATION

KEY PLAN



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SHEET TITLE:

TOWERS - DINING HALL - SECOND FLOOR PLAN

SHEET: **0476-2**

SHEET: ___ of ___

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