PROJECT MANUAL

I.D.E.A.L. LAB (PHASE 1 DEMOLITION)

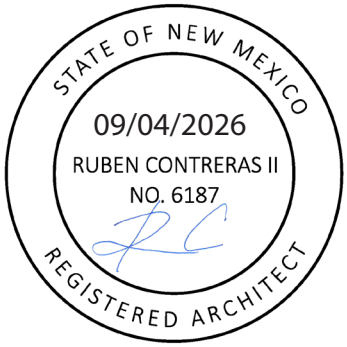
September 04, 2026
NMSU Project #5297
Desert Peak Project # 206-143

Desert Peak
Architects, P.C.
311 N. Main Street
Las Cruces, NM 88001

PROJECT MANUAL

I.D.E.A.L. LAB (PHASE 1 DEMOLITION)

September 04, 2026
NMSU Project #5297
Desert Peak Project # 206-143



The technical material and data contained in the Specifications were prepared under the supervision and direction of the undersigned, whose seal as a Professional Architect, licensed in the State of New Mexico, is affixed above.

All questions about the meaning or intent of these documents shall be submitted only to the Architect of Record, stated above, in writing.

Ruben Contreras, AIA — September 04, 2026
ARCHITECT OF RECORD — DATE

Desert Peak Architects, P.C.
311 N. Main Street
Las Cruces, NM 88001

TABLE OF CONTENTS

SECTION 000101 - PROJECT TITLE PAGE

PART 1 - GENERAL

1.1 PROJECT MANUAL

A. VOLUME [**1**]

1. Integrated Digital Enterprise Accelerator Lab (Phase 1 Demolition)
2. Regents of New Mexico State University
3. Las Cruces, NM
4. Architect Project No. 206-143

Desert Peak Architects
311 N. Main Street
Las Cruces, NM 88001
Phone: 575-528-0021
Website: desertpeakarchitects.com

5. Issued: 09/04/2026
6.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 000101

DOCUMENT 000107 - SEALS PAGE

PART 1 - GENERAL

1.1 DESIGN PROFESSIONALS OF RECORD

A. Architect:

1. Ruben Contreras II
2. License #6187

B. Architect Firm:

1. Desert Peak Architects
2. 311 N. Main Street, Las Cruces, NM 88001

C. Civil Engineer:

1. Michael Johnson
2. License #10751

D. Electrical Engineer

1. Jose Morales
2. License #22154

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF DOCUMENT 000107

DOCUMENT 003119 - EXISTING CONDITION INFORMATION

PART 1 - GENERAL

1.1 EXISTING CONDITION INFORMATION

A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. They are made available for Bidders' convenience and information. This Document and its attachments are not part of the Contract Documents.

B. Existing Drawings that include information on existing conditions, including previous construction at Project site are available for viewing as part of drawings (for reference only)

C. Survey information that includes information on existing conditions, prepared by Souder Miller and Associates, dated 07/16/2026 is available for viewing [**as an attachment to this specification section**] (for reference only).

D. Related Requirements:

1. Owner’s "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
2. Document 003126 "Existing Hazardous Material Information" for hazardous materials reports that are made available to Bidders.

PART 2 - PRODUCTS (Not Used)

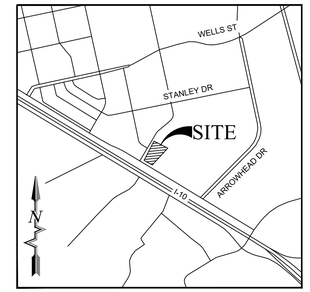
PART 3 - EXECUTION (Not Used)

END OF DOCUMENT 003119

TOPOGRAPHIC AND UTILITY SURVEY

NMSU CAMPUS, PHOTOVOLTAIC BUILDINGS, PAYNE STREET AND SAM STEEL WAY,
SECTION 28, TOWNSHIP 23 SOUTH, RANGE 2 EAST OF THE N.M.P.M.
CITY OF LAS CRUCES, DOÑA ANA COUNTY, NEW MEXICO

GRID NORTH
0 30' 60'
SCALE: 1" = 30'
U.S. SURVEY FEET



VICINITY MAP
NOT TO SCALE

OWNER:
NEW MEXICO STATE
UNIVERSITY DIRECTOR OF
REAL ESTATE - MSC ORE

CP #700
RIM ELEV:CP 1/2 REBAR SMA CONTROL
N=462725.94
E=1487063.53
EL=3936.53

PAYNE STREET

CP #702
SET 1/2" REBAR
W/ SMA CONTROL CAP
N=462402.68
E=1487004.45
EL=3930.03

SAM STEEL WAY

SOLAR PANEL

BLDG 1 FF=40.03
BLDG 2 FF=39.94
BLDG 3 FF=40.09
BLDG 4 FF=38.35
BLDG 5 FF=38.80
BLDG 6 FF=39.50
BLDG 7 FF=39.80
BLDG 8 FF=36.76
BLDG 9 FF=37.16
BLDG 10 FF=37.75
BLDG 10A FF=37.42, FF=37.58
BLDG 11 FF=34.88
BLDG 12 FF=35.60

OWNER:
NEW MEXICO STATE
UNIVERSITY DIRECTOR OF
REAL ESTATE - MSC ORE

CP #704
SET 1/2" REBAR
W/ SMA CONTROL CAP
N=462211.72
E=1487181.40
EL=3924.31

CP #705
SET 1/2" REBAR
W/ SMA CONTROL CAP
N=462716.22
E=1487554.73
EL=3940.71

LEGEND

- FOUND PROPERTY CORNER, AS NOTED
- FOUND ALUMINUM CAP, AS NOTED
- CONTROL POINT
- ELECTRIC BOX
- ELECTRIC MANHOLE
- ELECTRIC MARKER
- ELECTRIC METER
- ELECTRIC PEDESTAL
- ELECTRIC PULLBOX
- ELECTRIC TRANSFORMER
- ELECTRIC VAULT
- UTILITY POLE
- UTILITY POLE GUY WIRE
- LIGHT POLE
- SANITARY SEWER MANHOLE
- WATER SPIGOT
- WATER VALVE
- OHE — OVERHEAD ELECTRIC LINE
- UGE — UNDERGROUND ELECTRIC LINE
- UGT — UNDERGROUND TELECOM LINE
- SS — SANITARY SEWER LINE
- W — WATERLINE
- CHAINLINK FENCE
- BUILDING/SOLAR PANEL OVERHANGING
- 3935 — MINOR CONTOUR LINE, 1' INTERVAL
- 3940 — MAJOR CONTOUR LINE, 5' INTERVAL

CONTROL POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
700	462725.94	1487063.53	3936.53	CP 1/2IN REBAR SMA CONTROL
702	462402.68	1487004.45	3930.03	CP 1/2IN REBAR SMA CONTROL
704	462211.72	1487181.40	3924.31	CP 1/2IN REBAR SMA CONTROL
705	462716.22	1487554.73	3940.71	CP 1/2IN REBAR SMA CONTROL

BASIS OF BEARINGS:

BASIS OF BEARING FOR THIS SURVEY SHOWN HEREON ARE NEW MEXICO STATE PLANE COORDINATE SYSTEM GRID BEARINGS, DISTANCES AND COORDINATES ARE MODIFIED (SURFACE) NAD83, NEW MEXICO STATE PLANE COORDINATES, CENTRAL ZONE 3002, FROM A CONTROL POINT DETERMINED BY AN OPUS SOLUTION

REFERENCE FRAME: MODIFIED NAD83(2011) (EPOCH:2010.0000)

ORIGIN OF SCALE: N=462725.938 E=1487063.534 (N32°16'16.12265" W106°44'46.22680")

GRID TO GROUND SCALE FACTOR: 1.0002577205

CONVERGENCE: -000° 15' 53.73"

ALL DISTANCES ARE GROUND DISTANCES, UNITS ARE U.S. SURVEY FEET

SURVEYOR CERTIFICATION

I, LANCE C. FOSTER, NEW MEXICO PROFESSIONAL SURVEYOR NO. 30452, DO HEREBY CERTIFY THAT THIS TOPOGRAPHIC SURVEY WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION BASED ON AN ACTUAL SURVEY ON THE GROUND AS DESCRIBED HEREON; THAT I AM RESPONSIBLE FOR THIS SURVEY; AND THAT THE SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

LANCE FOSTER NEW MEXICO 30452 07/16/2026 PROFESSIONAL SURVEYOR

LANCE C. FOSTER, N.M.P.S. 30452

7-16-2026
DATE

Rev #	Date	Description	By	Chk'd
1	7-16	ADDED WATER LINES FROM AS BUILTS		

SOUDER, MILLER & ASSOCIATES
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NMSU CAMPUS, CITY OF LAS CRUCES

TOPOGRAPHIC AND UTILITY SURVEY
NMSU CAMPUS, PHOTOVOLTAIC BUILDINGS,
PAYNE STREET AND SAM STEEL WAY,
SECTION 28, TOWNSHIP 23 SOUTH, RANGE 2 EAST OF THE N.M.P.M.
CITY OF LAS CRUCES, DOÑA ANA COUNTY, NEW MEXICO

DPA

Fieldwork	Drawn	Checked
MH	CR	LCF

Date: July 2026
Scale: Horiz: 1" = 30'
Vert: N/A
Project No: 9335401
Sheet: 1 OF 1

V:\9-DPA NMSU Photovoltaic Bldgs (9335401)\Survey\01-DWG\Topographic and Utility Survey.dwg, 7/16/2026 8:33:53 AM CR

DOCUMENT 003126 - EXISTING HAZARDOUS MATERIAL INFORMATION

PART 1 - GENERAL

1.1 EXISTING HAZARDOUS MATERIAL INFORMATION

A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for the Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information. This Document and its attachments are not part of the Contract Documents.

B. An existing asbestos and lead-containing paint report for the project, prepared by AnE Consulting Inc., dated 07/06/2026 is available for viewing [**as appended to this Project Manual**].

C. An existing asbestos and lead-containing paint recommendations, prepared by AnE Consulting Inc., dated 07/06/2026 is available for viewing [**as appended to this Project Manual**].

D. Related Requirements:

1. Owner’s "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
2. Document 003119 "Existing Condition Information" for information about existing conditions that is made available to Bidders.
3. Section 011000 "Summary"
4. Division 02 Sections for abatement of hazardous materials.
5. Section 024116 "Structure Demolition" for notification requirements if materials suspected of containing hazardous materials are encountered.
6. Section 024119 "Selective Demolition" for notification requirements if materials suspected of containing hazardous materials are encountered.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF DOCUMENT 003126

Lead-Based Paint Survey At
Project 5297 Ideal Lab
Bldgs. 1,2,3,4,5,6,7,8,9,10,11&12
Las Cruces, New Mexico 88003

Prepared for:
New Mexico State University
1780 E. University Ave.
Las Cruces, New Mexico88003

6595 Strahan Road
El Paso, Texas 79932

Inspection Date:
July 6, 2026

July 21, 2026

New Mexico State University
Attn: Michael D. Vielma
Project Manager
P.O. Box 30001
Las Cruces, NM 88003

RE: Lead-Based Paint Survey at
NMSU/ Project 5297 Ideal Lab
Buildings 514 – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12
located within the Photovoltaic Lab site

Dear Mr. Vielma,

AnE Consulting, Inc. is pleased to submit the following lead-based paint (LBP) survey report performed at the above referenced site. The survey was conducted on interior & exterior painted surfaces.

The LBP survey was performed by Mr. Nick Rodriguez, a certified Lead Risk Assessor. The survey was conducted on July, 6 2026, utilizing a Niton XLP 300A Series X-Ray Fluorescence (XRF) with Serial No. 112525.

We would like to thank you for the opportunity to help you with your environmental needs. If you have any questions, please feel free to contact us.

Sincerely,

Nick Rodriguez
Lead Risk Assessor
TDSHS License #2070222
Expiration Date: 11/10/2026

Purpose and Scope of Services

AnE Consulting, Inc. submits the following results of the lead-based paint survey performed 5297 Ideal Lab, Buildings 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, Las Cruces, New Mexico. The survey was conducted to determine if lead-based paint is present in the painted surfaces tested at the structure. The scope of work as follows:

1) Conduct on-site paint testing using a portable XRF instrument.
2) Collect basic information on paint conditions.
3) Prepare a report that describes our inspection process, summarizes the findings, and presents all data.

Lead-Based Paint is paint or other surface coatings that contain lead equal to or in excess of 1.0 milligram per square centimeter or more than 0.5 percent by weight or 5000 parts per million by weight as established by Environmental Protection Agency (EPA) and Housing Urban Development (HUD) regulations. **None (0) of the sixty-seven (67) XRF results tested equal to or greater than the regulatory limit of 1.0 mg/cm² of lead.**

Structure Description

It is unknown when the structures were built. The building consists of carpet, vinyl and ceramic floor tile over a concrete slab foundation, with wall drywall and CMU, and a textured ceiling under shingled roofs. The buildings were occupied and in use at the time of the survey.

Inspection Methodology

The survey was performed by Mr. Nick Rodriguez, a certified Lead Risk Assessor, on July 6, 2026. This survey was not done according to the EPA, the US EPA and HUD definition of "Target Housing" or "Child Occupied Facility" and therefore is not subject to regulations specific to LBP in "Target Housing" or "Child Occupied Facility". However, the LBP inspections was generally conducted following the procedures outlined in Chapter 7 of the United States Housing Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint in Housing, revised October 1997.

After observation of the building materials which appear to have been repainted over the years there is no indication ofany previous testing for lead-based paint. The physical condition of the building components and their paints were intact at the time of the survey. Accessible exterior homogenous component painted surfaces were tested. A homogenous component is a building material that is uniform in function, composition, texture, age, and generally appears consistent at various locations at the building. The XRF instrument determines lead in all layers of paint.See the LBP Testing Data Sheet.

Although the protocol described in the HUD Guidelines for XRF instrumentusage and selection of paint testing locations, the frequency/quantity of testing for any given individual building component may have been modified to reflect the nature of the subject project. Specifically, it is important to note that the HUD Guidelines are not directly applicable to these types of buildings. Given that the building is not and will not be occupied by a child there is no need to specifically identify lead levels on each and every wall in each and every room. Rather the goal is to identify the lead ranges and paint conditions as relevant to the demolition work and the OSHA Lead Standard.

Table 1

Area	Colors	Substrate	Condition	Component
BLDG's 1-12	White, Red, Pink, Brown, Maroon, Blue, Beige, Grey	Drywall, Plaster, Wood, Metal, Plastic, Concrete Masonry Unit	Fair	Walls, Doors, Door Frames, Window Frames, Ceilings, Doors, Base Boards, Exterior Wood Panels

Calibration of the XRF Instrument

Before proceeding with the survey of the painted surfaces, the XRF instrument performed a self-calibration check in accordance with the manufacturer's quality control procedures. After the warmup period, the inspector took one calibration check reading on a 1.0 mg/cm^2 lead film provided by the manufacturer. The difference among the first calibration check average and the 1.0 mg/cm^2 lead film was not greater than the 0.2 mg/cm^2 calibration check limit obtained from the XRF Performance Characteristic Sheet, the XRF instrument in use did not require correction for substrate bias for any substrate encountered. No XRF readings above the upper limits of the inconclusive range were encountered. Because there were no inconclusive results, no paint chip samples were collected.

Results

Lead-Based Paint is paint or other surface coatings that contain lead equal to or in excess of 1.0 milligram per square centimeter or more than 0.5 percent by weight or 5000 parts per million by weight as established by EPA and HUD regulations. **None (0) of the sixty-seven (67) XRF results tested equal to or greater than the regulatory limit of 1.0 mg/cm^2 of lead.**

AnE Consulting, Inc. has performed a lead-based paint survey at 5297 Ideal Lab, Buildings 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, Las Cruces, New Mexico, New Mexico. Lead-Based Paint is paint or other surface coatings that contain lead equal to or in excess of 1.0 milligrams per square centimeter or more than 0.5 percent by weight or 5000 parts per million by weight as established by EPA and HUD regulations. Removal and disposal of lead-based paint containing materials shall be done in accordance with federal, state and local rules and regulations. All personal handing lead-based paint shall be licensed and trained. Care should also be taken with materials containing less than 1.0 mg/cm^2.

Regardless of the concentration of lead detected in paint, any person disturbing the LCP must comply with regulations. Lead exposure is regulated by both the EPA and OSHA. However, EPA regulations are specifically for occupied residential structures whereas OSHA regulates worker exposures to lead in an occupational setting, such as routine work, maintenance activities, and construction activities such as demolition and renovation. The OSHA Lead in Construction Standard does not currently define a specific concentration of lead that must be present within paint for it to be considered "lead-containing." Therefore, painted surfaces that contain any detectable concentrations of lead must be handled in accordance with the OSHA Lead in Construction Standard. Persons performing work that could impact paint films or glazing that have detectable concentrations of lead should be informed of the testing results and take appropriate actions to comply with the OSHA Lead in General Industry and Lead in Construction Standards.

The EPA does regulate the handling and disposal of items with LCP. EPA regulations require that the LCP waste be properly characterized that would be representative of the resulting waste stream. Waste stream analyses should include the total threshold limit concentration (TTLC), soluble threshold limit concentration (STLC), and toxicity characteristic leaching procedure (TCLP) analysis, as required.

NMSU- Ideal Labs Project 5297

Substrate(Sbst): Drywall(DW)/Plaster(P)/Wood(W)/Metal(M)/Brick(B)/Concrete Masonry Unit(CMU)/Ceramic Tile(CT)/Plastic(PL)/Concrete(C) Roof Mastic (RM). Condition(Cond): Intact(I)Fair(F)Poor(P)/Result:Negative(N)Positive(P)

No.	Date	Sequence	Component	Substrate	Condition	Color	Test Location	Results	PbL
0	7/15/2026					CALIBRATION			
1	7/15/2026		Wall	DW	F	White	South Wall/B2	Negative	0
2	7/15/2026		Ceiling	DW	F	White	Ceiling/B2	Negative	0
3	7/15/2026		Door	W	F	Red	Door/B2	Negative	0
4	7/15/2026		Door Frame	W	F	White	Door Frame/B2	Negative	0
5	7/15/2026		Wall	P	F	Pink	South Wall/B2	Negative	0
6	7/15/2026		Window Frame	W	F	White	South Wall/B2	Negative	0
7	7/15/2026		Door	M	F	Brown	North Door/B2	Negative	0
8	7/15/2026		Door	M	F	Brown	North Door/B2	Negative	0
9	7/15/2026		Wall	DW	F	White	South Wall/B3	Negative	0
10	7/15/2026		Plywood	W	F	Maroon	North/B3	Negative	0
11	7/15/2026		Door	W	F	Maroon	West/B3	Negative	0
12	7/15/2026		Door Frame	W	F	Maroon	West/B3	Negative	0
13	7/15/2026		Door	W	F	White	East/B3	Negative	0
14	7/15/2026		Door Frame	W	F	White	East/B10	Negative	0
15	7/15/2026		Base Board	W	F	Beige	South/B10	Negative	0
16	7/15/2026		Exterior Wood Panel	W	F	Maroon	North/B10	Negative	0
17	7/15/2026		Dry Wall	DW	F	White	North/B10	Negative	0
18	7/15/2026		Ceiling	DW	F	White	Ceiling/B10	Negative	0.03
19	7/15/2026		Door Frame	W	F	White	West/B10	Negative	0
20	7/15/2026		Door	M	F	Blue	West/B9	Negative	0
21	7/15/2026		Wall Exterior	P	F	Brown	North/B9	Negative	0
22	7/15/2026		Wall	DW	F	White	North/B9	Negative	0
23	7/15/2026		Ceiling	DW	F	White	Ceiling/B9	Negative	0
24	7/15/2026		Door Frame	W	F	White	Interior/B9	Negative	0
25	7/15/2026		Dry Wall	DW	F	White	East/B9	Negative	0
26	7/15/2026		Back Board	W	F	White	Interior/B9	Negative	0
27	7/15/2026		Plaster	P	F	Beige	Exterior/B9	Negative	0
28	7/15/2026		Wall	DW	F	Beige	Interior/B11	Negative	0
29	7/15/2026		Door	W	F	Beige	Interior/B11	Negative	0
30	7/15/2026		Frame	W	F	Beige	Interior/B11	Negative	0
31	7/15/2026		Door	M	F	Gray	North/B11	Negative	0

32	7/15/2026	Frame	M	F	Gray	North/B11	Negative	0
33	7/15/2026	Dry Wall	DW	F	White	Interior/B8	Negative	0
34	7/15/2026	Door Frame	M	F	Red	Interior/B8	Negative	0
35	7/15/2026	Plaster	PL	F	Red	Exterior/B8	Negative	0
36	7/15/2026	Dry Wall	DW	F	White	Interior/B4	Negative	0
37	7/15/2026	Door	M	F	Black	Interior/B4	Negative	0
38	7/15/2026	Door Frame	M	F	Brown	Interior/B4	Negative	0
39	7/15/2026	Plaster	PL	F	Brown	Interior/B4	Negative	0
40	7/15/2026	Wall	DW	F	Green	Interior/B5	Negative	0
41	7/15/2026	Drywall	DW	F	Blue	Interior/B5	Negative	0
42	7/15/2026	Drywall	DW	F	White	Interior/B8	Negative	0
43	7/15/2026	Wall Paneling	W	F	Beige	Exterior/B8	Negative	0
44	7/15/2026	Door	M	F	White	Interior/B8	Negative	0
45	7/15/2026	Frame	W	F	Beige	Interior/B8	Negative	0
46	7/15/2026	Wood Paneling	W	F	White	Interior/B8	Negative	0
47	7/15/2026	Metal Door	M	F	Black	Interior/B8	Negative	0
48	7/15/2026	Metal Frame	M	F	Black	Interior/B8	Negative	0
49	7/15/2026	Plaster	PL	F	Beige	Exterior/B8	Negative	0
50	7/15/2026	Drywall	DW	F	White	Interior/B7	Negative	0
51	7/15/2026	Wood Paneling	W	F	White	Interior/B7	Negative	0
52	7/15/2026	Window Frame	W	F	Purple	Interior/B7	Negative	0
53	7/15/2026	Metal Door	M	F	White	Interior/B7	Negative	0
54	7/15/2026	Door Frame	M	F	Beige	Interior/B7	Negative	0
55	7/15/2026	Wood Paneling	W	F	Beige	Exterior/B7	Negative	0
56	7/15/2026	Plaster	PL	F	Beige	Exterior/B1	Negative	0
57	7/15/2026	Door	M	F	Brown	Interior/B1	Negative	0
58	7/15/2026	Door Frame	M	F	Brown	Interior/B1	Negative	0
59	7/15/2026	CMU Texture	CMU	F	White	Interior/B1	Negative	0
60	7/15/2026	Dry Wall	DW	F	Beige	Interior/B1	Negative	0
61	7/15/2026	Door Frame	W	F	Brown	Interior/B1	Negative	0
62	7/15/2026	Door	W	F	Brown	Interior/B1	Negative	0
63	7/15/2026	Dry Wall	DW	F	White	Interior/B1	Negative	0
64	7/15/2026	Wall	P	F	Pink	Exterior/B12	Negative	0
65	7/15/2026	Wall	DW	F	White	Interior Wall/B12	Negative	0
66	7/15/2026	Door	M	F	Gray	Exterior/B12	Negative	0
67	7/15/2026	Door Frame	M	F	Gray	Exterior/B12	Negative	0

Texas Department of State Health Services

BE IT KNOWN THAT

ANE CONSULTING INC

is certified to perform as a

Lead Firm

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1955 and Title 25, Texas Administrative Code, Chapter 295 relating to Texas Environmental Lead Reduction, as long as this license is not suspended or revoked.

Certification Number: 2110615

Expiration Date: 02/23/2027

Jennifer Shuford, MD, MPH, Commissioner of Health

Control Number: 7653

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

SEE BACK

Texas Department of State Health Services

BE IT KNOWN THAT

NICOLAS RODRIGUEZ

is certified to perform as a

Lead Risk Assessor

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1955 and Title 25, Texas Administrative Code, Chapter 295 relating to Texas Environmental Lead Reduction, as long as this license is not suspended or revoked.

Certification Number: 2070222

Expiration Date: 11/10/2026

Jennifer Shuford, MD, MPH, Commissioner of Health

Control Number: 8322

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

SEE BACK

Asbestos Survey at
New Mexico State University
Project 5297 Ideal Lab
Bldgs. 1,2,3,4,5,6,7,8,9,10,11&12
Las Cruces, New Mexico 88003

Prepared for:
New Mexico State University
1780 E. University Ave
Las Cruces, New Mexico 88003

Prepared by:

ANE Consulting Inc

6595 Strahan Rd.
El Paso, Texas 79932

Nicolas Rodriguez
Asbestos Building Inspector
TDSHS License No. 60-0932, Expires 09/02/2027

Date of Inspection

July 6, 2026

July 22, 2026

New Mexico State University
Attn: Michael D. Vielma
Project Manager
P.O. Box 30001
Las Cruces, NM 88003

RE: Asbestos Survey at
NMSU/ Project 5297 Ideal Lab
Buildings 514 – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12
located within the Photovoltaic Lab site

Dear Mr. Vielma,

On July 6, 2026, AnE Consulting, Inc., conducted an asbestos survey of the structures at the above-referenced facility. The inspection report is attached.

We appreciate the opportunity to be of service to **New Mexico State University**. Please contact us with questions or comments, or if we may be of further assistance.

Sincerely,
AnE Consulting, Inc.
Asbestos Consulting Agency
TDSHS License #10-0441, expires 02/01/2027

Nicolas Rodriguez
Asbestos Building Inspector
TDSHS #60-0932, Expires 0902/2027

Enclosures: Asbestos Survey Report
Figure 1-12
Laboratory Reports with Chain of Custody Documentation
Texas Asbestos Licenses

Purpose

The structures are located within the NMSU Main Campus in Las Cruces, New Mexico. Mr. Michael D. Vielma, of **New Mexico State University,** requested that AnE Consulting, Inc. (AnE) conduct a survey for asbestos-containing materials (ACMs) associated with the structures. This survey is intended for the identification and locations of asbestos-containing material(s) and may be utilized for future renovation and demolition projects.

Subject Property Overview

It is unknown when the structures were built. The areas inspected consist of vinyl floor tile, carpet, drywall, ceiling tiles with exterior plaster. The structures were in use at the time of the survey.

Inspection

Field activities were conducted on July 6, 2026 by Mr. Nicolas Rodriguez, licensed by the Texas Department of State Health Services (TDSHS) as an Asbestos Building Inspector (license number 60-0932) with **AnE Consulting, Inc.**

The survey was performed in general accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) issued by the U.S. Environmental Protection Agency (40 CFR 61, Subpart M – National Emission Standard for Asbestos), the Asbestos Hazard Emergency Response Act (AHERA, 40 CFR 763), and the Asbestos School Hazard Abatement Reauthorization Act of 1990 (ASHARA, 40 CFR 763, Appendix C to Subpart E). These regulations generally require that, prior to any construction, renovation, or demolition, the area(s) where the work is to be performed shall be inspected by a properly trained and licensed or certified individual for the presence of ACMs that potentially may be disturbed during the work.

AnE employed a sampling strategy which involved identifying homogeneous materials throughout the proposed areas of work and collecting bulk samples of the suspect materials for laboratory analysis of any asbestos content. The term "homogeneous," as defined by in AHERA, means any material having the same color and texture, and having been installed in the same general time period.

The structures contained forty-three (43) total suspect asbestos-containing homogeneous materials that were identified during the course of the survey, from which one hundred and three (103) bulk samples were collected. Accessible areas were visually inspected. Destructive sampling was not conducted for this survey. These identified homogeneous materials are summarized in Table 1 that follows.

Table 1 – Summary of Homogeneous Materials

Suspect ACM	Location(s)
Drywall Interior	Building #2
Stucco Exterior	Building #2
Popcorn Ceiling Texture	Building # 2
Drywall Interior	Building #3
Flex Connector	Building #3
Drywall	Building #10
Drywall Texture	Building #10
Popcorn Ceiling Texture	Building #10
Exterior Plaster	Building #10
White Floor Tile	Building #10
2x4 Ceiling tile	Mobile Office
Linoleum	Mobile Office
12" Floor Tile	Building #9
2x4 Ceiling Tile	Building #9
Flex Connector	Building #9
Dry Wall	Building #9
Exterior Plaster	Building #9
Drywall	Building #11
Floor Tile	Building #11
Exterior Plaster	Building #11
Wall Panel	Building #11
Ceiling Drywall	Building #12
Exterior Plaster	Building #12
Wall Panel	Building #12
Drywall	Building #8
Exterior Plaster	Building #8
Drywall	Building #4

Drywall	Building #4
Brown Cove Base	Building #4
Exterior Plaster	Building #4
Carpet	Building #4
Drywall	Building #5
Drywall	Building #6
Grey Cove Base	Building #6
Exterior Plaster	Building #6
Tile	Building #7
Floor Tile	Building #1
Drywall	Building #1
Grey Cove Base	Building #1
Beige Tile	Building #1
Exterior Plaster	Building #1
Blue Cove Base	Building #1
Blue Carpet	Building #1

The suspect asbestos-containing homogeneous materials were then assessed in terms of friability, condition, and quantity. The term "friable" means a material that when dry can be reduced to a powder using hand pressure (25 TAC § 295.32 (45)). Prior to sampling, each suspect asbestos material was properly wetted, and then each bulk sample was carefully extracted and placed in its own self-sealing container. Each container was wiped, sealed, and labeled with a unique sample number. Appropriate chain of custody paperwork was completed listing each sample collected.

Laboratory Analysis

All samples were shipped under standard chain of custody protocols to Crisp Analytical in Denton Texas. This facility is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos analysis, and licensed by the TDSHS as an asbestos laboratory (license number 30-0235).

The bulk samples were analyzed by Polarized Light Microscopy (PLM) coupled with Dispersion Staining in accordance with EPA Method 600/M4-82-020. The laboratory report with chain of custody documentation is attached to this report.

An ACM is defined as any material or product that contains greater than one percent (1%) asbestos (25 TAC § 295.32 (15). **Based on the laboratory data, two (2) of the forty-one (43) total homogeneous materials were found to contain asbestos greater than one percent (1%).**

Table 2 – Summary of Asbestos-Containing Materials

Material Description	Asbestos Content	Condition / Friability
12" x 12" Vinyl Floor Tile w/ Mastic Sample # (NMSU88-89)	**2% Chrysotile**	**Fair / Non-Friable**

Summary of Findings

The following is a summary of findings based on the field activities conducted and laboratory analyses performed.

- Asbestos-containing 12" x 12" Vinyl Floor Tile w/ Mastic was found in Building #1. The material was observed to be in fair condition and considered non-friable. The estimated material quantity is >1,000sq ft.

- Abatement contractor is responsible for field verification. Quantities are estimates only.

Recommendations

Based on the findings, AnE recommends the following:

- If the planned renovation or demolition activities will disturb the identified ACM, then the materials must be abated by a licensed/accredited abatement contractor in accordance with applicable Federal, State, and Local Rules and Regulations.

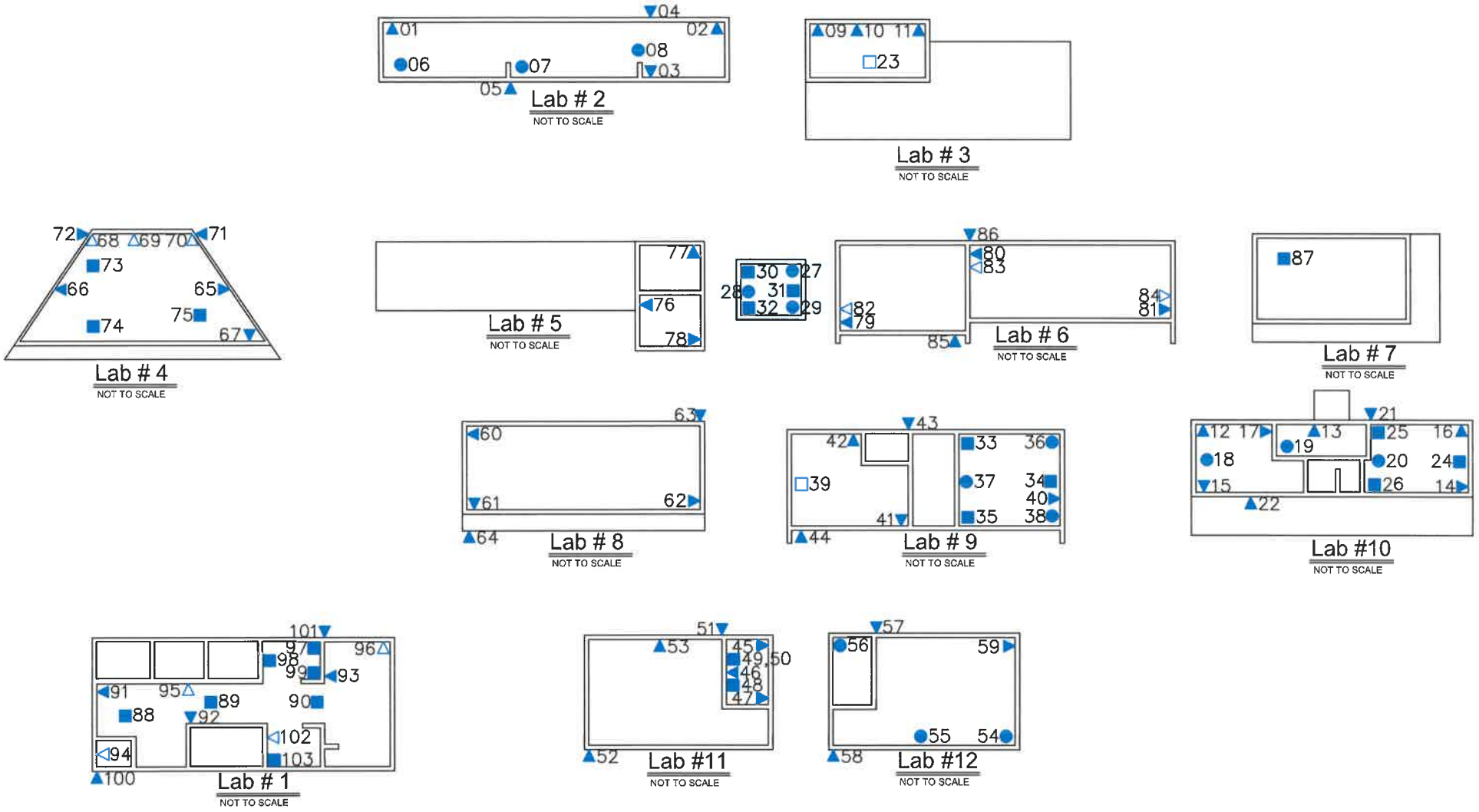
- A mandatory 10-day notification must be submitted in accordance with NESHAP for the planned abatement of the asbestos-containing materials. Written notification must be postmarked at least 10 working days prior to the start of the abatement. Responsibility for proper notification is that of the building owner, which may be delegated to the asbestos abatement contractor or consultant by the owner.

- If during the renovation or demolition project other suspect asbestos-containing materials are encountered, then the work must be stopped and the suspect asbestos-containing material(s) should be tested for asbestos content.

Qualifications and Limitations

The discussions, findings, and recommendations contained herein are based upon data collected on the day of our investigation, the laboratory analysis of the samples collected, and typical practices accepted by the asbestos consulting profession. The scope of our work was limited to the subject areas and services stated in this report. Those building materials not inspected shall be assumed to contain asbestos unless laboratory analysis indicates otherwise.

FIGURE 1



LEGEND

- ■NMSU–XX — FLOOR SAMPLE
- ●NMSU–XX — CEILING SAMPLE
- ◁NMSU–XX — COVE BASE SAMPLE
- □NMSU–XX — FLOOR SAMPLE
- ◀NMSU–XX — WALL SAMPLE

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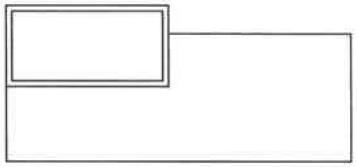
PROJECT
5297 Ideal Lab
New Mexico State University
ASBESTOS SURVEY

SCALE: AS NOTED	DRAWN BY: JM	DATE: 7/16/2026
DWG:	REV. 00/00/00	SHEET 1 of 2

FIGURE 2

Lab # 2
NOT TO SCALE



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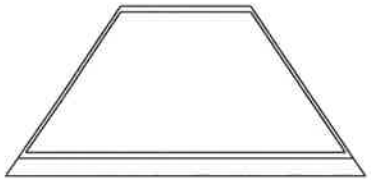

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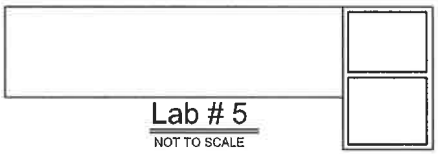

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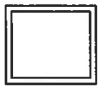
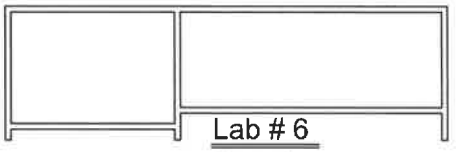
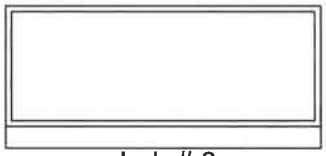




Lab # 6
NOT TO SCALE

Lab # 7
NOT TO SCALE



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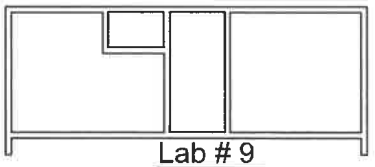

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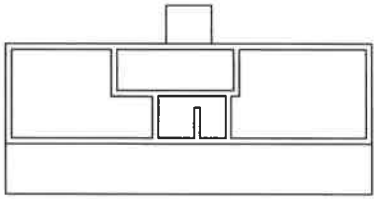

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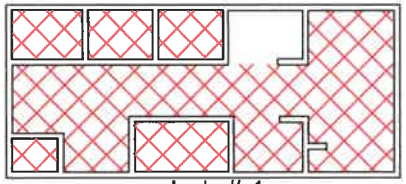
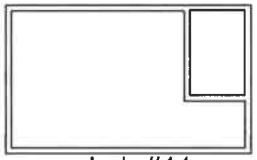


Lab # 1
NOT TO SCALE



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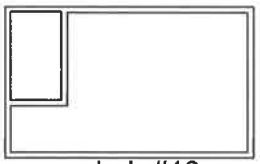

Lab #12
NOT TO SCALE

LEGEND

▨ — ACM FLOOR MATERIALS

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PROJECT
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ASBESTOS SURVEY

SCALE: AS NOTED	DRAWN BY: JM	DATE: 7/16/2026
DWG:	REV. 00/00/00	SHEET 2 of 2

CA Labs
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Materials Characterization - Bulk Asbestos Analysis

Laboratory Analysis Report - Polarized Light

AnE Consulting, Inc.
6595 Strahan Road
El Paso, TX 79932

Customer Project: 5297 Ideal Lab
Reference #: CAL26075413AS Date: 07/14/26

Analysis and Method

Summary of polarized light microscopy (PLM / Stereomicroscopy bulk asbestos analysis) using the methods described in 40CFR Part 763 Appendix E to Subpart E (Interim and EPA 600 / R-93 / 116 (Improved). The sample is first viewed with the aid of a stereomicroscope. Numerous liquid slide preparations are created for analysis under the polarized microscope where identifications and quantifications are preformed. Calibrated liquid refractive oils are used as liquid mouting medium. These oils are used for identification (dispersion staining). A calibrated visual estimation is reported, should any asbestiform mineral be present. Other techniques such as acid washing are used in conjugation with refractive oils for detection of smaller quantities of asbestos. All asbestos percentages are based on calibrated visual estimation traceable to NIST standards for regulated asbestos. Traceability to measurement and calibration is achieved by using known amounts and types of asbestos from standards where analyst and laboratory accuracy are measured. As little as 0.001% asbestos can be detected in favorable samples, while detection in unfavorable samples may approach the detection limit of 0.50% (well above the laboratory definition of trace).

Discussion

Vermiculite containing samples may contain trace amounts of actinolite/tremolite. When not detected by PLM, these samples should be analyzed using TEM methods and / or water separation techniques. Suspected actinolite/vermiculite presence will be indicated through the sample comment section of this report.

Fibrous talc containing samples may contain a regulated asbestos fiber known as anthophyllite. Under certain conditions the same fiber may actually contain both talc and anthophyllite (a phenomenon called intergrowth). Again, TEM detection methods are recommended. CA Labs PLM report comments will denote suspected amounts of asbestiform anthophyllite with talc, where further analysis is recommended.

Some samples (floor tiles, surfacings, etc.) may contain fibers too small to be detectable by PLM analysis and should be analyzed by TEM bulk protocols.

A "trace asbestos" will be reported if the analyst observes far less than 1% asbestos. CA Labs defines "trace asbestos" as a few fibers detected by the analyst in several preparations and will indicate as such under these circumstances.

Since allowable variation in quantification of samples close to 1% is high, <1% may be reported. Such results are ideal for point counting, and the technique is mandatory for friable samples (NESHAP, Nov. 1990 and clarification letter 8 May 1991) under 1% percent asbestos or "trace asbestos". **In order to make all initial PLM reports issued from CA Labs NESHAP compliant, all <1% asbestos results (except floor tiles) will be point counted at no additional charge.**

Qualifications

CA Labs is accredited by the National Voluntary Accreditation Program (NVLAP) for selected test methods for airborne fiber analysis (TEM), and for bulk asbestos fiber analysis (PLM). CA Labs is also accredited by AIHA LAP, LLC. in the PLM asbestos field of testing for Industrial Hygiene. All analysts have completed college courses or hold a degree in a natural science (geology, biology, or environmental science). Recognition by a state professional board in one these disciplines is preferred, but not required. Extensive in-house training programs are used to augment the educational background of the analyst. The Laboratory Director and Quality Manager have received supplemental McCrone Research training for asbestos identification. Analysis performed at Crisp Analytical Labs, LLC 1929 Old Denton Road Carrollton, TX 75006

Dallas NVLAP Lab Code 200349-0 TEM/PLM TDSHS 30-0235
AIHA LAP, LLC Laboratory #102929

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Overview of Project Sample Material Containing Asbestos

Customer Project: 5297 Ideal Lab **CA Labs Project #:** CAL26075413AS

Laboratory Sample ID	Sample #	Layer #	Analysts Physical Description of Subsample	Asbestos type / calibrated visual estimate percent	List of Affected Building Material Types
					tan floor tile
64527	NMSU-88	*88-1*	*tan floor tile*	***2% Chrysotile***	
64528	NMSU-89	*89-1*	*tan floor tile*	***2% Chrysotile***	

Samples 48 and 90 were missing from the bag.

Dallas NVLAP Lab Code 200349-0 TEM/PLM TDSHS 30-0235
AIHA LAP, LLC Laboratory #102929

Glossary of abbreviations (non-asbestos fibers and non-fibrous minerals):

ca - carbonate
gypsum - gypsum
bi - binder
or - organic
ma - matrix
mi - mica
ve - vermiculite
ot - other
pe - perlite
qu - quartz
fg - fiberglass
mw - mineral wool
wo - wollastinite
ta - talc
sy - synthetic
ce - cellulose
br - brucite
ka - kaolin (clay)
pa - palygorskite (clay)

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Polarized Light Asbestiform Materials Characterization

Customer Info:
AnE Consulting, Inc.
6595 Strahan Road
El Paso, TX 79932

Phone #
Fax #

Attn:

Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64440	NMSU2-01		*1-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64440			*1-2*	*tan drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64441	NMSU2-02		*2-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64441			*2-2*	*white compound (beneath tape)*	*y*	***None Detected***		100% mi,qu,ca
64441			*2-3*	*tan drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64442	NMSU2-03		*3-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64442			*3-2*	*tan drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy

Dallas NVLAP Lab Code 200349-0 TEM/PLM TDSHS 30-0235

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

ca - carbonate	mi - mica	fg - fiberglass	ce - cellulose
gy - gypsum	ve - vermiculite	mw - mineral wool	br - brucite
bi - binder	ot - other	wo - wollastonite	ka - kaolin (clay)
or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

Justin Cox
Analyst

Robert Olivarez
Analyst

Daniel Santoyo
Analyst

Technical Manager
Tanner Rasmussen

Senior Analyst
Julio Robles

1. Fire Damage significant fiber damage - reported percentages reflect unaltered fibers
2. Fire Damage no significant fiber damages effecting fibrous percentages
3. Actinolite in association with Vermiculite
4. Layer not analyzed - attached to previous positive layer and contamination is suspected
5. Not enough sample to analyze
6. Anthophyllite in association with Fibrous Talc
7. Contamination suspected from other building materials
8. Favorable scenario for water separation on vermiculite for possible analysis by another method
9. < 1% Result point counted positive
10. TEM analysis suggested

CA Labs
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Polarized Light Asbestiform Materials Characterization

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Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64443	NMSU2-04		*4-1*	*tan surfaced tan stucco*	*n*	***None Detected***		100% qu,bi,ca
64444	NMSU2-05		*5-1*	*tan surfaced tan and gray stucco*	*n*	***None Detected***		100% qu,bi,ca
64445	NMSU2-06		*6-1*	*white surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64445			*6-2*	*white compound (beneath tape)*	*y*	***None Detected***		100% mi,qu,ca
64445			*6-3*	*tan drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64446	NMSU2-07		*7-1*	*white surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64446			*7-2*	*white compound (beneath tape)*	*y*	***None Detected***		100% mi,qu,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

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gy - gypsum	ve - vermiculite	mw - mineral wool	br - brucite
bi - binder	ot - other	wo - wollastonite	ka - kaolin (clay)
or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
ma - matrix	qu - quartz	sy - synthetic	

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9. < 1% Result point counted positive
10. TEM analysis suggested

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Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64446			*7-3*	*tan drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy
64447	NMSU2-08		*8-1*	*white surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64447			*8-2*	*white compound (beneath tape)*	*y*	***None Detected***		100% mi,qu,ca
64447			*8-3*	*tan drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy
64448	NMSU-09		*9-1*	*white surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64448			*9-2*	*tan drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64449	NMSU-10		*10-1*	*white surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

ca - carbonate	mi - mica	fg - fiberglass	ce - cellulose
gy - gypsum	ve - vermiculite	mw - mineral wool	br - brucite
bi - binder	ot - other	wo - wollastonite	ka - kaolin (clay)
or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
ma - matrix	qu - quartz	sy - synthetic	

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6. Anthophyllite in association with Fibrous Talc
7. Contamination suspected from other building materials
8. Favorable scenario for water separation on vermiculite for possible analysis by another method
9. < 1% Result point counted positive
10. TEM analysis suggested

CA Labs
Dedicated to Quality

Crisp Analytical, L.L.C.
1929 Old Denton Road
Carrollton, TX 75006
Phone 972-242-2754
Fax 972-242-2798

CA Labs, L.L.C.
12232 Industriplex, Suite 32
Baton Rouge, LA 70809
Phone 225-751-5632
Fax 225-751-5634

Polarized Light Asbestiform Materials Characterization

Customer Info:
AnE Consulting, Inc.
6595 Strahan Road
El Paso, TX 79932

Phone #
Fax #

Attn:

Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64449			*10-2*	*white drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64450	NMSU-11		*11-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64450			*11-2*	*white drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy
64451	NMSU-12		*12-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64451			*12-2*	*white drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64452	NMSU-13		*13-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64452			*13-2*	*white drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

ca - carbonate	mi - mica	fg - fiberglass	ce - cellulose
gy - gypsum	ve - vermiculite	mw - mineral wool	br - brucite
bi - binder	ot - other	wo - wollastonite	ka - kaolin (clay)
or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

Justin Cox
Analyst

Robert Olivarez
Analyst

Daniel Santoyo
Analyst

Technical Manager
Tanner Rasmussen

Senior Analyst
Julio Robles

1. Fire Damage significant fiber damage - reported percentages reflect unaltered fibers
2. Fire Damage no significant fiber damages effecting fibrous percentages
3. Actinolite in association with Vermiculite
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9. < 1% Result point counted positive
10. TEM analysis suggested

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Turnaround Time:
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CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64453	NMSU-14		*14-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64453			*14-2*	*white drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy
64454	NMSU-15		*15-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64454			*15-2*	*white drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64455	NMSU-16		*16-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64455			*16-2*	*white drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64456	NMSU-17		*17-1*	*tan surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

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ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

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Daniel Santoyo
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Tanner Rasmussen

Senior Analyst
Julio Robles

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5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64456			*17-2*	*white drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64457	NMSU-18		*18-1*	*white surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64457			*18-2*	*white drywall with brown paper*	*n*	***None Detected***	20% ce	80% qu,gy
64458	NMSU-19		*19-1*	*white surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64458			*19-2*	*white drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy
64459	NMSU-20		*20-1*	*white surfaced white compound*	*n*	***None Detected***		100% mi,qu,bi,ca
64459			*20-2*	*white drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy

Dallas NVLAP Lab Code 200349-0 TEM/PLM TDSHS 30-0235

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

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Daniel Santoyo
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Tanner Rasmussen

Senior Analyst
Julio Robles

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Polarized Light Asbestiform Materials Characterization

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Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64460	NMSU-21		*21-1*	*tan stucco*	*y*	***None Detected***		100% qu,bi,ca
64461	NMSU-22		*22-1*	*tan stucco*	*y*	***None Detected***		100% qu,bi,ca
64462	NMSU-23		*23-1*	*silver woven covering*	*y*	***None Detected***	10% ce	90% qu,bi
64463	NMSU-24		*24-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca
64463			*24-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64464	NMSU-25		*25-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca
64465	NMSU-26		*26-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

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ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

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Analyst

Robert Olivarez
Analyst

Daniel Santoyo
Analyst

Technical Manager
Tanner Rasmussen

Senior Analyst
Julio Robles

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10. TEM analysis suggested

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Polarized Light Asbestiform Materials Characterization

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Fax #

Attn:

Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64465			*26-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64466	NMSU-27		*27-1*	*white surfacing*	*y*	***None Detected***		100% qu,bi
64466			*27-2*	*tan ceiling tile*	*y*	***None Detected***	40% ce 30% fg	30% qu,pe
64467	NMSU-28		*28-1*	*white surfacing*	*y*	***None Detected***		100% qu,bi
64467			*28-2*	*tan ceiling tile*	*y*	***None Detected***	40% ce 30% fg	30% qu,pe
64468	NMSU-29		*29-1*	*white surfacing*	*y*	***None Detected***		100% qu,bi
64468			*29-2*	*tan ceiling tile*	*y*	***None Detected***	40% ce 30% fg	30% qu,pe

Dallas NVLAP Lab Code 200349-0 TEM/PLM TDSHS 30-0235

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

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gy - gypsum	ve - vermiculite	mw - mineral wool	br - brucite
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ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

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Analyst

Robert Olivarez
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Daniel Santoyo
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Technical Manager
Tanner Rasmussen

Senior Analyst
Julio Robles

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10. TEM analysis suggested

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Polarized Light Asbestiform Materials Characterization

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Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64469	NMSU-30		*30-1*	*tan linoleum*	*y*	***None Detected***	20% ce	80% gy,ma
64469			*30-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64470	NMSU-31		*31-1*	*tan linoleum*	*y*	***None Detected***	20% ce	80% gy,ma
64471	NMSU-32		*32-1*	*tan linoleum*	*y*	***None Detected***	20% ce	80% gy,ma
64472	NMSU-33		*33-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca
64472			*33-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64473	NMSU-34		*34-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
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Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64473			*34-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64474	NMSU-35		*35-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca
64474			*35-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64475	NMSU-36		*36-1*	*white surfacing*	*y*	***None Detected***		100% qu,bi
64475			*36-2*	*tan ceiling tile*	*y*	***None Detected***	40% ce 30% fg	30% qu,pe
64476	NMSU-37		*37-1*	*white surfacing*	*y*	***None Detected***		100% qu,bi
64476			*37-2*	*tan ceiling tile*	*y*	***None Detected***	40% ce 30% fg	30% qu,pe

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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CA Labs Project #:
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Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
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Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64477	NMSU-38		*38-1*	*white surfacing*	*y*	***None Detected***		100% qu,bi
64477			*38-2*	*tan ceiling tile*	*y*	***None Detected***	40% ce 30% fg	30% qu,pe
64478	NMSU-39		*39-1*	*black vinyl covering*	*y*	***None Detected***	15% sy	85% gy,ma
64479	NMSU-40		*40-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64479			*40-2*	*white drywall with brown paper*	*n*	***None Detected***	23% ce	77% qu,gy
64480	NMSU-41		*41-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64480			*41-2*	*white drywall with brown paper*	*n*	***None Detected***	24% ce	76% qu,gy

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

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5. Not enough sample to analyze
6. Anthophyllite in association with Fibrous Talc
7. Contamination suspected from other building materials
8. Favorable scenario for water separation on vermiculite for possible analysis by another method
9. < 1% Result point counted positive
10. TEM analysis suggested

CA Labs
Dedicated to Quality

Crisp Analytical, L.L.C.
1929 Old Denton Road
Carrollton, TX 75006
Phone 972-242-2754
Fax 972-242-2798

CA Labs, L.L.C.
12232 Industriplex, Suite 32
Baton Rouge, LA 70809
Phone 225-751-5632
Fax 225-751-5634

Polarized Light Asbestiform Materials Characterization

Customer Info:
AnE Consulting, Inc.
6595 Strahan Road
El Paso, TX 79932

Phone #
Fax #

Attn:

Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64481	NMSU-42		*42-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64481			*42-2*	*white drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy
64482	NMSU-43		*43-1*	*white surfaced off-white plaster*	*n*	***None Detected***		100% qu,bi,ca
64483	NMSU-44		*44-1*	*white surfaced off-white plaster*	*n*	***None Detected***		100% qu,bi,ca
64484	NMSU-45		*45-1*	*off-white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64484			*45-2*	*white drywall with brown paper*	*n*	***None Detected***	24% ce	76% qu,gy
64485	NMSU-46		*46-1*	*off-white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

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gy - gypsum	ve - vermiculite	mw - mineral wool	br - brucite
bi - binder	ot - other	wo - wollastonite	ka - kaolin (clay)
or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

Justin Cox
Analyst

Robert Olivarez
Analyst

Daniel Santoyo
Analyst

Technical Manager
Tanner Rasmussen

Senior Analyst
Julio Robles

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CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
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Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64485			*46-2*	*white drywall with brown paper*	*n*	***None Detected***	22% ce	78% qu,gy
64486	NMSU-47		*47-1*	*off-white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64486			*47-2*	*white drywall with brown paper*	*n*	***None Detected***	23% ce	77% qu,gy
64488	NMSU-49		*49-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca
64488			*49-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64489	NMSU-50		*50-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca
64489			*50-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
ma - matrix	qu - quartz	sy - synthetic	

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CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64490	NMSU-51		*51-1*	*orange surfaced gray plaster*	*n*	***None Detected***		100% qu,bi,ca
64491	NMSU-52		*52-1*	*orange surfaced gray plaster*	*n*	***None Detected***		100% qu,bi,ca
64492	NMSU-53		*53-1*	*off-white surfacing*	*y*	***None Detected***		100% qu,bi
64492			*53-2*	*gray fibrous paneling*	*y*	***None Detected***	19% ce	81% qu,ma,ot
64493	NMSU-54		*54-1*	*white surfacing*	*y*	***None Detected***		100% qu,bi
64493			*54-2*	*white drywall with brown paper*	*n*	***None Detected***	18% ce 2% fg	80% qu,gy
64494	NMSU-55		*55-1*	*white surfacing*	*y*	***None Detected***		100% qu,bi

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

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or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
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Approved Signatories:

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Senior Analyst
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Turnaround Time:
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CA Labs Project #:
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Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64494			*55-2*	*white drywall with brown paper*	*n*	***None Detected***	20% ce 2% fg	78% qu,gy
64495	NMSU-56		*56-1*	*white surfacing*	*y*	***None Detected***		100% qu,bi
64495			*56-2*	*white drywall with brown paper*	*n*	***None Detected***	21% ce 2% fg	77% qu,gy
64496	NMSU-57		*57-1*	*red stucco*	*y*	***None Detected***		100% qu,bi,ca
64497	NMSU-58		*58-1*	*red stucco*	*y*	***None Detected***		100% qu,bi,ca
64498	NMSU-59		*59-1*	*gray fibrous paneling*	*y*	***None Detected***	19% ce	81% qu,ma,ot
64499	NMSU-60		*60-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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Approved Signatories:

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Robert Olivarez
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Daniel Santoyo
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Technical Manager
Tanner Rasmussen

Senior Analyst
Julio Robles

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10. TEM analysis suggested

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5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64499			*60-2*	*white drywall with brown paper*	*n*	***None Detected***	19% ce 2% fg	79% qu,gy
64500	NMSU-61		*61-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64500			*61-2*	*white drywall with brown paper*	*n*	***None Detected***	20% ce 2% fg	78% qu,gy
64501	NMSU-62		*62-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64501			*62-2*	*white compound (beneath tape)*	*y*	***None Detected***		100% qu,ca
64502	NMSU-63		*63-1*	*tan stucco*	*y*	***None Detected***		100% qu,bi,ca
64503	NMSU-64		*64-1*	*tan stucco*	*y*	***None Detected***		100% qu,bi,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM TDSHS 30-0235

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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Approved Signatories:

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Technical Manager
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Senior Analyst
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Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64504	NMSU-65		*65-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64504			*65-2*	*white drywall with brown paper*	*n*	***None Detected***	17% ce 2% fg	81% qu,gy
64505	NMSU-66		*66-1*	*white vinyl surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64505			*66-2*	*white drywall with brown paper*	*n*	***None Detected***	20% ce 2% fg	78% qu,gy
64506	NMSU-67		*67-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,mi,bi,ca
64506			*67-2*	*white drywall with brown paper*	*n*	***None Detected***	21% ce 2% fg	77% qu,gy
64507	NMSU-68		*68-1*	*brown baseboard*	*y*	***None Detected***		100% gy,ma

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64507			*68-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64507			*68-3*	*white compound*	*y*	***None Detected***		100% mi,ca
64507			*68-4*	*white fibrous backing*	*y*	***None Detected***	100% ce	
64508	NMSU-69		*69-1*	*brown baseboard*	*y*	***None Detected***		100% gy,ma
64508			*69-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64508			*69-3*	*white compound*	*y*	***None Detected***		100% mi,ca
64508			*69-4*	*white fibrous backing*	*y*	***None Detected***	100% ce	

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

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Purchase Order #:

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64509	NMSU-70		*70-1*	*brown baseboard*	*y*	***None Detected***		100% gy,ma
64509			*70-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64509			*70-3*	*white compound*	*y*	***None Detected***		100% mi,ca
64510	NMSU-71		*71-1*	*tan stucco*	*y*	***None Detected***		100% qu,bi,ca
64511	NMSU-72		*72-1*	*tan stucco*	*y*	***None Detected***		100% qu,bi,ca
64512	NMSU-73		*73-1*	*brown carpeting*	*y*	***None Detected***	100% sy	
64512			*73-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

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5. Not enough sample to analyze
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7. Contamination suspected from other building materials
8. Favorable scenario for water separation on vermiculite for possible analysis by another method
9. < 1% Result point counted positive
10. TEM analysis suggested

CA Labs
Dedicated to Quality

Crisp Analytical, L.L.C.
1929 Old Denton Road
Carrollton, TX 75006
Phone 972-242-2754
Fax 972-242-2798

CA Labs, L.L.C.
12232 Industriplex, Suite 32
Baton Rouge, LA 70809
Phone 225-751-5632
Fax 225-751-5634

Polarized Light Asbestiform Materials Characterization

Customer Info:
AnE Consulting, Inc.
6595 Strahan Road
El Paso, TX 79932

Phone #
Fax #

Attn:

Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64513	NMSU-74		*74-1*	*brown carpeting*	*y*	***None Detected***	100% sy	
64513			*74-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64514	NMSU-75		*75-1*	*brown carpeting*	*y*	***None Detected***	100% sy	
64514		***5***	*75-2*	*tan mastic*				
64515	NMSU-76		*76-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64515			*76-2*	*white drywall with brown paper*	*n*	***None Detected***	21% ce	79% qu,gy
64516	NMSU-77		*77-1*	*blue surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

ca - carbonate	mi - mica	fg - fiberglass	ce - cellulose
gy - gypsum	ve - vermiculite	mw - mineral wool	br - brucite
bi - binder	ot - other	wo - wollastonite	ka - kaolin (clay)
or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

Justin Cox
Analyst

Robert Olivarez
Analyst

Daniel Santoyo
Analyst

Technical Manager
Tanner Rasmussen

Senior Analyst
Julio Robles

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10. TEM analysis suggested

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CA Labs Project #:
CAL26075413AS

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Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64516			*77-2*	*white compound (beneath tape)*	*y*	***None Detected***		100% qu,ca
64517	NMSU-78		*78-1*	*off-white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64517			*78-2*	*white compound (beneath tape)*	*y*	***None Detected***		100% qu,ca
64517			*78-3*	*white drywall with brown paper*	*n*	***None Detected***	22% ce	78% qu,gy
64518	NMSU-79		*79-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64518			*79-2*	*white drywall with brown paper*	*n*	***None Detected***	23% ce	77% qu,gy
64519	NMSU-80		*80-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

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or - organic	pe - perlite	ta - talc	pa - palygorskite (clay)
ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

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Senior Analyst
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CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64519			*80-2*	*white drywall with brown paper*	*n*	***None Detected***	22% ce	78% qu,gy
64520	NMSU-81		*81-1*	*white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64520		***5***	*81-2*	*white compound (beneath tape)*				
64521	NMSU-82		*82-1*	*gray baseboard*	*y*	***None Detected***		100% gy,ma
64521			*82-2*	*tan and black mastic*	*n*	***None Detected***		100% gy,bi
64522	NMSU-83		*83-1*	*gray baseboard*	*y*	***None Detected***		100% gy,ma
64522			*83-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi

Dallas NVLAP Lab Code 200349-0 TEM/PLM TDSHS 30-0235

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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ma - matrix	qu - quartz	sy - synthetic	

Approved Signatories:

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Daniel Santoyo
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Senior Analyst
Julio Robles

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Attn:

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5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64523	NMSU-84		*84-1*	*gray baseboard*	*y*	***None Detected***		100% gy,ma
64523			*84-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64524	NMSU-85		*85-1*	*tan surfaced white plaster*	*n*	***None Detected***		100% qu,bi,ca
64525	NMSU-86		*86-1*	*tan surfaced white plaster*	*n*	***None Detected***		100% qu,bi,ca
64526	NMSU-87		*87-1*	*off-white ceramic tile*	*y*	***None Detected***		100% qu,ot
64527	NMSU-88		*88-1*	*tan floor tile*	*y*	***2% Chrysotile***		98% qu,ca
64527			*88-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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Approved Signatories:

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Analyst

Robert Olivarez
Analyst

Daniel Santoyo
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Technical Manager
Tanner Rasmussen

Senior Analyst
Julio Robles

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Attn:

Customer Project:
5297 Ideal Lab
Turnaround Time:
3 Days

CA Labs Project #:
CAL26075413AS

Date: 7/14/2026
Samples Rec'd: 7/9/26 10:30AM
Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64528	NMSU-89		*89-1*	*tan floor tile*	*y*	***2% Chrysotile***		98% qu,ca
64528			*89-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64530	NMSU-91		*91-1*	*off-white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64530			*91-2*	*white drywall with brown paper*	*n*	***None Detected***	23% ce	77% qu,gy
64531	NMSU-92		*92-1*	*off-white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca
64531			*92-2*	*white drywall with brown paper*	*n*	***None Detected***	24% ce	76% qu,gy
64532	NMSU-93		*93-1*	*off-white surfaced white compound*	*n*	***None Detected***		100% qu,bi,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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Daniel Santoyo
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Technical Manager
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Senior Analyst
Julio Robles

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Date Of Sampling: 7/7/2026
Purchase Order #:

Laboratory Sample ID	Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
64532			*93-2*	*white drywall with brown paper*	*n*	***None Detected***	24% ce	76% qu,gy
64533	NMSU-94		*94-1*	*brown baseboard*	*y*	***None Detected***		100% gy,ma
64533			*94-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64534	NMSU-95		*95-1*	*black baseboard*	*y*	***None Detected***		100% gy,ma
64534			*95-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64535	NMSU-96		*96-1*	*brown baseboard*	*y*	***None Detected***		100% gy,ma
64535			*96-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

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64536	NMSU-97		*97-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca
64536			*97-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64537	NMSU-98		*98-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca
64537			*98-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64538	NMSU-99		*99-1*	*tan floor tile*	*y*	***None Detected***		100% qu,ca
64538			*99-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64539	NMSU-100		*100-1*	*tan surfaced tan plaster*	*n*	***None Detected***		100% qu,bi,ca

Dallas NVLAP Lab Code 200349-0 TEM/PLM *TDSHS 30-0235*

AIHA LAP, LLC Laboratory #102929

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64540	NMSU-101		*101-1*	*tan surfaced tan plaster*	*n*	***None Detected***		100% qu,bi,ca
64541	NMSU-102		*102-1*	*blue baseboard*	*y*	***None Detected***		100% gy,ma
64541			*102-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi
64542	NMSU-103		*103-1*	*multi-colored carpeting*	*y*	***None Detected***	100% sy	
64542			*103-2*	*tan mastic*	*y*	***None Detected***		100% gy,bi

Dallas NVLAP Lab Code 200349-0 TEM/PLM TDSHS 30-0235

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Mobile: 972-987-7515 / 972-963-0670

Chain of Custody

Client Name: A&E Consulting, Inc.
Client Address: 6595 Strahan
El Paso, TX 79932
Phone Number:
Fax Number:
Send Reports to: ane@aneconsultinginc.com

CA Labs Job #: CAL26C75413
Billing Address: (if different)
P.O. #:
Project Name: 5397 Ideal Lab
Project Number:
Report Results: Via: Email FAX Verbal
Contact:

Total # Samples Submitted:	Total # Samples to be Analyzed:	Material Matrix: Air / Bulk / Water
103	103	

Please indicate appropriate turn around time.

Asbestos: *please call ahead for availability of all rush and/or after hours samples*

TEM	TA Time	PLM	TA Time	Optical / IAQ	TA Time
Circle analysis and select TA time		*Circle analysis and select TA time*	2 hour	PCM: NIOSH 7400	Note TAT
AHERA	4 hour	EPA 600- PLM Bulk	4 hour	**Allergen Particle:**	24 hour
EPA Level II	8 hour		8 hour	tape/bulk/swab	2 days
Drinking Water	24 hour		24 hour	Cyclex-d cassettes	3 days
Wipe	2 days	AHERA	2 days	Air-o-cell cassettes	5 days
Micro-vac	3 days		3 days	Anderson cultures	Specify
NIOSH 7402	5 days	Point Count -	5 days	Bulk/swab cultures	Mold or
Chatfield Bulk		(NESHAPS)		Bacteria cultures	bacteria

Lead: *Circle analysis and select TA time*

Matrix:	Paint Chips	Soil	Air	Wipes	Wastewater
TA Time:	8 hour	1 day	2 days	3 days	5 days

Sample Information:

Sample Number:	Sample Description:	Sample Location:	Volume: (if applicable)	Sample Date/Time:
NMSU2-01	Drywall - interior	Building #2		07/17/25
NMSU2-02	Drywall - interior	Building #2		
NMSU2-03	Drywall - interior	Building #2		
NMSU2-04	stucco - exterior	Building #2		
NMSU2-05	stucco - exterior	Building #2		
-06	Popcorn ceiling textur			
-07				
-08				
NMSU-9	Drywall - interior	Building #3		
-10				
11				

Custody Information:

Samples relinquished: 7-6-26 — Signature / Date / Time
Samples received: JUL 09 2026 10:30AM — Signature / Date / Time
Samples relinquished: — Signature / Date / Time
Samples received: Andrew Sikes — Signature / Date / Time

CA Labs

Crisp Analytical Laboratories, L.L.C.
1929 Old Denton Rd.
Carrollton, TX 75006

Phone: 972-242-2754
Fax: 972-242-2798
Mobile: 972-987-7515 / 972-963-0670

Chain of Custody

Client Name:	AnE Consulting, Inc	**CA Labs Job #**	**CAL** 26075413
Client Address:	6595 Strahan Road El Paso, Texas 79932	Billing Address: (if different)	Same as Part I
Phone Number:	(915)243-7088	P.O. # :	
Fax Number:	(915)243-7089	Project Name:	
Send Reports to:	aneconsulting@att.net	Project Number:	

Total # Samples Submitted:	Total # Samples to be Analyzed:	Material Matrix: Air / Bulk / Water
103	103	

Sample Number:	Sample Description:	Sample Location:	Volume: (if applicable)	Sample Date/Time:
NMSU-23	Fire Connector	Building #7		
NMSU-12	Drywall	Building #10		
NMSU-13	"	"		
NMSU-14	"	"		
NMSU-15	Drywall texture	"		
NMSU-16	"	"		
NMSU-17	"	"		
NMSU-18	Ceilling-Popcorn text	"		
NMSU-19	"	"		
NMSU-20	"	"		
NMSU-21	Exterior / Plaster	"		
NMSU-22	"	"		
NMSU-24	White Floor tile	"		
NMSU-25	"	"		
NMSU-26	"	"		
27	2x4 Ceiling tile	Mobile Office		
28	"	"		
29	"	"		
30	Linoleum	"		
31	"	"		
32	"	"		
33	12 inch floor tile	Building #9		
34	"	"		
35	"	"		
36	2x4 ceiling tile	"		
37	"	"		
38	"	"		

Custody Information:

Samples relinquished: [signature] 7-6-26
Signature / Date / Time

Samples relinquished:
Signature / Date / Time

Samples received: 10:30AM JUL 09 2026
Signature / Date / Time

Samples received: Andrew Sikes
Signature / Date / Time

CA Labs

Crisp Analytical Laboratories, L.L.C.
1929 Old Denton Rd.
Carrollton, TX 75006

Phone: 972-242-2754
Fax: 972-242-2798
Mobile: 972-987-7515 / 972-963-0670

Chain of Custody

Client Name:	AnE Consulting, Inc	**CA Labs Job #**	CAL 726 75413
Client Address:	6595 Strahan Road El Paso, Texas 79932	Billing Address: (if different)	
Phone Number:	(915)243-7088	P.O. # :	Same as above
Fax Number:	(915)243-7089	Project Name:	
Send Reports to:	aneconsulting@att.net	Project Number:	

Total # Samples Submitted:	**Total # Samples to be Analyzed:**	**Material Matrix:** Air / Bulk / Water
103	103	

Sample Number:	Sample Description:	Sample Location:	Volume: (if applicable)	Sample Date/Time:
39	Flex Connector	Buildings #4		
40	Dry wall			
41				
42				
43	Exterior plaster	Building # 9		
44				
45	Dry wall	Building #11		
46				
47				
48	Floor tile			
49				
50				
51	Exterior plaster			
52				
53	Wall panel			
54	Ceilling Drywall	Building 12		
55				
56				
57	Exterior Plaster			
58				
59	Wall Panel	Building 12		
60	Dry wall	BLD-8		
61				
62				
63	Exterior Plaster			
64				
65	Dry wall	BLD-4		

Custody Information:

Samples relinquished: 7-6-26
Signature / Date / Time

Samples received: JUL 09 2026
Signature / Date / Time

Samples relinquished:
Signature / Date / Time

Samples received: Andrew Sikes
Signature / Date / Time

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Crisp Analytical Laboratories, L.L.C.
1929 Old Denton Rd.
Carrollton, TX 75006

Phone: 972-242-2754
Fax: 972-242-2798
Mobile: 972-987-7515 / 972-963-0670

Chain of Custody

Client Name:	AnE Consulting, Inc	**CA Labs Job #**	**CAL** 7627413
Client Address:	6595 Strahan Road El Paso, Texas 79932	Billing Address: (if different)	Same as Above
Phone Number:	(915)243-7088	P.O. # :	
Fax Number:	(915)243-7089	Project Name:	
Send Reports to:	aneconsulting@att.net	Project Number:	

Total # Samples Submitted:	**Total # Samples to be Analyzed:**	**Material Matrix:** Air / Bulk / Water
103	103	

Sample Number:	Sample Description:	Sample Location:	Volume: (if applicable)	Sample Date/Time:
66	Dry wall	BLD-4		
67	Dry wall			
68	Brown core base			
69				
70				
71	Exterior Plaster			
72				
73	Carpet			
74				
75				
76	Dry wall	BLD-5		
77				
78				
79	Drywall	BLD-6		
80				
81				
82	Grey CB			
83				
84				
85	Exterior Plaster			
86				
87	tile	BLD-7		
88	Floor tile	BLD-1		
89				
90				
91	Dry wall			
92				

Custody Information:

Samples relinquished: 7-6-26
Signature / Date / Time

Samples relinquished:
Signature / Date / Time

Samples received: JUL 09 2026
Signature / Date / Time

Samples received: Andrew Sikes
Signature / Date / Time

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Carrollton, TX 75006

Phone: 972-242-2754
Fax: 972-242-2798
Mobile: 972-987-7515 / 972-963-0670

Chain of Custody

Client Name:	AnE Consulting, Inc	**CA Labs Job #**	**CAL** 26075413
Client Address:	6595 Strahan Road El Paso, Texas 79932	Billing Address: (if different)	
Phone Number:	(915)243-7088	P.O. # :	Same as Item I
Fax Number:	(915)243-7089	Project Name:	
Send Reports to:	aneconsulting@att.net	Project Number:	

Total # Samples Submitted:	**Total # Samples to be Analyzed:**	**Material Matrix:** Air / Bulk / Water
103	103	

Sample Number:	Sample Description:	Sample Location:	Volume: (if applicable)	Sample Date/Time:
93	DM wall	BLD-1		
94	Cove Base (Black)	"		"
95	"	"		"
96	"	"		"
97	Bagetile	B-1		"
98	"	"		"
99	"	"		"
100	Exterior plaster	B-1		"
101	"	"		"
102	Blue CB	"		"
103	Blue carpet	"		"

Custody Information:

Samples relinquished: 7-6-26 — Signature / Date / Time

Samples received: JUL 09 2026 — Signature / Date / Time

Samples relinquished: _____ — Signature / Date / Time

Samples received: Andrew Sikes — Signature / Date / Time

Texas Department of State Health Services

ANE CONSULTING INC

is certified to perform as an

Asbestos Consultant Agency

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked.

License Number: 100441

Expiration Date: 02/01/2027

Jennifer Shuford, MD, MPH,
Commissioner of Health

Control Number: 97734

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

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Texas Department of State Health Services

ND TX HOLDINGS LLC DBA CRISP ANALYTICAL LAB
CRISP ANALYTICAL LABS

is certified to perform as an

Asbestos Laboratory

PCM, PLM, TEM

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked.

License Number: 300235

Expiration Date: 11/02/2027

Control Number: 96916

Jennifer Shuford, MD, MPH,
Commissioner of Health

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

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TEXAS
Health and Human Services

Texas Department of State Health Services

Asbestos Inspector

NICOLAS RODRIGUEZ

License Number: 600932

Control Number: 101468

Expiration Date: 2-Sep-2027

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work under Owner's separate contracts.
4. Future work not part of this Project.
5. Contractor's use of site and premises.
6. Coordination with occupants.
7. Work restrictions.
8. Specification and Drawing conventions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.
2. Section 017300 "Execution" for coordination of Owner-installed products.

1.2 DEFINITIONS

A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.3 PROJECT INFORMATION

A. Project Identification: Integrated Digital Enterprise Acceleration Lab (Phase 1 Demolition)

1. Project Location: 3617 S. Las Cruces, NM 88003

B. Owner: Regents of New Mexico State University

1. Owner's Representative: Michael Vielma; Project Manager; 575-646-3681; mdvielma@nmsu.edu

C. Architect: Desert Peak Architects

1. Architect's Representative: Ruben Contreras; Project Architect; 575-528-0021; ruben@desertpeakarchitects.com

D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. Civil Engineering: Souder, Miller & Associates

a. Civil Engineering Representative: Michael Johnson, P.E. ; 575-449-2769; Michael.johnson@soudermiller.com

E. Future Work Not Part of this Contract: The Contract Documents include requirements that will allow Owner to carry out future work following completion of this Project; provide for the following future work:

1. New Construction of the Integrated Digital Enterprise Accelerator Lab Facility.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Abatement of Hazardous Materials within existing buildings slated for demolition.
2. Demolition and removal of the existing buildings as indicated.
3. Demolition and removal of existing site utilities as indicated.
4. Associated backfill and grading.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 CONTRACTOR'S USE OF SITE AND PREMISES

A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Limits on Use of Site: Limit use of Project site to [**Work in areas**] indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits on Use of Site: Limit use of Project site to [**Work in areas**] indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
2. Driveways and Entrances: Keep Existing north-east access drive to adjacent Fire Station #3 as indicated on drawings clear at all times unless otherwise coordinated with the Owner. Do not use these areas for parking or for storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than [**72**] hours' notice to Owner of activities that will affect Owner's operations.

1.7 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work to between 6 a.m. to 5 p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.

1. Weekend Hours: Provide not less than [**72**] hours' notice to Owner of activities.
2. Early Morning Hours: Provide not less than [**72**] hours' notice to Owner of activities. Comply with **regulations by authorities having jurisdiction for restrictions on noisy work**.
3. Hours for Utility Shutdowns: Provide not less than [**72**] hours' notice to Owner of activities.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:

1. Notify [**Architect**] [**Owner**] not less than [**five**] business days in advance of

proposed utility interruptions.
2. Obtain [**Owner's**] written permission before proceeding with utility interruptions.

D. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to adjacent Owner occupancy with Owner.

1. Notify [**Architect**] [**Owner**] not less than [**two**] days in advance of proposed disruptive operations.
2. Obtain [**Owner's**] written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or within **25 feet** of entrances, operable windows, or outdoor-air intakes.

F. Smoking and Controlled Substance Restrictions: Use of tobacco products [**, alcoholic beverages,**] and other controlled substances [**on Project site**] is not permitted.

G. Employee Identification: [**Provide**] Owner with list of Contractor and sub-contactor personnel working on Project site.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings

are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations [**scheduled on Drawings**]
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 01 17100 – SITE CLEANING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. General Cleaning Requirements

1.2 GENERAL REQUIREMENTS

A. Execute cleaning during progress of the work and at completion of the work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 DURING CONSTRUCTION

A. Execute daily cleaning to keep the work, the site, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris, resulting from construction operations.

B. Provide onsite containers for the collection of waste materials, debris and rubbish. All waste materials including containers, food debris and other miscellaneous materials must be disposed of daily in onsite containers.

C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

3.2 FINAL CLEANING

A. Requirements: At the completion of work and immediately prior to final inspection, clean the entire project as follows:

1. Leave the site in a complete and finished condition to the satisfaction of the Owner.

2. Direct all subcontractors to similarly perform, at the same time, an equivalent thorough cleaning of all work and equipment provided under their contracts.

3. Remove all temporary structures and all debris, including dirt, sand, gravel, rubbish and waste material.

4. Should the CONTRACTOR not remove rubbish or debris or not clean the buildings and site as specified above, the OWNER reserves the right to have the cleaning done at the expense of the CONTRACTOR.

B. In preparation for substantial completion or occupancy, conduct final inspection of site.

3.3 FINAL INSPECTION

A. After cleaning is complete the final inspection may be scheduled. The inspection will be done with the OWNER and Architect.

END OF SECTION 011710

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.
2. Section 013100 "Project Management and Coordination" for requirements for forms for contract modifications provided as part of web-based Project management software.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710 or equivalent form as approved by the Owner.

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request, or, 15 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the

effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

e. Quotation Form: Use forms acceptable to Architect.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect.

1.4 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 or other form as provided by Owner..

1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714 or other form as approved by Owner. . Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Document 004373 "Proposed Schedule of Values Form" for requirements for furnishing proposed schedule of values with bid.
2. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
3. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.2 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.3 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect at earliest possible date, but no later than [**seven**] days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

a. Project name and location.
b. Owner's name.
c. Owner's Project number.

d. Name of Architect.
e. Architect's Project number.
f. Contractor's name and address.
g. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
4. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site.

5. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
6. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
7. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
8. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.4 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architect and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

    1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:

    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

F. Transmittal: Submit one digital signed and notarized original copy of each Application for Payment to Architect by a method ensuring receipt within 24 hours. Copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment, subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the

application who is lawfully entitled to a lien.

5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Sustainable design action plans, including preliminary project materials cost data.
6. Schedule of unit prices.
7. Submittal schedule (preliminary if not final).
8. List of Contractor's staff assignments.
9. List of Contractor's principal consultants.
10. Copies of building permits.
11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
12. Initial progress report.
13. Report of preconstruction conference.
14. Certificates of insurance and insurance policies.
15. Performance and payment bonds.
16. Data needed to acquire Owner's insurance.

I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

    a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 017700 "Closeout Procedures."

2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Certification of completion of final punch list items.
3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
4. Updated final statement, accounting for final changes to the Contract Sum.
5. AIA Document G706.
6. AIA Document G706A.

7. AIA Document G707.
8. Evidence that claims have been settled.
9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
10. Final liquidated damages settlement statement.
11. Proof that taxes, fees, and similar obligations are paid.
12. Waivers and releases.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project, including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. RFIs.
4. Digital project management procedures.
5. Project meetings.

B. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.2 DEFINITIONS

A. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within [**15**] days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names,

addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in Project meeting room, in temporary field office, in web-based Project software directory, (if applicable) and in prominent location in [**each**]built facility. Keep list current at all times.

1.4 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
2.

1.5 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Owner name.
3. Owner's Project number.
4. Name of Architect and Construction Manager.

5. Architect's Project number.
6. Date.
7. Name of Contractor.
8. RFI number, numbered sequentially.
9. RFI subject.
10. Specification Section number and title and related paragraphs, as appropriate.
11. Drawing number and detail references, as appropriate.
12. Field dimensions and conditions, as appropriate.
13. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
14. Contractor's signature.
15. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

    1. Attachments shall be electronic files in PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow three business days for Architect's response for each RFI when the information relates only to architectural systems. Allow five business days for RFI responses involving the Architect's consultants and their instruments of service. The Architect will notify the contractor in the event that an RFI requires a complex response requiring more than 5 business days no later than 3 business days following the architect's receipt of the RFI. . RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

    1. The following Contractor-generated RFIs will be returned without action:

        a. Requests for approval of submittals.
        b. Requests for approval of substitutions.
        c. Requests for approval of Contractor's means and methods.
        d. Requests for coordination information already indicated in the Contract Documents.
        e. Requests for adjustments in the Contract Time or the Contract Sum.
        f. Requests for interpretation of Architect's actions on submittals.
        g. Incomplete RFIs or inaccurately prepared RFIs.

    2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
    3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal

according to Section 012600 "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within [**5**] <**Insert number**> days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log monthly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect and Construction Manager.
4. RFI number, including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's and Construction Manager's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within five business days if Contractor disagrees with response.

1.6 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Architect's Data Files Not Available: Architect will not provide Architect's BIM model, CAD drawing digital data files for Contractor's use during construction.

B. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:

1. Assemble complete submittal package into a single indexed file, incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of seven business

days prior to meeting.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Responsibilities and personnel assignments.
    b. Tentative construction schedule.
    c. Phasing.
    d. Critical work sequencing and long lead items.
    e. Designation of key personnel and their duties.
    f. Lines of communications.
    g. Use of web-based Project software.
    h. Procedures for processing field decisions and Change Orders.
    i. Procedures for RFIs.
    j. Procedures for testing and inspecting.
    k. Procedures for processing Applications for Payment.
    l. Distribution of the Contract Documents.
    m. Submittal procedures.
    n. Sustainable design requirements.
    o. Preparation of Record Documents.
    p. Use of the premises.
    q. Work restrictions.
    r. Working hours.
    s. Owner's occupancy requirements.
    t. Responsibility for temporary facilities and controls.
    u. Procedures for moisture and mold control.
    v. Procedures for disruptions and shutdowns.
    w. Construction waste management and recycling.
    x. Parking availability.
    y. Office, work, and storage areas.
    z. Equipment deliveries and priorities.
    aa. First aid.
    bb. Security.

cc. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other Sections and when required for coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

a. Contract Documents.
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Sustainable design requirements.
i. Review of mockups.
j. Possible conflicts.
k. Compatibility requirements.
l. Time schedules.
m. Weather limitations.
n. Manufacturer's written instructions.
o. Warranty requirements.
p. Compatibility of materials.
q. Acceptability of substrates.
r. Temporary facilities and controls.
s. Space and access limitations.
t. Regulations of authorities having jurisdiction.
u. Testing and inspecting requirements.
v. Installation procedures.
w. Coordination with other work.
x. Required performance results.
y. Protection of adjacent work.
z. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully

concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 15 calendar days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

    a. Preparation of Record Documents.
    b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    c. Procedures for completing and archiving web-based Project software site data files.
    d. Submittal of written warranties.
    e. Requirements for completing sustainable design documentation.
    f. Requirements for preparing operations and maintenance data.
    g. Requirements for delivery of material samples, attic stock, and spare parts.
    h. Requirements for demonstration and training.
    i. Preparation of Contractor's punch list.
    j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    k. Submittal procedures.
    l. Owner's partial occupancy requirements.
    m. Installation of Owner's furniture, fixtures, and equipment.
    n. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: Conduct progress meetings at biweekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

    1) Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

    1) Interface requirements.
    2) Sequence of operations.
    3) Resolution of BIM component conflicts.
    4) Status of submittals.
    5) Status of sustainable design documentation.
    6) Deliveries.
    7) Off-site fabrication.
    8) Access.
    9) Site use.
    10) Temporary facilities and controls.
    11) Progress cleaning.
    12) Quality and work standards.
    13) Status of correction of deficient items.
    14) Field observations.
    15) Status of RFIs.
    16) Status of Proposal Requests.
    17) Pending changes.
    18) Status of Change Orders.
    19) Pending claims and disputes.
    20) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

    a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Pre-demolition photographs.

B. Related Requirements:

1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
2. Section 024116 "Structure Demolition" for photographic documentation before building demolition operations commence.
3. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.
4. Section 311000 "Site Clearing" for photographic documentation before site clearing operations commence.

1.2 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each [**photograph**] [**and**] [**video recording**]. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within project close-out documents.

1. Submit photos [**thumb-drive**]. Include copy of key plan indicating each photograph's location and direction.
2. Identification: Provide the following information with each image description [**in file metadata tag**] :

a. Date photograph was taken.
b. Unique sequential identifier keyed to accompanying key plan.

C. Video Recordings: Submit video recordings within project close-out documents.

1. Submit video recordings [**thumb drive**]. Include copy of key plan indicating each video's location and direction.
2. Identification: With each submittal, provide the following information [**in file metadata tag**] :

a. Date video recording was recorded.

1.3 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a photographer of construction projects for not less than three years.

1.4 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of [**12**] megapixels, and at an image resolution of not less than [**3200 by 2400**] pixels[**, and with vibration-reduction technology**]. Use flash in low light levels or backlit conditions.

B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of [**12**] megapixels and capable of recording in full high-definition mode[**with vibration-reduction technology**]. Provide supplemental lighting in low light levels or backlit conditions.

C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

D. Metadata: Record accurate date and time from camera.

E. File Names: Name media files with [**date**] [**Project area**] and sequential numbering suffix.

1.5 CONSTRUCTION PHOTOGRAPHS

A. Photographer: Engage a qualified photographer to take construction photographs.

B. General: Take photographs with maximum depth of field and in focus.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

1.6 CONSTRUCTION VIDEO RECORDINGS

A. Video Recording Photographer: Engage a qualified videographer to record construction video recordings.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
4. Section 013233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and Final Completion construction photographs.
5. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
6. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
7. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.3 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required

for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.

3. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.

1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
8. Category and type of submittal.
9. Submittal purpose and description.
10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
11. Drawing number and detail references, as appropriate.
12. Indication of full or partial submittal.
13. Location(s) where product is to be installed, as appropriate.
14. Other necessary identification.
15. Remarks.
16. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations

from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1.5 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.

a. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's

consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.6 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.
    d. Statement of compliance with specified referenced standards.
    e. Testing by recognized testing agency.
    f. Application of testing agency labels and seals.
    g. Notation of coordination requirements.
    h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

    a. Wiring diagrams that show factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

   a. Identification of products.
   b. Schedules.
   c. Compliance with specified standards.
   d. Notation of coordination requirements.
   e. Notation of dimensions established by field measurement.
   f. Relationship and attachment to adjoining construction clearly indicated.
   g. Seal and signature of professional engineer if specified.

2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.

   a. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file

C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:

   a. Project name and submittal number.
   b. Generic description of Sample.
   c. Product name and name of manufacturer.
   d. Sample source.
   e. Number and title of applicable Specification Section.
   f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's physical color chips consisting of units or sections of units, showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

G. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers' names.
    e. Description of product.
    f. Test procedures and results.
    g. Limitations of use.

1.7 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with . Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.8 ARCHITECT'S AND CONSTRUCTION MANAGER'S REVIEW

A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return.

1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action, as follows:

a. Marked "Approved as Submitted" or "No Exception Taken: all items submitted by the contractor may be furnished as submitted. .
b. Marked " Approved with Correction Noted": Item does not require a re-submittal, provided the contractor accepts the corrections noted and furnishes the item as directed.
c. Marked " Revise and Re-submit": Revise submission per corrections noted and re-submit for review.
d. Marked "Rejected" : Revise submission per requirements in the contract document / corrections noted and re-submit for review.
e. Marked "Submit Specified Item": Revise submission per the specified item for proprietary specifications that are not followed.
f. Marked "Reviewed": reviewed for general compliance to the construction documents. refer to engineering / design consultant review comments.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architect will return without review submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Requirements:

1.2 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."

D. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

E. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-

control services do not include contract administration activities performed by Architect.

1.3 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 ACTION SUBMITTALS

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Contractor's quality-control personnel.

B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

D. Reports: Prepare and submit certified written reports and documents as specified.

E. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.6 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

1.7 QUALITY ASSURANCE

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1.8 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Engage a qualified testing agency to perform quality-control services.

a. Contractor will not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
6. Security and protection for samples and for testing and inspection equipment at Project site.

F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore

patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. Installation, removal, and use charges for temporary facilities to be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.

B. Sewer Service: Owner will pay sewer-service use charges for sewer usage by all entities for construction operations.

C. Water Service: Owner will pay water-service use charges for water used by all entities for construction operations.

D. Electric Power Service: Owner will pay electric-power-service use charges for electricity used by all entities for construction operations.

1.3 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.

C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.

D. Erosion and Sedimentation Control Plan: Show compliance with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

E. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Chain-Link Fencing: Minimum **2-inch**, **0.148-inch-** thick, galvanized-steel, chain-link fabric fencing; minimum **6 feet** high with galvanized-steel pipe posts; minimum **2-3/8-inch-** OD line posts and **2-7/8-inch-** OD corner and pull posts[**, with 1-5/8-inch- OD top rails**] [**, with galvanized barbed-wire top strand**].

B. Portable Chain-Link Fencing: Minimum **2-inch**, **0.148-inch-** thick, galvanized-steel, chain-link fabric fencing; minimum **6 feet** high with galvanized-steel pipe posts; minimum **2-3/8-inch-** OD line posts and **2-7/8-inch-** OD corner and pull posts, with **1-5/8-inch-** OD top and bottom rails. Provide [**concrete**] [**galvanized-steel**] bases for supporting posts.

C. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain-link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.

D. Wood Enclosure Fence: Plywood, [**6 feet**] [**8 feet**] high, framed with four **2-by-4-inch** rails, with preservative-treated wood posts spaced not more than **8 feet** apart.

E. Polyethylene Sheet: Reinforced, fire-resistive sheet, **10-mil** minimum thickness, with flame-spread rating of 15 or less in accordance with ASTM E84 and passing NFPA 701 Test Method 2.

F. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats, minimum **36 by 60 inches**.

G. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

C. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

D. Water Service:

1. Install water service and distribution piping in sizes and pressures adequate for construction.

E. Sanitary Facilities: Provide temporary toilets, wash facilities drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

F. Electric Power Service:

1. Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

a. Install electric power service [**overhead**] unless otherwise indicated.

G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

A. Comply with the following:

1. Provide construction for temporary field offices, shops, and sheds located within construction area or within **30 feet** of building lines that is noncombustible in accordance with ASTM E136. Comply with NFPA 241.
2. Utilize designated area within existing building for temporary field offices.
3. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain, including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: [**Use designated areas of Owner's existing**] parking areas for construction personnel.

D. Storage and Staging: [**Use designated areas of Project site**] for storage and staging needs.

E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.
2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

    a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touch up signs, so they are legible at all times.

F. Waste Disposal Facilities:

1. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
2. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 011000 "Summary."

B. Temporary Erosion and Sedimentation Control:

1. Comply with[**requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and**] requirements specified in Section 311000 "Site Clearing."
2. Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, in accordance with [**requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent**].

    a. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
    b. Inspect, repair, and maintain erosion- and sedimentation-control measures

during construction until permanent vegetation has been established.

c. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.

d. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

C. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

D. Tree and Plant Protection:

1. Comply with requirements specified in Section 015639 "Temporary Tree and Plant Protection."
2. Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

E. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals, so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

F. Site Enclosure Fence: [**Before construction operations begin**] furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.

1. Extent of Fence: [**As required to enclose entire Project site or portion determined sufficient to accommodate construction operations**]
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel.[**Furnish one set of keys to Owner.**]

G. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

I. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.

J. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

K. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section Includes: General protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for temporary controls, utilities, support facilities, temporary site fencing, and, if applicable, temporary erosion and sedimentation controls if not specified in Section 311000 "Site Clearing".
2. Section 311000 "Site Clearing" for removing existing trees and shrubs and for temporary erosion- and sedimentation-control measures if not specified in Section 015000 "Temporary Facilities and Controls".

1.2 DEFINITIONS

A. Caliper: Diameter of a trunk measured by [**a diameter tape**] [**or**] [**the average of the smallest and largest diameters**] at a height **6 inches** above the ground for trees up to and including **4-inch** size at this height and as measured at a height of **12 inches** above the ground for trees larger than **4-inch** size.

B. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings, defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.

C. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.3 ACTION SUBMITTALS

A. Mitigation Requirements: As required by jurisdiction or as developed by arborist, for mitigation of damage to trees and other plantings. Include the following:

1. Standards established under the approved tree mitigation report developed by the arborist.

1.4 INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.

1. Use sufficiently detailed photographs or video recordings.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

B. Quality-control program.

1.5 QUALITY ASSURANCE

A. Arborist Qualifications (as required): Certified Arborist as certified by ISA.

1.6 FIELD CONDITIONS

A. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Moving or parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

B. Do not direct vehicle or equipment exhaust toward protection zones.

C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

D. Take precautions to protect plants from airborne contaminants, such as paint or fireproofing overspray.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Protection-Zone Fencing: Fencing fixed in position and meeting[**one of**] the following requirements:[**Previously used materials may be used when approved by Architect.**]

1. Chain-Link Protection-Zone Fencing: [**Galvanized-steel**] fencing fabricated from minimum **2-inch** opening, **0.148-inch-** diameter wire chain-link fabric; with pipe posts, minimum **2-3/8-inch-** OD line posts, and **2-7/8-inch-** OD corner and pull posts[**with 1-5/8-inch- OD top rails**] and **0.177-inch-** diameter bottom tension wire; with tie wires, hog ring ties, and other accessories for a complete fence system.

a. Height: [**48 inches**]

2. Gates: [**Single-**] swing access gates matching material and appearance of fencing, to allow for maintenance activities within protection zones; leaf width [**36 inches**]

B. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes prepunched and reinforced; legibly printed with nonfading lettering and as follows:

1. Lettering: [**3-inch-**] high minimum, [**black**] characters on [**white**] background.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

3.2 PREPARATION

A. Locate and clearly identify trees, shrubs, and other vegetation to remain [**Flag**] [**Tie a 1-inch blue vinyl tape around**] each tree trunk at **54 inches** above the ground.

B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.3 PROTECTION ZONES

A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones[**before materials or equipment are brought on the site and construction operations begin**] in a manner that will prevent people from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.

1. Chain-Link Fencing: Install to comply with ASTM F567 and with manufacturer's written instructions.
2. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Architect.

3. Access Gates: adjust to operate smoothly, easily, and quietly; free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
4. Plastic Fencing: Stretch fabric taut and secure to posts without bows or sags.

B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Architect. Install one sign spaced approximately every [**20 ft.**] on protection-zone fencing, but no fewer than [**three**] signs with each facing a different direction.

C. Maintain protection zones free of weeds and trash.

D. Maintain hydration of plants to assure plant survival.

E. Maintain protection-zone fencing and signage in good condition as acceptable to Architect and remove when construction operations are complete and equipment has been removed from the site.

1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.

3.4 EXCAVATION

A. General: Excavate at edge of protection zones and for trenches indicated within protection zones in accordance with requirements in Section 312000 "Earth Moving" unless otherwise indicated.

B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.

3.5 ROOT PRUNING

A. Prune tree roots that are affected by temporary and permanent construction. Prune roots [**as follows:**]

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
2. Cut Ends: Do not paint cut root ends.
3. Temporarily support and protect roots from damage until they are permanently covered with soil.
4. Cover exposed roots with burlap and water regularly.

5. Backfill as soon as possible in accordance with requirements in Section 312000 "Earth Moving."

B. Root Pruning at Edge of Protection Zone: Prune tree roots [**12 inches outside** of the protection zone by cleanly cutting all roots to the depth of the required excavation.

C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.6 REGRADING

A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

B. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

C. Minor Fill within Protection Zone: Where existing grade is [**2 inches**]or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

3.7 REPAIR AND REPLACEMENT

A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Architect.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours in accordance with arborist's written instructions.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.

END OF SECTION 015639

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of This Section Includes: Administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 011000 "Summary" for Contractor requirements related to Owner-furnished products.
2. Section 017700 "Closeout Procedures" for submitting warranties.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products unless otherwise indicated.
3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.

1. Evaluating Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical

properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.[**Manufacturer's published attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.**]

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.

D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:

1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
2. Data indicating compliance with the requirements specified in "Comparable Products" Article.

E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittal Procedures."

1.3 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is inconspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

a. Name of product and manufacturer.

b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.

3. See individual identification Sections in Divisions 21, 22, 23, and 26 for additional equipment identification requirements.

1.4 COORDINATION

A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.

C. Storage:

1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
2. Store products to allow for inspection and measurement of quantity or counting of units.
3. Store materials in a manner that will not endanger Project structure.
4. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.
5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections are to be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of Owner or endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of Owner or endorsed by manufacturer to Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.

5. Descriptive, performance, and reference standard requirements in Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

    a. Submit additional documentation required by Architect in order to establish equivalency of proposed products. Unless otherwise indicated, evaluation of "or equal" product status is by Architect, whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience [**will**] be considered [**unless otherwise indicated**].

    a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.

    a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."
    b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience [**will**] be considered [**unless otherwise indicated**].

a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."

6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed or a product by an unnamed manufacturer that complies with requirements.

   a. Non-limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following."
   b. Provision of products of an unnamed manufacturer is not considered a substitution, if the product complies with requirements.

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

   a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require the phrase "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

E. Sustainable Product Selection: Where Specifications require product to meet sustainable product characteristics, select products complying with indicated requirements. Comply with requirements in Division 01 sustainability requirements Section and individual Specification Sections.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider

Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation within [**five**] working days of receipt of a request for a comparable product. Architect will notify Contractor of approval or rejection of proposed comparable product within [**10**] working days of receipt of request, or [**five**] working days of receipt of additional information or documentation, whichever is later.

1. Architect's Approval of Submittal: [**Marked with approval notation from Architect's action stamp**] See Section 013300 "Submittal Procedures."
2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

C. Submittal Requirements, Two-Step Process: Approval by Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

D. Submittal Requirements, Single-Step Process: When acceptable to Architect, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by Architect of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 – EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:

1. Cutting and patching.
2. Coordination of Owner's portion of the Work.
3. Progress cleaning.
4. Protection of installed construction.
5. Correction of the Work.

B. Related Requirements:

1. Section 013300 "Submittal Procedures" for submitting surveys.
2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
3. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.2 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

C. Cutting and Patching Plan: Submit plan describing procedures at least [**10**] days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems

that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: Shore, brace, and support structural elements during cutting and patching.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.
2. ~~Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.~~

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and

construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, **and electrical systems,** and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to [**local utility**] [**Owner**] that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect in accordance with requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the existing conditions. If discrepancies are discovered, notify Architect promptly.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of [**two**] permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

B. Temporary Support: Provide temporary support of Work to be cut.

C. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 011000 "Summary."

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to [**minimize**] interruption to occupied areas.

E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. [**Concrete**] [**and**] [**Masonry**]: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces to remain.

3.6 COORDINATION OF OWNER'S PORTION OF THE WORK

A. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.7 PROGRESS CLEANING

A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or

three days if the temperature is expected to rise above **80 deg F**.

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, in accordance with regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Exposed Surfaces: Clean exposed surfaces to remain and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

E. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in [**Section 017419 "Construction Waste Management and Disposal."**]

F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

G. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

3.9 CORRECTION OF THE WORK

A. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

B. Restore permanent facilities used during construction to their pre-construction conditions.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components damaged during construction that do not operate properly. Remove and replace operating components that cannot be repaired.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous [**demolition**][**and**][**construction**] waste.
2. Recycling nonhazardous [**demolition**][**and**][**construction**] waste.
3. Disposing of nonhazardous [**demolition**][**and**][**construction**] waste.

1.2 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner’s property.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, or individual employed and assigned by General Contractor, with a record of successful waste management coordination of projects with similar requirements. Superintendent [**may**]serve as Waste Management Coordinator.

B. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.

1.5 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, handling, storage, transportation and disposal.

B. Waste Identification: Indicate anticipated types and quantities of [**demolition**] **and** [**construction**] waste generated by the Work. Include estimated quantities and assumptions for estimates.

PART 2 - PRODUCTS

2.1 RECYCLING RECEIVERS AND PROCESSORS

A. Subject to compliance with requirements, available recycling receivers and processors include, but are not limited to, the following:

1. Las Cruces Recycling Center

a. 2855 Amador Ave, Las Cruces, NM 88005

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.[**Coordinator shall be present at Project site full time for duration of Project.**]

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

1. Distribute waste management plan to everyone concerned within [**three**] days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING [**DEMOLITION**] WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall [**accrue to Contractor**]

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent

windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.3 RECYCLING DEMOLITION WASTE

A. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

B. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

D. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

E. Metal Suspension System: Separate metal members, including trim and other metals from acoustical panels and tile, and sort with other metals.

F. Carpet[**and Pad**]: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

1. Store clean, dry carpet[**and pad**] in a closed container or trailer provided by carpet reclamation agency or carpet recycler.

G. Carpet Tile: Remove debris, trash, and adhesive.

1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by carpet reclamation agency or carpet recycler.

3.4 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into

component wood pieces and comply with requirements for recycling wood.

4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.5 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner’s property.

C. Burning: Do not burn waste materials.

D. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final Completion procedures.
3. List of incomplete items.
4. Submittal of Project warranties.
5. Final cleaning.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for requirements for Applications for Payment for Substantial Completion and Final Completion.
2. Section 013233 "Photographic Documentation" for submitting Final Completion construction photographic documentation.
3. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

1.2 DEFINITIONS

A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Architect's use prior to Architect's inspection, to determine if the Work is substantially complete.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest-control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items required by other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of [**10**] days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit sustainable design submittals not previously submitted.
5. Submit changeover information related to Owner's occupancy

C. Procedures Prior to Substantial Completion: Complete the following a minimum of [**10**] days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Advise Owner of changeover in utility services.
4. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
6. Complete final cleaning requirements.
7. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of [**10**] days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or

corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:

1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list will state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit Final Completion photographic documentation.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, [**starting with exterior areas first**] listed by room or space number.
2. Organize items applying to each space by major element, including categories for ceilings, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

4. Submit list of incomplete items in the following format:

    a. PDF Electronic File: Architect will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within [**15**] days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

    1. Submit [**by email to Architect**].

E. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

    a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
    b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
    d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    e. Remove snow and ice to provide safe access to building.
    f. Clean exposed exterior finishes to remain to a dirt-free condition, free of stains, films, and similar foreign substances.
    g. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste-disposal requirements in [**Section 017419 "Construction Waste Management and Disposal."**]

3.2 CORRECTION OF THE WORK

A. Complete repair and restoration operations required by "Correction of the Work" Article in Section 017300 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record specifications.
3. Miscellaneous record submittals.

B. Related Requirements:

1. Section 017300 "Execution" for final property survey.
2. Section 017700 "Closeout Procedures" for general closeout procedures.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit [**one**] digital scanned set(s) of marked-up record prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal:

1) Submit PDF electronic files of scanned record prints.
2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit PDF electronic files of scanned Record Prints
2) Submit each drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit [**annotated PDF electronic files**] of Project's Specifications, including addenda and Contract modifications.

C. Record Product Data: Submit [**annotated PDF electronic files and directories**] of each submittal.

1. Where record Product Data are required as part of operation and maintenance

manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit [**annotated PDF electronic files and directories**] of each submittal.

E. Reports: Submit written report [**weekly**] indicating items incorporated into Project Record Documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.3 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Accurately record information in an acceptable drawing technique.
    c. Record data as soon as possible after obtaining it.
    d. Record and check the markup before enclosing concealed installations.
    e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Depths of foundations.
    d. Locations and depths of underground utilities.
    e. Revisions to routing of piping and conduits.
    f. Revisions to electrical circuitry.
    g. Locations of concealed utilities.
    h. Changes made by Change Order or [**Construction**] [**Work**] Change Directive.
    i. Changes made following Architect's written orders.
    j. Details not on the original Contract Drawings.
    k. Field records for variable and concealed conditions.
    l. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use

personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

1.4 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders[**, Record Product Data,**] and Record Drawings where applicable.

B. Format: Submit record specifications as [**annotated PDF electronic file**] [**or**]

[**scanned PDF electronic file(s) of marked-up paper copy of Specifications**].

1.5 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders[**, Record Specifications,**] and Record Drawings where applicable.

C. Format: Submit Record Product Data as [**annotated PDF electronic file**] or [**scanned PDF electronic file(s) of marked-up paper copy of Product Data**].

1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.6 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as [**PDF electronic file**] or [**scanned PDF electronic file(s) of marked-up miscellaneous record submittals**].

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.7 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 017839

SECTION 024116 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section Includes:

1. Demolition and removal of buildings or structures.
2. Demolition and removal of site improvements.
3. Abandoning in-place below-grade construction.
4. Removing below-grade construction.
5. Disconnecting, capping or sealing, and abandoning in-place site utilities.
6. Disconnecting, capping or sealing, and removing site utilities.
7. Salvaging items for reuse by Owner.

B. Related Requirements:

1. Section 011000 "Summary" for use of the premises and phasing requirements.
2. Section 013200 "Construction Progress Documentation" for preconstruction photographs taken before building demolition.
3. Section 024119 "Selective Demolition" for partial demolition of buildings, structures, and site improvements.
4. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade site improvements that are not part of building demolition.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner as indicated. Include fasteners or brackets needed for reattachment elsewhere.

1.3 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 COORDINATION

A. Arrange demolition schedule so as not to interfere with [**Owner's on-site operations**][**or**][**operations of adjacent occupied buildings**].

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at [**Project site**]

1. Inspect and discuss condition of construction to be demolished.
2. Review structural load limitations of existing structures.
3. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review and finalize protection requirements.
5. Review procedures for [**noise control**][**and**][**dust control**].
6. Review procedures for protection of adjacent buildings.
7. Review storage, protection, and accounting for items to be salvaged and returned to Owner.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Statements: For [**refrigerant recovery technician**]

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property[**, for environmental protection**] Indicate proposed locations and construction of barriers.

1. Adjacent Buildings: Detail special measures proposed to protect adjacent buildings to remain[**including means of egress from those buildings**].

C. Schedule of Building Demolition Activities: Indicate the following:

1. Detailed sequence of demolition work, with starting and ending dates for each activity.
2. Temporary interruption of utility services. Indicate how long services will be interrupted.
3. Coordination for shutoff and capping[**or re-routing**] of utility services.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed in accordance with EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: [**Universal**] certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.

B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.

1. Provide not less than [**72**] hours' notice of activities that will affect operations of adjacent occupied buildings.
2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.

a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

C. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before building demolition, Owner will remove the following items:

a. To be coordinated with Owner at Pre-Demolition conference.

D. Hazardous Materials:

1. Hazardous materials are present in buildings and structures to be demolished. A report on the presence of hazardous materials is [**included in Section 003126 "Existing Hazardous Material Information"**] for review and use. Examine report to become aware of locations where hazardous materials are present.

a. Hazardous material remediation is specified in **Section 028200 "Asbestos Abatement and Related Work"**
b. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified in **Section 003126 "Existing Hazardous Material Information"**]
c. Owner will provide material safety data sheets for hazardous materials that are known to be present in buildings and structures to be demolished

because of building operations or processes performed there.

E. On-site sale of removed items or materials is not permitted.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

2.2 SOIL MATERIALS

A. Satisfactory Soils: Comply with requirements in Section 312000 "Earth Moving."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. [**Perform**] an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of remaining structure or adjacent structures during building demolition operations.

D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video. Comply with Section 013233 "Photographic Documentation."

1. Inventory and record the condition of items to be removed and salvaged.

Photograph or video conditions that might be misconstrued as damage caused by removal.

2. Photograph or video existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by demolition operations or removal of items for salvage.

3.2 PREPARATION

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.

B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of demolition.

C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 015000 "Temporary Facilities and Controls."

1. Protect adjacent buildings and facilities from damage due to demolition activities.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.

D. Existing Utilities to Remain: Maintain utility services to remain and protect against damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.

a. Provide at least [**72**] hours' notice to occupants of affected buildings if shutdown of service is required during changeover.

E. Existing Utilities to Be Disconnected: Locate, identify, disconnect, and seal or cap off

utilities serving buildings and structures to be demolished.

1. Owner will arrange to shut off utilities when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. If disconnection of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
4. Cut off pipe or conduit a minimum of [**24 inches**] below grade at or outside the building or structure to be demolished and cap, valve, or plug and seal remaining portion of pipe or conduit [**after bypassing**]in accordance with requirements of authorities having jurisdiction.
5. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing by authorities having jurisdiction.

F. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment in accordance with 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 SALVAGE

A. Items to be removed and salvaged are indicated[**on Drawings]**

B. Comply with the following for salvaged items:

1. Clean salvaged items of dirt and demolition debris.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to storage area [**designated by Owner**]
5. Protect items from damage during transport and storage.

3.4 DEMOLITION, GENERAL

A. General: Demolish indicated buildings[**and site improvements**] completely. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
2. Maintain fire watch during and for at least one hours after flame-cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Explosives: Use of explosives is not permitted.

3.5 DEMOLITION BY MECHANICAL MEANS

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.

C. Below-Grade Construction:

1. Demolish foundation systems and other below-grade construction.

a. Remove below-grade construction, including basements, foundation systems, and footings, [**completely**] u.n.o.

D. Existing Utilities:

1. Demolish and remove existing utilities and below-grade utility structures where indicated.

3.6 SITE RESTORATION

A. Below-Grade Areas:

1. Completely fill below-grade areas and voids resulting from building demolition operations with [**satisfactory soil materials**] in accordance with backfill requirements in Section 312000 "Earth Moving."

B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.7 REPAIRS

A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site [**and recycle or dispose of them in accordance with Section 017419 "Construction Waste Management and Disposal."**]

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Do not burn demolished materials.

3.9 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

1. Clean roadways of debris caused by debris transport.

END OF SECTION 024116

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section Includes:

1. Demolition and removal of selected portions of site elements.
2. Removal and salvage of existing items for delivery to Owner and removal of existing items for reinstallation.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 015639 "Temporary Tree and Plant Protection" for temporary protection of existing trees and plants that are affected by selective demolition.
3. Section 017300 "Execution" for cutting and patching procedures.
4. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade improvements not part of selective demolition.
5. Section 330500 "Common Work Results for Utilities" for removal of site utility systems piping, equipment, and components.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner as indicated.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage; prepare for reuse; and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed.

1.3 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the

property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at [**Project site**]

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.
6. Review and finalize protection requirements.
7. Review procedures for [**noise control**] [**and**] [**dust control**].
8. Review storage, protection, and accounting for items to be removed for salvage or reinstallation.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Statements: For refrigerant recovery technician.

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property[**, for environmental protection**] [**, for dust control**] [**and**] [**, for noise control**]. Indicate proposed locations and construction of barriers.

C. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Temporary interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed in accordance with EPA regulations. Include name and address of technician and date refrigerant was recovered.

E. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: [**Universal**] certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. On-site sale of removed items or materials is not permitted.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective

demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video Comply with Section 013233 "Photographic Documentation."

1. Inventory and record the condition of items to be removed for salvage or reinstallation. Photograph or video conditions that might be misconstrued as damage caused by removal.
2. Photograph or video existing conditions of adjoining construction including finish surfaces, that might be misconstrued as damage caused by selective demolition operations or removal of items for salvage or reinstallation.

3.2 PREPARATION

A. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

B. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location[**and cleaned**] and reinstalled in their original locations after selective demolition operations are complete.

D. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment in accordance with 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND BUILDING SYSTEMS

A. Existing Services/Systems to Remain: Maintain utilities and building systems and equipment to remain and protect against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utilities and building systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated utilities when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. If disconnection of utilities and building systems will affect adjacent occupied parts of the building, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to those parts of the building.
4. Demolish and remove existing building systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment and components.

5. Abandon existing building systems, equipment, and components indicated on Drawings to be abandoned in place.

    a. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    b. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

6. Remove and reinstall/salvage existing building systems, equipment, and components indicated on drawings to be removed and reinstalled or removed and salvaged:

    a. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment and components; when appropriate, reinstall, reconnect, and make equipment operational.
    b. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and components and deliver to Owner.

3.4 SALVAGE/REINSTALL

A. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area [**designated by Owner**].
5. Protect items from damage during transport and storage.

B. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

3.5 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least one hours after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as

not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete:

1. Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least **3/4 inch** at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
2. Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site [**and recycle or dispose of them in accordance with Section 017419 "Construction Waste Management and Disposal."**]

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.9 SELECTIVE DEMOLITION SCHEDULE

A. Remove: items indicated on drawings.

B. Remove and Salvage: items indicated on drawings

C. Existing to Remain: items indicated on drawings.

END OF SECTION 024119

SECTION 028200 – ASBESTOS ABATEMENT AND RELATED WORK

PART 1 - GENERAL

A. DESCRIPTION OF WORK:

A. Bulk samples of specific building materials have been collected and tested for asbestos content. Refer to reports attached to Section 003119 “Existing Hazardous Material Information.” The reports are provided for guidance and may not correspond exactly to the quantity to be removed. Contractor shall determine quantities of asbestos for bidding purposes.

B. The intent of the Work is to [completely] remove [all] Asbestos Containing Materials (ACM) from the Site to accommodate [building demolition and/or redevelopment work]

C. The Asbestos Abatement Contractor shall furnish all labor, material, supervision, construction tools, transport vehicles and equipment necessary to perform the following work:

a. [Pre-bid inspection. The potential Bidders are required to visit the Project Buildings prior to bidding in order to determine the amounts of asbestos containing and asbestos contaminated materials to be removed, as well as staging and protection requirements. All Contractors must comply with OSHA’s Control of Hazardous Energy (lockout/tagout) Requirements.

b. Provide access, support and protection to all authorized visitors and inspectors.

c. Filing of and/or obtaining all required notifications, permits, work plans and payment of all required associated costs and fees. The Contractor is required to provide copies of all permits, notifications, and approvals prior to the start of any abatement work.

d. Work area preparation and work practices, including installation of required warning signs and maintenance of work area/site security.

e. Proper removal, packaging, transport and disposal of all asbestos containing materials as specified herein. Note that vehicles transporting bulk-loaded demolition debris containing a reportable quantity (greater than 1 pound) of asbestos shall be properly placarded in accordance with USDOT regulations. All drivers shall be appropriately trained and licensed to transport this material.

f. Isolation of the work area for the duration of the work so as to prevent asbestos contaminated dust or debris from passing beyond the isolated area.

g. Clean-up and final decontamination of all work areas.

h. Implementation of a worker protection program in compliance with all applicable regulations.

D. It is the Contractor's responsibility to determine the most efficient method to legally perform this Work. Unless specifically noted, this Specification does not dictate specific methods to be implemented in the performance of the Work. [The entire application of all ACMs shall be removed inclusive of any substrate contamination, whether present on the substrate surface or embedded in the matrix of the substrate component. After abatement is complete, the building or equipment component must be rendered completely free of asbestos and rendered recyclable, reusable, and/or disposable in accordance with all applicable regulations.
E. The Contractor shall perform all work in accordance with these specifications, the USEPA and OSHA regulations, NIOSH recommendations, local statutes, local ordinances, local codes and any other applicable federal, state and local government regulations and guidelines.
F. The Contractor is advised that paints and debris existing within the building may contain lead. The Contractor shall at all times be in compliance with OSHA regulation 29 CFR 1926.62 Lead in Construction; Interim Final Rule as well as other applicable regulatory requirements and other applicable portions of the contract documents.

B. Related Requirements:

A. Section 013300 "Submittal Requirements"
B. Section 015000 "Temporary Facilities and Controls"
C. Section 017419 " Construction Waste Management and Disposal"
D. Section 003119 "Existing Hazardous Material Information"
E. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.
F. Section 024116 "Structure Demolition"

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in text by basic designation only. The list provided below is not intended to be all inclusive of each regulation prevailing over the work. The latest version of the document listed shall govern the work performed.

B. Environmental Protection Agency (EPA):

A. Code of Federal Regulations, 40 CFR Part 763, Asbestos.
B. National Emission Standard for Asbestos, 40 CFR, Chapter 61, Subpart M.
C. Guidance for Controlling Friable Asbestos-Containing Materials in Buildings.
D. A Guide to Respiratory Protection for the Asbestos Abatement Industry.

C. Occupational Safety and Health Administration (OSHA):

A. Asbestos Construction Standard, 29 CFR 1926.1101, 29 CFR 1910.245, and 29 CFR 1910.1200.
B. Asbestos General Industry Standard, 29 CFR 1910.1001.
C. Respiratory Protection, 29 CFR 1910.134.
D. Specifications for Accident Prevention Sign and Tags, 29 CFR 1910.145.

D. National Institute for Occupational Safety and Health (NIOSH):

A. “Respiratory Protection A Guide for the Employee."
B. “Asbestos Fibers by Phase Contrast Microscopy (PCM),” NIOSH Method 7400.

E. American National Standards Institute (ANSI):

A. Z86.1-1973 - Commodity Specification for Air.
B. Z9.2 - HEPA Filter Specifications.
C. Z88.2-1980-Respiratory Protective Equipment

F. U.S. Department of Transportation (USDOT)

A. Shippers - Hazardous Materials Regulations, 49 CFR 171 – 172.
B. Shippers-General Requirements for Shipments and Packaging; Carriage by Rail; Carriage by Aircraft; Carriage by Vessel; and Carriage by Public Highway, 49 CFR 173; 174; 175; 176; and 177. 3. Hazardous Materials Regulations, Amendments and Reportable Quantities, 51 CFR 42176

1.3 DEFINITIONS

A. All terms not defined herein shall have the meaning given in the applicable publications and regulations.
B. Asbestos Abatement: Any activity which has as its principal purpose the removal, enclosure or encapsulation of asbestos containing material.
C. Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time.
D. ANSI: American National Safety Institute
E. Asbestos: The name given to a number of naturally occurring hydrated mineral silicates that possess a unique crystalline structure, are incombustible and are separated into fibers. Asbestos includes chrysotile, crocidolite, amosite, anthophyllite, actinolite and tremolite.
F. Asbestos Abatement Contractor: Any person, firm, corporation or other entity who or which has a valid license issued by the Commonwealth for the purpose of entering into or engaging in asbestos work.
G. Asbestos-Containing Materials (ACM): Any material containing any (one percent

or more) by weight of asbestos of any type or mixture of types.

H. Asbestos Containing Waste Materials (ACWM): Any ACM removed during a demolition or renovation project and anything contaminated with asbestos in the course of a demolition or renovation project including, but not limited to, asbestos waste from control devices, bags or containers that previously contained asbestos, contaminated clothing, materials used to enclose the work area during the demolition or renovation operation, and demolition or renovation debris. ASBESTOS-CONTAINING WASTE MATERIAL (ACWM) shall also include ACM on and/or in facility components that are inoperable or have been taken out of service and any ACM that is damaged or deteriorated to the point where it is no longer attached as originally applied or is no longer serving the intended purpose for which it was originally installed.

I. Asbestos Consultants: Persons who perform design, oversight or assessment functions in asbestos abatement or asbestos hazard control, including asbestos inspectors, management planners, project designers and project monitors

J. Asbestos Project Monitor: A person who:
(a) Collects air and bulk samples and performs visual inspections for the purpose of determining asbestos project completion;
(b) Collects environmental asbestos air samples for the purpose of assessing the present or future potential for exposure to airborne asbestos; or
(c) Functions as the on-site representative of the facility owner or other persons by overseeing the activities of the asbestos contractor.

K. Asbestos Waste Shipment Record (AWSR): The shipping document used to track and substantiate the disposition of ACWM.

L. Authorized Visitors: Any visitor authorized by the Owner, the Engineer or any representative of a regulatory agency or other agency having jurisdiction over the project.

M. Contractor: Refers to the General Contractor and/or Subcontractor responsible for the Work under contract with Project Manager.

N. Critical Barrier: At least two or more layers of 6 mil. plastic sheeting sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

O. Decontamination Facility: A decontamination area that is adjacent and connected to the regulated area for the decontamination of such employees. The decontamination area shall consist of an equipment room, shower area, and clean room in series. The employer shall ensure that employees enter and exit the regulated area through the decontamination area.

P. USDOT: United States Department of Transportation

Q. Encapsulation: The application of a coating or liquid sealant to asbestos-containing material to reduce the tendency of the material to release fibers.

R. Enclosure: All herein specified procedures necessary to complete enclosure of all ACM behind airtight impermeable, permanent barriers.

S. Engineer: Authorized representative of the Owner. Engineer shall be the Architect or Designer of Record for the construction project.

T. Friable Asbestos Material: Material that contains more than one percent (1%) asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.
U. Glove bag: A manufactured plastic bag-type enclosure with built-in gloves, which is placed with an air-tight seal around a facility component which permits ACM in or on the facility component to be removed without releasing asbestos fibers into the atmosphere.
V. HEPA Filter: Equipment with a High Efficiency Particulate Air (HEPA) filter, greater than 99.97 percent efficiency by 0.3-micron DOP test, and complying with ANSI Z9.2 (1979).
W. SDS: Safety Data Sheet
X. MSHA: Mine Safety and Health Act
Y. NESHAP: National Emission Standards for Hazardous Air Pollutants
Z. NIOSH: National Institute of Occupational Safety and Health
AA. OSHA: Occupational, Safety and Health Administration.
BB. PACM: Presumed asbestos-containing materials.
CC. PCM: Phase Contrast Microscopy
DD. PLM: Polarized Light Microscopy
EE. Removal: All herein specified procedures necessary to strip all ACM from designated areas and to dispose of these materials at an acceptable site.
FF. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.
GG. TEM: Transmission Electron Microscopy
HH. TSI: Thermal system insulations which include all types of insulating materials on boilers, tanks, heat exchangers, pipes, ducts, breeching and other machinery, equipment and components which require insulation.
II. VAT: Vinyl asbestos (floor) tile.
JJ. Visible Emissions: Any emissions that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor

1.4 SCHEDULING

A. The Contractor shall develop an abatement schedule for each phase of work prior to the Pre-Construction Conference. The Architect or Owner may choose to alter the construction work sequence as they see fit.

B. The Contractor shall update the schedule and submit any schedule changes for review by the Architect and Owner at the regular construction meetings.

1.5 NOTIFICATIONS, PERMITS, LICENSES AND CERTIFICATIONS

A. Licenses and certifications: Maintain current licenses and certifications as required by applicable state or local jurisdictions for the removal, transporting, disposal or other

regulated activity related to the work of this contract.

B. State and Local Agencies: Send written notification as required by state and local regulations prior to beginning any work on asbestos-containing materials.

C. Emergency Waiver Requests: All waiver requests must go through the Owner for authorization.

D. The Contractor shall submit certificates of required insurance to the Owner evidencing that the required coverage are in effect prior to the commencement of any asbestos abatement work. Copies of the certificates must be sent to the Architect. Each certificate shall name the Owner as an additional insured and provide for at least 10 days' notice to the Owner prior to any cancellation of the coverage. Information on required insurance can be obtained from the Owner.

E. The Abatement Contractor is responsible for immediately reporting any breach in containment to the Owner and Architect.

F. The on-site presence of any regulatory inspector shall be immediately reported to the Owner and Architect. The Contractor's supervisor shall accompany the inspector at all times while they are on-site.

1.6 LOCATION OF WORK AND SITE CONSTRAINTS

A. Location of work areas, descriptions, estimated types and quantities of ACM are described in the Asbestos Survey Report referred to in Paragraph 1.02A. If the abatement Contractor encounters any previously unidentified and/or untested material that is suspected to be asbestos containing, the Contractor shall stop all work in the affected area and notify the Owner and Architect, who will arrange for sampling and testing of the suspect material. If the material in question is in fact asbestos containing, the abatement Contractor shall remove and dispose of the material in accordance with this specification, with all referenced documents included as part of this specification, and with all Federal, state and local regulations. [Removal and disposal of this previously unidentified asbestos containing material shall be performed by the Contractor at the unit prices bid for in this Contract.

B. Any areas where abatement activities are occurring shall be restricted to authorized personnel. Authorized personnel shall include only certified asbestos workers, supervisors, project monitors, and emergency response personnel.

C. Refer to Section 015000 – TEMPORARY FACILITIES AND CONTROLS for procedures and costs relating to sanitary facilities, temporary power and temporary water.

1.7 AUTHORITY TO STOP WORK

A. The Owner has the authority to stop the work at any time the determination is made, either directly or through the services of the Engineer that conditions are not within the specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the Owner. Standby time required to resolve violations shall be at the Contractor's expense, and any fines, etc., for hazardous conditions or non-compliance will be at the Contractor's expense, and will not be grounds for change orders or time extension.

B. The Contractor shall notify the Owner and Architect when airborne fiber levels measured outside the work area enclosures or at the boundary of regulated areas exceed 0.010 f/cc or established background levels, at which time Owner will direct the Contractor to stop work, determine the cause of the elevated fiber levels and implement corrective actions.

C. Stop work orders may be issued for, but not limited to the following:

1. Breaks in barriers.

2. Loss of negative air (-0.02 inches of water column - minimum negative pressure to be maintained).

3. Leakage to other areas.

4. Fiber concentrations outside the work area, which exceed 0.010 f/cc for any one PCM sample.

5. If the Contractor disregards laws or regulations of any regulatory or governing body having jurisdiction.

6. If the Contractor’s work presents a risk to the building, to building occupants to the general public or to the environment as determined by the Owner or the Architect

7. A condition is determined to be immediately dangerous to life or health (IDLH)

8. The absence of a stop work order by the Owner shall not in any way be construed as an approval or acceptance of the Contractor’s work.

1.8 CONTRACTOR QUALIFICATIONS

A. The Asbestos Abatement Contractor shall be pre-approved prior to the start of abatement work by the Owner.

B. All personnel of the approved Contractor involved with this work shall meet the following minimum qualifications:

a. Asbestos worker medical examination within the past year in accordance with OSHA 1926.1001 with a Medical Practitioner written opinion that the worker has no condition that would preclude him/her from working with asbestos or wearing a respirator.
b. Record of successful respirator fit testing performed by a qualified individual within the previous year, for each employee. Fit testing documentation should match the type of respirator being worn.
c. Current certification by the DLS as an Asbestos Supervisor or Asbestos Worker. The Contractor is required to provide proof of training and licensing of any and all employees completing the Work prior to the start of any abatement work.

C. There shall be a sufficient number of trained and qualified workers, supervisors and superintendents to accomplish the work within the required schedule.

1.9 EMERGENCY PRECAUTIONS

A. The Contractor shall establish and maintain emergency and fire exits from the work areas.

B. Local emergency medical personnel, both ambulance crews and hospital emergency room staff, shall be notified prior to commencement of abatement operations as to the possibility of having to handle contaminated, injured workers, and shall be advised on safe decontamination. The Contractor shall submit copies of such notifications to the Engineer.

C. The Contractor shall have a written Site Health and Safety Plan. When an injury occurs the Contractor shall stop work and implement fiber reduction techniques (e.g., water spraying) until the injured person has been removed from the work area.

1.10 SUBMITTALS

A. The Contractor shall submit each item in this Article according to the Conditions of the Contract and Section 013300 SUBMITTALS, for information only, unless otherwise indicated.

B. All submittals shall be submitted to the Architect prior to the start of work.

C. An Abatement Work Plan using conventional containment and negative pressure shall be submitted by the Asbestos Contractor prior to work.The Abatement Work Plan shall

include, at a minimum, the following:

1. Layout of project execution components showing the configuration of the containment area.

2. A description of Security System, warning signs and labels for bags and drums

3. Access routes to asbestos controlled areas.

4. A description of wetting agents and low pressure wetting system.

5. Description of enclosures to be used.

6. Description of wall, floor and opening coverings and sealing tapes.

7. Fire Protection Plan, safety plan, and emergency evacuation plan. This includes the submittal of flame cortication’s for plastic sheeting/barriers from the local fire departments as required.

8. Detailed plans for decontamination facilities, toilets and systems allowing intra-room communication and communication between the work area and other areas.

9. Engineering systems for exposure control showing the number, location and capacity of exhaust systems, the expected direction of flow and the negative pressure in each work area.

10. Submit manufacturer's certification that vacuums, ventilation equipment, and other equipment required to contain airborne asbestos fibers conform to ANSI Z9.2 and to requirements as listed in this Specification.

11. SDSs for all products used on the Project.

12. Standard Operating Procedure showing how workers, visitors, and employees will be protected from exposure and how spaces outside the work areas will be protected from contamination until completion of the work.

D. Handling and off-site management of disposable protective clothing to be used on this Project. Disposable protective clothing shall be disposed as ACWM in accordance with 310 CMR 7.15(15) through (18).

E. Respiratory Protection System(s), including literature describing sample respirators, hoses and certificate with system literature for the air supply system from manufacturer stating that air supply system meets specifications on quality, quantity and escape time. These submittals are required only if supplied air respiratory protection is used.

F. Certification of compliance with OSHA requirements including but not limited to medical surveillance, record keeping and personal monitoring. Documentation of worker training, respiratory protection, and medical examination.

G. Copies of transporter and landfill destination permits and Waste Shipment Records.

H. The Contractor shall maintain on-site all SDSs for all chemicals used including mastic removers.

PART 2 - PRODUCTS

2.1 GENERAL

A. All materials or equipment delivered to the site shall be unloaded, temporarily stored, and transferred to the work area in a manner which shall not interfere with operation of others at the site, or employee's access and safety.

B. Damaged or deteriorated materials shall not be used and shall be promptly removed from the premises. Materials that become contaminated with asbestos-containing material shall be thoroughly cleaned, or sealed in plastic bags or sheeting, labeled, and legally disposed of in an approved, secure landfill.

C. All materials and equipment shall comply, at a minimum, with all sections of this specification, applicable federal, state, and local codes, and industry standards.

2.2 ABATEMENT EQUIPMENT & SUPPLIES

A. HEPA-Filtered Exhausts - Air inside each work area shall be exhausted through a HEPA filter. Commercially manufactured HEPA-filtered exhaust units, with specification plates intact, must be provided for each work area to attain, at a minimum, four air volume changes per hour and an inward flow velocity of clean air into each work area at the Decontamination Facility of at least 100 feet per minute. The HEPA filter shall be preceded by replaceable pre-filters and the unit must be designed so that it cannot be operated unless all filters are in place. The units must also be designed with a gauge to indicate the pressure drop across filters, and lights and audible alarms to indicate that the filters are properly installed, functional, and when they must be changed. Flexible ducting shall be required to allow exhausting to the exterior of the building. No exhaust with any other type of particulate cleaning system (such as electrostatic precipitators) shall be allowed without prior written approval.

B. Plastic Sheeting ("Poly") and Bags - shall be polyethylene or equivalent with a thickness of at least 6 mil for all applications. Two layers of fire retardant sheeting shall

be used.

C. Wetting Agent or Surfactant - shall be 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or equivalent, mixed in the proportion of one ounce of surfactant per five gallons of water. The material shall be odorless, nontoxic, nonirritating, and noncarcinogenic. It shall be applied as a mist using a low pressure sprayer recommended by the surfactant manufacturer. To protect the building components and its occupants from exposure to potentially harmful volatile organic compounds (VOC), only low-VOC and low-odor products shall be utilized for floor tile and mastic abatement.

D. Tape and Glue - shall be capable of sealing plastic joints and attaching plastic to finished surfaces. The bonding strength and resulting seal integrity shall not be affected by mist or water, wetting or encapsulating agent, or any other materials to be used in the work area.

E. Warning Signs and Labels - shall comply with all federal, state, and local codes andregulations. The Contractor shall post the appropriate signs at all approaches to the work area. The signs shall contain the following text: ‘

DANGER ASBESTOS MAY CAUSE CANCER CAUSES DAMAGE TO LUNGS AUTHORIZED PERSONNEL ONLY WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA PREPARATION

F. Waste Containers and Transportation - shall be suitable for loading, temporary storage, transport, and unloading of contaminated waste without risk of ripping, rupture, or exposure to persons, or emissions to the atmosphere. - Transportation methods -shall comply with the provisions of 40 CFR 61, Subpart M, and with any and all state and local hazardous or special waste regulations for temporary storage, transport, and disposal if such codes are enforced in states in which the waste will be stored, transported, or disposed.

G. Truck Liners - shall be polyethylene or equivalent with a thickness of at least 10 mil for all applications.

2.3 SAFETY SUPPLIES AND EQUIPMENT

A. Respirator Types - Provide all workers with a full or half face piece respirator which is approved by NIOSH/MSHA for protection against airborne asbestos, and meets the requirements of the OSHA Asbestos Standard. Provide respirators for each worker and at least two extra respirators for use by approved visitors. Minimum respiratory protection required shall be compliant with current OSHA regulations 29 CFR 1926.1101. An adequate supply of HEPA filter cartridges shall be maintain at all times.

B. Protective Clothing – Provide all authorized visitors and employees involved in

asbestos projects with full body disposable clothing, including head, body, and foot coverings consisting of material impenetrable by asbestos fibers, and equipment as required by OSHA Asbestos Regulations at 29 CFR Past 763, Subpart G, as applicable.

C. Additional Personal Protective Equipment (PPE) – The Contractor shall ensure that all workers are supplied with PPE (i.e., safety glasses, earplugs, hardhats).

2.4 DECONTAMIATION FACILITIES

A. Decontamination facilities shall be constructed in compliance with 453 CMR 6.14 and 29 CFR 1926.1101(j).

B. Negative Air Filtration Unit: Asbestos filtration devices shall utilize HEPA filtration systems, 99.97% efficient to 0.3 microns particulate size.

C. Scaffolding: Scaffolding, lifts, ladders, and aerial equipment as required to accomplish the specified work, shall meet all applicable safety regulations.

D. Transportation Equipment: Transportation equipment, as required, shall be suitable for loading, temporary storage, transport, and unloading of contaminated waste without exposure to persons or property. The equipment shall be secured at all times and access restricted to unauthorized personnel.

E. Vacuum Equipment: All vacuum equipment utilized in the work area shall utilize HEPA filtration systems, 99.97% efficient to 0.3 microns particulate size. Deliver all vacuums to the site with clean waste containers and intact, undamaged HEPA filters installed.

PART 3 – EXECUTION

3.1 COORDINATION SCHEDULING

A. The Asbestos Abatement Contractor shall coordinate all work with the Engineer and the Contractor.
B. The Contractor shall submit to the Engineer prior to contract performance, a schedule of work including sequencing of asbestos removal areas and demolition.
C. The Contractor shall give not less than a two-week advance notice of proposed time for shutting down or interrupting any utility, service or facility, which may affect normal facility operations.
D. The Contractor shall make all required notifications and obtain all permit and all

associated costs and fees shall be paid for by the Asbestos Abatement Contractor and included in the base bid price.

3.2 RESPIRATORY PROTECTION SYSTEMS

A. Provide all workers and authorized visitors with NIOSH approved respirators compliant with OSHA regulations and a sufficient quantity of disposable filters, so that workers can change filters during the workday. Store the respirator filters at the job site in the change room, and protect them from exposure to asbestos or other hazardous materials prior to their use.
B. Workers shall always wear a respirator properly fitted on the face while within the workarea enclosure and decontamination and bag/drum wash areas. Any worker failing to wear his/her respirator or in any way performing his/her work in an unsafe manner shall be restricted from working at this site.
C. Instruct and train workers in proper respirator use.
D. The Contractor shall maintain a record of successful respirator fit testing performed by a qualified individual within the previous year, for each employee to be used on this Project.

3.3 PROTECTIVE CLOTHING

A. Provide to all workers, foremen, superintendents and authorized visitors and inspectors protective disposable clothing consisting of full body coveralls, head covers, gloves and 18-inch high boot type covers or reusable footwear.
B. Provide eye protection and hard hats as required by job conditions and safety regulations.
C. Reusable footwear, hard hats and eye protection devices shall be left in the "Contaminated Equipment Room" until the end of the asbestos abatement work.
D. All disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facilities
E. Provide all personnel throughout the abatement process with the specified protective clothing and gear. Ensure that all personnel entering and leaving the workspace use the following procedures:
    a. Entering from the outside: Change from street clothes into protective clothing and wear clean protective gear. Go through shower room into Dirty Equipment Room, pick up equipment and tools and enter the work area.
    b. Exiting from the work area: Dispose of all protective clothing into labeled plastic bags for asbestos waste. Do not take off the respirator, but still wearing the respirator enter the shower and shower thoroughly. Remove respirator and wash and wipe thoroughly to decontaminate the respirator. After drying, enter the Clean Room, store the decontaminated respirator in the assigned space and dress into street clothes
    c. Post written procedures in the workplace and train all personnel on the procedures for the evacuation of the injured and the handling of potential fires.

Provide aid to a seriously injured worker without delay for decontamination. Make provisions to minimize exposure of rescue workers and to minimize spreading of contamination during evacuations and fire procedures. Exceptions to normal, routine-exiting procedures shall be made for emergencies such as, but not limited to, serious personal injury and fires.

d. The Contractor shall instruct all employees and workers in the proper care of their personally issued respiratory equipment, including daily maintenance, sanitizing procedures, etc.

F. All respiratory equipment shall be inspected by Contractor's personnel at the beginning of each work period, including breaks and lunch periods.

3.4 GENERAL PREPARATION PROCEDURES

A. Upon receipt of a Notice to Proceed, the Contractor shall meet at the Site with the Owner to reach agreement on:
   a. Scope and manner of Work performance and all schedules.
   b. Contractor and supporting vendor vehicle access and parking.
   c. Contractor access to the work areas, including approved doors, stairways, and corridors.
   d. Location of water supply and wastewater drain connection points, if available.
   e. Determination of all equipment and other items to be removed from the work areas, and the location of temporary storage space, if applicable.
   f. Any other logistical factors to minimize interference with public safety and health, and other Contractor activities.

B. Prepare each work area according to the following general sequence of procedures to ensure that proper fiber containment and protection systems are installed before any work, which could generate airborne asbestos fibers.
   a. Erect barricades, post access restriction signs, seal all openings into the work area airtight (including doors, chases, shafts, and other vertical penetrations), and erect or install Decontamination Facilities and HEPA exhaust systems.
   b. Install poly sheeting in the work zone. Perform pre-cleaning/surface decontamination where appropriate prior to installing protective poly sheeting.
   c. Isolate and seal airtight with plastic and tape all HVAC system openings in the work area. All HVAC or exhaust systems within, or ductwork passing through, a fully contained removal area shall be inactivated (this does not refer to glove bag removal areas).
   d. Obtain formal approval from Asbestos Project Monitor of all preparation work and containment areas before commencing asbestos removal. The Asbestos Project Monitor shall be given at least 48 hours notification of the intent to start removal work in any work area.
   e. If saw cutting or any other method or device that renders roofing friable is utilized during asphalt-based, asbestos-containing roofing removal, then a negative air containment area must be erected.

C. Isolation of Electrical Systems
   a. The scope of the electrical isolation work covers the protection of electrical equipment that is in areas where asbestos removal work is performed and where

the water used for wetting the material before or during removal could possibly contact the equipment and create a hazard.

b. Provide portable electrical panels with ground fault protection for all non-battery power requirements. These panels shall have sufficient capacity for all HEPA exhausts and vacuums, power tools, portable lighting, and all other electrical needs.
c. Provide a licensed electrician to perform all electrical work including, but not limited to connecting, energizing, and de-energizing the electrical panels and to be on call to handle any electrical problem, which may arise during the course of the work.
d. All materials and workmanship shall comply with the latest editions of applicable codes, standards, and specifications.
e. Once a work area becomes isolated by containment, only weatherproof lighting and washable tools and equipment will be allowed in the area.

3.5 DECONTAMINATION FACILITIES

A. Description - Any person or thing exiting from the work areas must pass through a Decontamination Facility consisting of three separate, adjacent rooms separated by curtained entrances, constructed in accordance with applicable regulations. Bulk non-friable asbestos waste, which was packaged in a clean environment, does not require decontamination in a shower. All containers passing through the Decontamination Facility must be cleaned thoroughly before exiting the facility.

B. Construction - Decontamination Facilities shall be constructed and maintained as specified in applicable regulations and shall be located in areas approved by Engineer.
C. Manner of Operation - All personnel shall enter the Clean Room, remove and store street clothes, and put on clean protective clothing and respirators; then enter the Equipment Room, put on any additional equipment, and enter the work area. All personnel exiting the work area shall enter the Equipment Room, remove and store or dispose of all contaminated clothing and shoes, shower, and then put on street clothing in the Clean Room. Respirators shall be worn into and cleaned in the shower, and dried and stored in the Clean Room.
D. Wastewater Disposal - All water from the shower and cleaning hose shall be collected, pumped through a 5.0-micron filter, and then legally drained to points approved by the Engineer. The Contractor shall legally handle, transport, and dispose of all filtrant and solids.
E. Cleaning - Decontamination Facility shall be cleaned using a HEPA-filtered vacuum at least once every shift, or more frequently, if needed, to prevent dust accumulation.
F. Prohibitions - Smoking, drinking, or eating shall not be permitted in any work area or Decontamination Facility.

3.6 WORK AREA ISOLATION

A. Pre-clean any fixed objects or equipment within the work areas by using HEPA-filtered vacuum equipment and wet washing except where air samples indicate concentrations

of airborne fibers less than 0.010 f/cc and where there is no contamination of any surfaces; then enclose with minimum 6-mil plastic sheeting sealed airtight.

B. At minimum, large areas, such as open elevator shafts, doorways, and stairwells, shall be sealed with two layers of 6-mil poly over plywood on 2” x 4” framing or approved alternative.
C. Protect and isolate the work area for the duration of work by completely sealing off all openings and fixtures (including, but not limited to, floors, walls, ceilings, heating and ventilation ducts, doorways, corridors, windows, and lighting) using plastic sheeting sealed securely in place. The work area shall be sealed airtight.
D. Seal airtight all holes, including but not limited to windows, doors, vents, drains, grilles, grates and any other penetrations of the work area.

3.7 AIR FILTRATION SYSTEM – FULLY ENCLOSED WORK AREAS

A. Provide negative air filtration system in the work area to maintain a minimum negative pressure of -0.02 inch of water. If negative air pressure of -0.02 inches is lost, work shall be halted until the required negative air pressure is restored. A negative air pressure of -0.02 inches of water shall be maintained in the work area throughout the duration of the project. The negative pressure shall be continuously monitored using a printer. Any breach in containment or loss of negative air pressure shall be immediately reported to Owner and Architect.
B. The Contractor shall provide local exhaust ventilation in the work area to maintain a negative pressure in the work area relative to the adjacent non-work areas. The exhaust units must be equipped with a HEPA filter capable of retaining 99.97% of particulate matter greater than or equal to 0.3 microns in diameter. This filter must comply with ANSI Z9.2 standards. The fan for each unit should be sized to draw a desired airflow through the filters in the unit at a specified pressure drop. The unit should have an air-handling capacity of 1,000 CFM to 2,000 CFM. (Under "clean" filter conditions).
C. HEPA air filtration equipment shall be equipped with visible and audible alarms that indicate the equipment is operating properly and when the air filtration media requires replacement and/or equipment requires servicing.
D. The system created to maintain the specified negative air pressure differential shall be capable of providing a minimum of one air change every 15 minutes. Fifteen-minute air changes are mandatory during removal of asbestos-containing materials. All HEPA exhaust units shall be vented outside the building.
E. All air filtration units utilized on this project shall be delivered to the site in good condition with no visible debris and shall have intact HEPA filters installed with no holes, voids or gouges in the filters. Pressure differential within the work area shall be maintained at less than -0.02 inches water pressure differential on a manometer.
F. The air filtration system shall be operated on a continuous 24-hour basis throughout the abatement process through successful final air clearance testing and containment

dismantling. The ventilation system shall be in accordance with EPA recommendations included in the “Guidance for Controlling Friable Asbestos-Containing Materials in Buildings”.

3.8 WORK AREA EXHAUST

A. Install one or more portable HEPA-filtered exhausts to maintain each work area, including the Decontamination Facility, under negative pressure, and to reduce airborne asbestos fiber concentrations.
B. The exhaust(s) must be capable of providing at least an inward velocity through any unsealed openings, including the Decontamination Facility, of at least 100 fpm, and four full air changes per hour throughout the work area.
C. All exhaust air shall pass through a HEPA filter before being discharged to the exterior of the building.
D. Deficient air flows shall be immediately reported and work ceased until the situation is corrected.
E. Exhaust system shall be operated constantly from the time that preparation is completed, until “clean air” certification is obtained.

3.9 APPROVAL OF CONTAINMENT AREAS

A. After the work area has been prepared as specified, the Contractor shall request an inspection by the Owner / Architect. No removal or disturbance of asbestos-contaminated materials or systems is to occur until the Engineer has inspected and approved each separate prepared work area.
B. Any deficiencies in the preparation work shall be promptly corrected in a manner satisfactory to the Engineer.

3.10 ASBESTOS REMOVAL PROCEDURES

A. [Demolition of block, concrete, plaster, gypsum board walls and ceilings, and other building materials, equipment and components to properly access and remove ACM is part of the Asbestos Abatement Contractor’s work. Selective demolition shall be performed in a controlled manner as to not affect ACMs or PACMs in ceilings, wall cavities and/or pipe chases. Debris generated during the selective exploratory demolition work shall be properly separated and removed prior to performing any asbestos abatement/removal. Selective demolition and exploratory demolition shall be required for all buildings. Additional ACMs discovered in wall and ceiling cavities during this limited exploratory demolition shall be brought to the attention of the Engineer.]
B. For areas where there has been cross-contamination - [The Asbestos Abatement Contractor shall remove all movable objects/items stored in the buildings unless otherwise specified. Non-porous items can be decontaminated and disposed of as conventional waste unless otherwise specified or regulated. Porous materials are to be

disposed of as ACWM unless regulated or specified otherwise.]

C. Friable Asbestos-Containing Materials (Excluding Glovebag Removal) [& Exterior Underground TSI/Pipe Insulation Removal in Tunnels and Conduits]:
    a. All asbestos-containing materials to be removed shall be contained within a negative pressure enclosure system, wetted with amended water and carefully removed to prevent damage and creation of airborne dust.
    b. Once the removal of all asbestos-containing material is complete, all surfaces and walls within the area shall be thoroughly cleaned by wet wiping/cleaning, followed by thorough drying, and then HEPA vacuumed. A satisfactory encapsulant (lockdown material) shall be applied to all surfaces from which friable asbestos has been removed.
    c. The exterior of disposal bags, drums, and other containers shall be vacuumed and washed free of all visible asbestos fibers before their removal from the work area.

D. Friable Asbestos-Containing Materials (Using Glovebag Removal Methods):
    a. All glovebag removal operations shall be conducted in accordance with OSHA regulation 29 CFR 1926.1101 and applicable state regulations. Glovebags cannot be slid on pipes or reused.

E. Nonfriable Asbestos-Containing Materials:
    a. If the Contractor and the Engineer determine, that the non-friable ACM can be removed without creating any airborne dust or loose friable asbestos, the specific practices listed herein shall be followed as approved in the Contractor’s written work plan. Otherwise, the nonfriable asbestos must be removed under the conditions of a full negative-pressure enclosure.
    b. All non-friable asbestos removal areas shall be properly segregated by posting caution signs meeting the specifications of OSHA regulation 29 CFR 1926.1101 at all locations and approaches to any location where airborne concentrations of asbestos have potential to exceed ambient background levels. Workers shall don all protective equipment prior to entering the regulated work area. The material shall be removed very carefully to minimize any breakage that may release airborne fibers.

F. Slate Shingle with Glue Daubs and Vapor Barrier Papers, Asphalt-Based Roofing and Flashing Material Asbestos Removal.
    a. Operations involving the cutting or abrading of asphalt-based asbestos roofing material is considered to release sufficient friable material or fibers to constitute an asbestos abatement activity. All work using such equipment must be performed by certified asbestos workers in a negative pressure enclosure. These restrictions may be modified if the Contractor uses slicing or shearing equipment or manual means to remove the asbestos materials and if the USEPA and state regulations and guidance documents on abatement of roofing materials are

followed.

b. Removal of roofing material prior to general building demolition shall be performed in accordance with OSHA regulation 29 CFR 1926.1101.

G. Work Procedures

a. Perform whatever procedures are necessary including the application of wet methods and covering materials to ensure that release of asbestos is reduced to no visible emissions. Work using any cutting or abrading equipment must be performed in a negative pressure enclosure.
b. Remove asbestos roofing materials using tools and equipment specified in regulatory guidance documents.
c. Continuously mist the work area as asbestos roofing materials are being removed from the structure.
d. The Contractor shall make every attempt to remove all asbestos roofing materials intact.
e. All loose debris shall be immediately collected using HEPA-filter vacuums and/or wet cleaning methods. The vacuum debris and wipe materials shall be segregated, packaged, and disposed of as asbestos contaminated waste.
f. Wet methods shall be used whenever operations call for the scraping of resilient roofing materials or mastic.
g. Where cutting and abrading is prohibited, a negative pressure enclosure is not required provided the asphaltic roofing material is not in a friable state. Waste must be lowered by a crane, hoist, or dust-tight chute, in accordance with applicable regulations.

H. WASTE DISPOSAL

a. General Requirements - All asbestos wastes (e.g., pipe lagging, floor tile, transite, etc.) must be handled, packaged, stored, transported, and disposed of as specified in this subsection, and in compliance with all federal, state and local regulations and codes. The Contractor, or the Asbestos Abatement Contractor, is responsible for the ultimate disposal of all removed asbestos containing materials and other asbestos containing waste generated from the work of this section.
b. Waste Labeling - If waste containers are not already so preprinted, warning labels having waterproof print and permanent adhesive shall be affixed to the lid and/or sides of the containers, whether or not these containers are further packaged. Warning labels shall be conspicuous and legible, and conform to the latest OSHA, EPA and DOT labeling requirements. The Contractor shall properly wrap/bag all waste from the asbestos abatement process (e.g., removed asbestos containing material, dust from HEPA filters, etc.) within the asbestos work area. Wrapped/bagged waste shall be stored in secure, closed containers (e.g., drums, roll-off containers) and labeled with the following text:
DANGER CONTAINS ASBESTOS FIBERS MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS DO NOT BREATHE DUST AVOID CREATING

DUST

c. Waste Packaging - All waste shall be thoroughly wetted when packaged and Contractor shall inspect each bag, drum or container to observe that water condensation is visible. Insufficiently wetted bags shall be opened, rewetted, and resealed inside a negative pressure enclosure. When a waste bag is full, it shall be securely sealed with tape, and then placed in the designated temporary storage area inside of the work area.

d. It is the responsibility of the Contractor to determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. ACM waste shall not be stored on-site for more than 30 days. The Contractor must comply fully with these documents and all DOT and EPA requirements.

I. MONITORING, TESTING AND INSPECTIONS

a. All monitoring will be performed by the contractor monitoring in compliance with OSHA regulations.
b. The Contractor is responsible for meeting OSHA requirements for their personnel, including but not limited to, monitoring requirements, safety compliance and record keeping.
c. Final Clearance air sampling will be performed by PCM in accordance with OSHA protocols in work areas where clearance sampling is required.
d. If the concentration of any of the air samples taken inside the work area exceeds 0.010 f/cc, then the Asbestos Abatement Contractor shall re-clean the work area and final air clearance testing shall be repeated. All costs associated with the collection and analysis of repeat air clearance samples due to elevated clearance fiber levels shall be paid for by the Contractor.

END OF SECTION 028200

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Stripping and stockpiling rock.
6. Removing above- and below-grade site improvements.
7. Disconnecting, capping or sealing, and [**removing site utilities**][**abandoning site utilities in place**].
8. Temporary erosion and sedimentation control.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for temporary erosion- and sedimentation-control measures.

1.2 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow.

D. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than **2 inches** in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

E. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

F. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and [**indicated on Drawings**][**indicated according to requirements in Section 015639 "Temporary Tree and Plant Protection."**]

G. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.3 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or video recordings.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.

B. Topsoil stripping and stockpiling program.

C. Rock stockpiling program.

D. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

E. Burning: Documentation of compliance with burning requirements and permitting of authorities having jurisdiction. Identify location(s) and conditions under which burning will be performed.

1.5 QUALITY ASSURANCE

A. Topsoil Stripping and Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

B. Rock Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

1.6 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Architect.

C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises[**in location directed by Owner**]

D. Utility Locator Service: Notify [**utility locator service**][**Call Before You Dig**]for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion- and sedimentation-control[**and plant-protection**] measures are in place.

F. Tree- and Plant-Protection Zones: Protect according to requirements in Section 015639 "Temporary Tree and Plant Protection."

G. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 015639 "Temporary Tree and Plant Protection."

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. Protect trees and plants remaining on-site according to requirements in Section 015639 "Temporary Tree and Plant Protection."

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.4 EXISTING UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed[**or abandoned in place**].

1. Arrange with utility companies to shut off indicated utilities.
2. Owner will arrange to shut off indicated utilities when requested by Contractor.

C. Locate, identify, and disconnect utilities indicated to be abandoned in place.

D. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than [**two**] days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

E. Excavate for and remove underground utilities indicated to be removed.

F. Removal of underground utilities is included in earthwork sections; in applicable fire suppression, plumbing, HVAC, electrical, communications, electronic safety and security, and utilities sections; and in Section 024116 "Structure Demolition" and Section 024119 "Selective Demolition."

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots larger than [**2 inches**] in diameter, obstructions, and debris to a depth of [**18 inches**] below exposed subgrade.
3. Use only hand methods or air spade for grubbing within protection zones.
4. Chip removed tree branches and][**dispose of off-site**]

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of **8 inches**, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth [**of 6 inches**] in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than **2 inches** in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to [**72 inches**]
2. Do not stockpile topsoil within protection zones.
3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.7 STOCKPILING ROCK

A. Remove from [**area indicated on Drawings**] formed rocks that measure more than [**1 foot**] across in least dimension. Do not include excavated or crushed rock.

1. Separate or wash off non-rock materials from rocks, including soil, clay lumps, gravel, and other objects larger than **2 inches** in diameter; trash, debris, weeds, roots, and other waste materials.

B. Stockpile rock [**away from edge of excavations**] without intermixing with other materials. Cover to prevent windblown debris from accumulating among rocks.

1. Limit height of rock stockpiles to [**36 inches**]
2. Do not stockpile rock within protection zones.
3. Dispose of surplus rock. Surplus rock is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus rock to allow later use by the Owner.

3.8 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint

off surfaces that will remain exposed.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Burning tree, shrub, and other vegetation waste is permitted according to burning requirements and permitting of authorities having jurisdiction. Control such burning to produce the least smoke or air pollutants and minimum annoyance to surrounding properties. Burning of other waste and debris is prohibited.

C. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials, and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Excavating and backfilling trenches for utilities and pits for buried utility structures.

B. Related Requirements:

1. **Section 013233 "Photographic Documentation"**] for recording pre-excavation and earth-moving progress.
2. Section 311000 "Site Clearing" for site stripping, grubbing, stripping[**and stockpiling**] topsoil, and removal of above- and below-grade improvements and utilities.

1.2 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, will be without

additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock:

1. Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed [**1 cu. yd.**] for bulk excavation or [**3/4 cu. yd.**] for footing, trench, and pit excavation that cannot be removed by rock-excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

a. Equipment for Footing, Trench, and Pit Excavation: Late-model, track-mounted hydraulic excavator; equipped with a **42-inch-** maximum-width, short-tip-radius rock bucket; rated at not less than **138-hp** flywheel power with bucket-curling force of not less than **28,700 lbf** and stick-crowd force of not less than **18,400 lbf** with extra-long reach boom.
b. Equipment for Bulk Excavation: Late-model, track-mounted loader; rated at not less than **230-hp** flywheel power and developing a minimum of **47,992-lbf** breakout force with a general-purpose bare bucket.

2. Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material [**3/4 cu. yd.**] or more in volume that exceed a standard penetration resistance of [**100 blows/2 inches**] when tested by a geotechnical testing agency, according to ASTM D1586.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other fabricated stationary features constructed above or below the ground surface.

J. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct pre-excavation conference at [**Project site**]

1. Review methods and procedures related to earthmoving, including, but not limited to, the following:

a. Personnel and equipment needed to make progress and avoid delays.
b. Coordination of Work with utility locator service.
c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.
d. Extent of trenching by hand or with air spade.
e. Field quality control.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Controlled low-strength material, including design mixture.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Test Reports: For each [**on-site**][**and**][**borrow**] soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D2487.
2. Laboratory compaction curve according to [**ASTM D698**][**ASTM D1557**].

C. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.

1.6 QUALITY ASSURANCE

1.7 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Architect.

C. Utility Locator Service: Notify [**utility locator service**][**Call Before You Dig"**] for area

where Project is located before beginning earth-moving operations.

D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures as indicated on drawings and specifications are in place.

E. Do not commence earth-moving operations until plant-protection measures specified in Section 015639 "Temporary Tree and Plant Protection" are in place.

F. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

G. Do not direct vehicle or equipment exhaust towards protection zones.

H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification [**Groups GW, GP, GM, SW, SP, and SM according to ASTM D2487**] or a combination of these groups; free of rock or gravel larger than [**3 inches**] in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Liquid Limit: <**35 maximum**>.
2. Plasticity Index: <**15 maximum**>.

C. Unsatisfactory Soils: Soil Classification [**Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D2487**][**Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145**], or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a **1-1/2-inch** sieve and not more than 12 percent passing a **No. 200** sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 95 percent passing a **1-1/2-inch** sieve and not more than 8 percent passing a **No. 200** sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a **1-1/2-inch** sieve and not more than 12 percent passing a **No. 200** sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; except with 100 percent passing a **1-inch** sieve and not more than 8 percent passing a **No. 200** sieve.

H. Drainage Course: Narrowly graded mixture of [**washed**]crushed stone, or crushed or uncrushed gravel; ASTM D448; coarse-aggregate grading Size 57; with 100 percent passing a **1-1/2-inch** sieve and zero to 5 percent passing a **No. 8** sieve.

I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D448; coarse-aggregate grading Size 67; with 100 percent passing a **1-inch** sieve and zero to 5 percent passing a **No. 4** sieve.

J. Sand: ASTM C33/C33M; fine aggregate.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, **6 inches** wide and **4 mils** thick, continuously inscribed with a description of the utility; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of **6 inches** wide and **4 mils** thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by

metal detector when tape is buried up to **30 inches** deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 DEWATERING

A. Provide dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

D. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.

3.3 EXPLOSIVES

A. Explosives:

1. Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to **12 inches** higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: [**12 inches** **each side of pipe or conduit**]

C. Trench Bottoms:

1. Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

a. For pipes and conduit less than **6 inches** in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
b. For pipes and conduit **6 inches** or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.
c. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.
d. Excavate trenches **6 inches** deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

2. Excavate trenches **4 inches** deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

a. Excavate trenches **6 inches** deeper than elevation required in rock or other

unyielding bearing material to allow for bedding course.

D. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.
3. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.6 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.7 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring, bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.8 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within [**18 inches**] of bottom of footings with satisfactory soil.

D. Backfill voids with satisfactory soil while removing shoring and bracing.

E. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of **satisfactory soil**, free of particles larger than [**1 inch**] in any dimension, to a height of **12 inches** over the pipe or conduit.

a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

2. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of **12 inches** over the pipe or conduit. Coordinate backfilling with utilities testing.

F. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.
2. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

G. Warning Tape: Install warning tape directly above utilities, **12 inches** below finished grade, except **6 inches** below subgrade under pavements and slabs.

3.9 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.10 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material

that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.11 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than [**8 inches**] in loose depth for material compacted by heavy compaction equipment and not more than **4 inches** in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to [**ASTM D698**][**ASTM D1557**]:

1. Under turf or unpaved areas, scarify and recompact top **6 inches** below subgrade and compact each layer of backfill or fill soil material at [**95**] percent.
2. For utility trenches, compact each layer of initial and final backfill soil material at [**95**] percent.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus [**1 inch**]

3.13 SUBSURFACE DRAINAGE

A. Subsurface Drain: Place subsurface drainage geotextile around perimeter of subdrainage trench. Place a **6-inch** course of filter material on subsurface drainage geotextile to support subdrainage pipe. Encase subdrainage pipe in a minimum of **12 inches** of filter material, placed in compacted layers **6 inches** thick, and wrap in subsurface drainage geotextile, overlapping sides and ends at least **6 inches**.

1. Compact each filter material layer [**to 85 percent of maximum dry unit weight according to ASTM D698**][**with a minimum of two passes of a plate-type**

vibratory compactor].

B. Drainage Backfill: Place and compact filter material over subsurface drain, in width indicated, to within **12 inches** of final subgrade, in compacted layers **6 inches** thick. Overlay drainage backfill with one layer of subsurface drainage geotextile, overlapping sides and ends at least **6 inches**.

1. Compact each filter material layer [**to 85 percent of maximum dry unit weight according to ASTM D698**][**with a minimum of two passes of a plate-type vibratory compactor**].
2. Place and compact impervious fill over drainage backfill in **6-inch-** thick compacted layers to final subgrade.

3.14 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified geotechnical engineering testing agency to perform tests and inspections.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

C. Testing agency will test compaction of soils in place according to ASTM D1556, ASTM D2167, ASTM D2937, and ASTM D6938, as applicable. Tests will be performed at the following locations and frequencies:

1. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every [**150 feet**] or less of trench length but no fewer than two tests.
2. Backfill at areas where building slab and footings were removed: At each compacted initial and final backfill layer, at least one test for every [**150 feet**] or less of trench length but no fewer than two tests.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.15 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect;

reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Architect.

1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000