

ASBESTECH  
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**Client:**  
 Entek Consulting Group, Inc.  
 4200 Rocklin Rd., Suite 7  
 Rocklin, CA 95677

**Job:**  
 23-6621 Sacramento City USD  
 Oak Ridge Elementary, 4501 Martin Luther King Jr. Blvd.  
 Sacramento , Ca

**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-36  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<u>Sample No.</u>	<u>Color/Description</u>	<u>% Type Asbestos</u>	<u>Other Materials</u>
ECG-23-6621-108A	Brown streaked 12" vinyl floor tile, bldg. w/ rooms 9-15 room 14	1-2 CHRYSOTILE	Calcite
	Black mastic	1-5 CHRYSOTILE	Tar Binder
	Yellow mastic	NONE DETECTED	Synthetics
109A	Black 4" vinyl base cove, bldg. w/ rooms 9-15 room 14	NONE DETECTED	Calcite Opagues
	White mastic	NONE DETECTED	Calcite
	White joint compound	NONE DETECTED	Calcite
110A	Gray vinyl floor tile, bldg. w/ rooms 9-15 room 15 beneath carpet	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder Polyethylene
	Yellow mastic	NONE DETECTED	Synthetics
111A	Brown/white 12" acoustic ceiling tile (nailed on), bldg. w/ rooms 9-15 room 9	NONE DETECTED	Cellulose
111B	Brown/white 12" acoustic ceiling tile (nailed on), bldg. w/ rooms 9-15 room 12	NONE DETECTED	Cellulose
111C	Brown/white 12" acoustic ceiling tile (nailed on), bldg. w/ rooms 9-15 room 15	NONE DETECTED	Cellulose

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A), THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-37  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-112A	White HVAC duct seam tape, bldg. w/ rooms 9-15 room 15 at HVAC closet	NONE DETECTED	Cellulose Granular Mins.
113A	Gray ramp concrete, bldg. w/ rooms 9-15 exterior of room 15	NONE DETECTED	Granular Mins.
114A	Gray cementitious panels, bldg. w/ rooms 9-15 exterior west area	NONE DETECTED	Calcite Cellulose
114B	Gray cementitious panels, bldg. w/ rooms 9-15 exterior north area	NONE DETECTED	Calcite Cellulose
114C	Gray cementitious panels, bldg. w/ rooms 9-15 exterior east area	NONE DETECTED	Calcite Cellulose
115A	Black composition asphalt roiled roofing, bldg. w/rooms 9-15 roof	NONE DETECTED	Tar Binder Fibrous Glass
	Gray caulk	NONE DETECTED	Opagues Cellulose
115B	Black composition asphalt roiled roofing, bldg. w/rooms 9-15 roof	NONE DETECTED	Tar Binder Fibrous Glass
	Gray caulk	NONE DETECTED	Opagues Cellulose

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-38  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<u>Sample No.</u>	<u>Color/Description</u>	<u>% Type Asbestos</u>	<u>Other Materials</u>
ECG-23-6621-116A	Black roof jack mastic , bldg. w/rooms 9-15 roof	NONE DETECTED	Tar Binder Cellulose
	White caulk	NONE DETECTED	Opagues
116B	Black roof jack mastic , bldg. w/rooms 9-15 roof	NONE DETECTED	Tar Binder Cellulose
	White caulk	NONE DETECTED	Opagues
117A	Yellow carpet mastic, portables 16-18 portable 16	NONE DETECTED	Synthetics
118A	Gray mottled 12" vinyl floor tile (top layer), portables 16-18 portable 16	NONE DETECTED	Calcite
118B	Gray mottled 12" vinyl floor tile (top layer), portables 16-18 portable 17	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
	Black mastic	NONE DETECTED	Tar Binder
119A	Gray vinyl floor tile (bottom layer), portables 16-18 portable 16	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
	Black mastic	NONE DETECTED	Tar Binder

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-39  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<u>Sample No.</u>	<u>Color/Description</u>	<u>% Type Asbestos</u>	<u>Other Materials</u>
ECG-23-6621-119B	Gray vinyl floor tile (bottom layer), portables 16-18 portable 17	NONE DETECTED	Calcite
	Black mastic 1	NONE DETECTED	Tar Binder
	Black mastic 2	NONE DETECTED	Tar Binder
120A	Dark gray 4" vinyl base cove, portables 16-18 portable 16	NONE DETECTED	Calcite Opagues
	White mastic	NONE DETECTED	Calcite
121A	White drywall (no joint compound ), portables 16-18 portable 16 beneath fiberboard wall panels	NONE DETECTED	Gypsum Cellulose
121B	White drywall (no joint compound ), portables 16-18 portable 18 beneath fiberboard wall panels	NONE DETECTED	Gypsum Cellulose
122A	Gray 2'x4' ceiling panel, portables 16-18 portable 16 ceiling	NONE DETECTED	Cellulose Pumice
123A	White single ply membrane roofing, portables 16-18 portable 16 roof	NONE DETECTED	Opagues
124A	White metal roof mastic, portables 16-18 portable 17	NONE DETECTED	Calcite

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-40  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<u>Sample No.</u>	<u>Color/Description</u>	<u>% Type Asbestos</u>	<u>Other Materials</u>
ECG-23-6621-124B	Gray metal roof mastic, portables 16-18 portable 18	NONE DETECTED	Opagues Polyethylene
125A	Yellow carpet mastic, portables 19-20 portable 19	NONE DETECTED	Synthetics
126A	Gray mottled 12" vinyl floor tile, portables 19-20 portable 19	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
127A	Gray 4" vinyl base cove, portables 19-20 portable 19	NONE DETECTED	Calcite Opagues
	White mastic	NONE DETECTED	Calcite
128A	White drywall (no joint compound ), portables 19-20 portable 20 beneath fiberboard wall panels	NONE DETECTED	Gypsum Cellulose
129A	Gray metal roof mastic, portables 19-20 roof	NONE DETECTED	Opagues Polyethylene
130A	Gray concrete ramp, portables 19-20 exterior access ramp	NONE DETECTED	Granular Mins.
131A	Yellow carpet mastic, portable 21	NONE DETECTED	Synthetics

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-41  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-132A	Gray mottled 12" vinyl floor tile (top layer), portable 21	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
	Yellow mastic	NONE DETECTED	Synthetics
133A	Gray vinyl floor tile (bottom layer), portable 21	NONE DETECTED	Calcite
	Black mastic 1	NONE DETECTED	Tar Binder
	Black mastic 2	NONE DETECTED	Tar Binder
134A	Dark gray 4" vinyl base cove, portable 21	NONE DETECTED	Calcite Opagues
	White mastic	NONE DETECTED	Calcite
135A	White drywall (no joint compound ), portable 21 beneath fiberboard wall panels	NONE DETECTED	Gypsum Cellulose
136A	Gray metal roof mastic, portable 21 roof	NONE DETECTED	Opagues Polyethylene
137A	Yellow carpet mastic, portable 22	NONE DETECTED	Synthetics

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-42  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-138A	Light gray mottled 12" vinyl floor tile (top layer), portable 22	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
	Yellow mastic	NONE DETECTED	Synthetics
139A	Gray vinyl floor tile (bottom layer), portable 22	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
	Yellow mastic	NONE DETECTED	Synthetics
140A	Gray 4" vinyl base cove, portable 22	NONE DETECTED	Calcite Opagues
	White mastic	NONE DETECTED	Calcite
141A	Gray/white 2'x4' ceiling panel, portable 22 ceiling	NONE DETECTED	Cellulose Pumice
142A	White drywall (no joint compound ), portable 22 beneath fiberboard wall panels	NONE DETECTED	Gypsum Cellulose
143A	Gray metal roof mastic, portable 22 roof	NONE DETECTED	Opagues Polyethylene

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-43  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-144A	Yellow carpet mastic, portables 23-25 portable 24	NONE DETECTED	Synthetics
144B	Yellow carpet mastic, portables 23-25 portable 25	NONE DETECTED	Synthetics
145A	Brown vinyl floor tile, portables 23-25 portable 23 beneath carpet	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
	Yellow mastic	NONE DETECTED	Synthetics
146A	Gray mottled 12" vinyl floor tile, portables 23-25 portable 23 entry	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
146B	Gray mottled 12" vinyl floor tile, portables 23-25 portable 25	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
147A	Gray 4" vinyl base cove, portables 23-25 portable 23	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-44  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-147B	Gray 4" vinyl base cove	NONE DETECTED	Calcite Opaques
	White mastic	NONE DETECTED	Calcite
148A	Brown mottled 12" vinyl floor tile, portables 23-25 portable 24	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder Polyethylene
148B	Brown mottled 12" vinyl floor tile, portables 23-25 portable 24	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder Polyethylene
	Yellow mastic	NONE DETECTED	Synthetics
149A	Tan vinyl wall covering, portables 23-25 portable 25	NONE DETECTED	Vinyl Cellulose
	Yellow glue	NONE DETECTED	Synthetics
150A	Gray 2'x4' ceiling panel, portables 23-25 portable 24	NONE DETECTED	Cellulose Fibrous Glass
150B	Gray 2'x4' ceiling panel, portables 23-25 portable 25	NONE DETECTED	Cellulose Fibrous Glass

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-45  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-151A	White/brown fibrous wall panel, portables 23-25 exterior walls	NONE DETECTED	Opagues Fibrous Glass
151B	White/brown fibrous wall panel, portables 23-25 exterior walls	NONE DETECTED	Opagues Fibrous Glass
151C	White/brown fibrous wall panel, portables 23-25 exterior walls	NONE DETECTED	Cellulose Granular Mins.
152A	White HVAC duct seam tape , portables 23-25 portable 25 at HVAC closet	NONE DETECTED	Cellulose Granular Mins.
153A	Black composition asphalt rolled roofing, portables 23-25 roof	NONE DETECTED	Tar Binder Fibrous Glass
	Gray roofing	NONE DETECTED	Cellulose Pumice
153B	Black composition asphalt rolled roofing, portables 23-25 roof	NONE DETECTED	Tar Binder Fibrous Glass
	Gray roofing	NONE DETECTED	Cellulose Pumice
154A	Black roof jack mastic , portables 23-25 roof	NONE DETECTED	Tar Binder Cellulose
	Silver paint	NONE DETECTED	Opagues

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-46  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<u>Sample No.</u>	<u>Color/Description</u>	<u>% Type Asbestos</u>	<u>Other Materials</u>
ECG-23-6621-155A	Yellow carpet mastic, portables 26-28 portable 26	NONE DETECTED	Synthetics
155B	Yellow carpet mastic, portables 26-28 portable 27	NONE DETECTED	Synthetics
156A	Gray mottled 12" vinyl floor tile, portables 26-28 portable 26	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
156B	Gray mottled 12" vinyl floor tile, portables 26-28 portable 28	NONE DETECTED	Calcite
	Yellow mastic	NONE DETECTED	Synthetics
157A	Gray 4" vinyl base cove, portables 26-28 portable 26	NONE DETECTED	Calcite Opagues
	Yellow mastic	NONE DETECTED	Synthetics
157B	Gray 4" vinyl base cove, portables 26-28 portable 27	NONE DETECTED	Calcite Opagues
	Yellow mastic	NONE DETECTED	Synthetics
158A	White drywall (no joint compound ), portables 26-28 portable 27 beneath fiberboard wall panels	NONE DETECTED	Gypsum Cellulose

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A), THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

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 Rancho Cordova, California 95670  
 Tel.(916) 481-8902 asbestech@sbcglobal.net

**Client:**  
 Entek Consulting Group, Inc.  
 4200 Rocklin Rd., Suite 7  
 Rocklin, CA 95677

**Job:**  
 23-6621 Sacramento City USD  
 Oak Ridge Elementary, 4501 Martin Luther King Jr. Blvd.  
 Sacramento , Ca

**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-47  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-158B	White drywall (no joint compound ), portables 26-28 portable 28 beneath fiberboard wall panels	NONE DETECTED	Gypsum Cellulose
159A	Gray metal roof mastic, portables 26-28 portable 26 at roof	NONE DETECTED	Opagues Polyethylene
159B	Gray metal roof mastic, portables 26-28 portable 28 at roof	NONE DETECTED	Opagues Polyethylene
160A	Yellow carpet mastic, bldg. w/rooms 29-30 room 29	NONE DETECTED	Synthetics
161A	Gray mottled 12" vinyl floor tile, bldg. w/rooms 29-30 room 29	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
161B	Gray mottled 12" vinyl floor tile, bldg. w/rooms 29-30 room 30	NONE DETECTED	Calcite
	Black mastic	NONE DETECTED	Tar Binder
162A	Black 4" vinyl base cove, bldg. w/rooms 29-30 room 29	NONE DETECTED	Calcite Opagues
	White mastic	NONE DETECTED	Calcite

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**Job:**  
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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-48  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-163A	Yellow carpet mastic, bldg. w/rooms 29-30 room 30	NONE DETECTED	Synthetics
164A	Gray 4" vinyl base cove, bldg. w/rooms 29-30 room 30	NONE DETECTED	Calcite Opagues
	White mastic	NONE DETECTED	Calcite
165A	White drywall , bldg. w/rooms 29-30 room 29	NONE DETECTED	Gypsum Fibrous Glass
	White joint compound 1	NONE DETECTED	Calcite
	White joint compound 2	NONE DETECTED	Calcite
166A	White HVAC duct seam tape , bldg. w/rooms 29-30 room 29 at HVAC closet	NONE DETECTED	Cellulose Granular Mins.
167A	Brown/white 12" acoustic ceiling tile (nailed on), bldg. w/ rooms 29-30 room 29	NONE DETECTED	Cellulose
168A	Gray cementitious panels , bldg. w/ rooms 29-30 exterior	NONE DETECTED	Calcite Cellulose
168B	Gray cementitious panels , bldg. w/ rooms 29-30 exterior	NONE DETECTED	Calcite Cellulose

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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-49  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-168C	Gray cementitious panels , bldg. w/ rooms 29-30 exterior	NONE DETECTED	Calcite Cellulose
169A	Gray concrete ramp, bldg. w/ rooms 29-30 exterior access ramp	NONE DETECTED	Granular Mins.
170A	Black composition asphalt rolled roofing, bldg. w/ rooms 29-30 roof	NONE DETECTED	Tar Binder Fibrous Glass
	Brown roofing	NONE DETECTED	Cellulose
170B	Black composition asphalt rolled roofing, bldg. w/ rooms 29-30 roof	NONE DETECTED	Tar Binder Fibrous Glass
	Brown roofing	NONE DETECTED	Cellulose
171A	Black roof jack mastic , bldg. w/ rooms 29-30 roof	NONE DETECTED	Tar Binder Cellulose
	Silver paint	NONE DETECTED	Opagues
172A	Gray CMU block, ball wall near bldg. w/ rooms 29-30	NONE DETECTED	Granular Mins.
	Gray mortar	NONE DETECTED	Granular Mins.

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**Job:**  
 23-6621 Sacramento City USD  
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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-50  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-173A	White single ply membrane roofing, east restroom /storage bldg. roof	NONE DETECTED	Rubber
	White roofing	NONE DETECTED	Gypsum Fibrous Glass
	Black felt	NONE DETECTED	Tar Binder Cellulose
173B	White single ply membrane roofing, bldg. w/ rooms 5-8 upper roof	NONE DETECTED	Rubber
	White roofing	NONE DETECTED	Gypsum Fibrous Glass
	Black felt	NONE DETECTED	Tar Binder Cellulose
173C	White single ply membrane roofing, bldg. w/ rooms 5-8 lower covered walkway roof	NONE DETECTED	Rubber
	White roofing	NONE DETECTED	Gypsum Fibrous Glass
	Black felt	NONE DETECTED	Tar Binder Cellulose

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISIO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A), THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.



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**Job:**  
 23-6621 Sacramento City USD  
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**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-51  
 Date/Time Collected: 4/5-6/23  
 Date Received: 4/10/23

NVLAP Lab Code 101442-0  
 CDPH # 1153  
 Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-173D	White single ply membrane roofing, bldg. w/ rooms 31-34 lower covered walkway roof	NONE DETECTED	Rubber
	White roofing	NONE DETECTED	Gypsum Fibrous Glass
	Black felt	NONE DETECTED	Tar Binder Cellulose
173E	White single ply membrane roofing, bldg. w/ rooms 31-34 upper roof	NONE DETECTED	Rubber
	White roofing	NONE DETECTED	Gypsum Fibrous Glass
173F	White single ply membrane roofing, Admin/MPR bldg. north lower roof	NONE DETECTED	Rubber
	White roofing	NONE DETECTED	Gypsum Fibrous Glass
173G	White single ply membrane roofing, Admin/MPR bldg. south lower roof	NONE DETECTED	Rubber
	White roofing	NONE DETECTED	Gypsum Fibrous Glass
	Black felt	NONE DETECTED	Tar Binder Cellulose

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A), THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.





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4200 Rocklin Rd., Suite 7  
Rocklin, CA 95677

**Job:**

23-6621 Sacramento City USD  
Oak Ridge Elementary, 4501 Martin Luther King Jr. Blvd.  
Sacramento , Ca

**BULK ASBESTOS ANALYSIS REPORT**

LAB JOB # 70323-52  
Date/Time Collected: 4/5-6/23  
Date Received: 4/10/23

NVLAP Lab Code 101442-0  
CDPH # 1153  
Date Analyzed: 4/19/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-173H	White single ply membrane roofing, Admin/MPR bldg. MPR upper roof	NONE DETECTED	Rubber
	White roofing	NONE DETECTED	Gypsum Fibrous Glass

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISIO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A), THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.



70323

### BULK ASBESTOS MATERIAL *Analysis Request*

**ENTEK CONSULTING GROUP, INC.**

4200 ROCKLIN ROAD, SUITE 7  
ROCKLIN, CA 95677  
(916) 632-6800 PHONE  
(916) 632-6812 FAX  
mainoffice@entekgroup.com

**Date of Sampling:** April 5-6, 2023

**Lab:** Asbestech

**Job Number:** 23-6621

**Collected by:** Blake Howes

**Client Name:** Sacramento City Unified School District

**Turnaround Time:** Friday, 4-21-23 by 5:00 pm

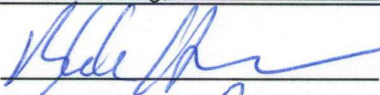
**Site Address:** Oak Ridge Elementary School  
4501 Martin Luther King Jr. Blvd  
Sacramento, CA 95820

**ANALYSIS REQUESTED:** Asbestos by PLM with Dispersion Staining

**Special Instruction:** Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.

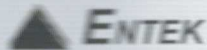
Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-01A	Black/Yellow Carpet Mastic - MPR/Admin Building, Northwest Admin Office
ECG-23-6621-01B	Black/Yellow Carpet Mastic - MPR/Admin Building, East Admin Area
ECG-23-6621-01C	Black/Yellow Carpet Mastic - MPR/Admin Building, Central Admin Area
ECG-23-6621-02A	Blue/Gray Mottled 12" Vinyl Floor Tile & Mastic - MPR/Admin Building, Admin Storage Room
ECG-23-6621-02B	Blue/Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - MPR/Admin Building, Admin Storage Room
ECG-23-6621-03A	Gray 12" Vinyl Floor Tile (Bottom Layer) & Mastic - MPR/Admin Building, Admin Storage Room
ECG-23-6621-04A	Blue/Gray 12" Vinyl Floor Tile & Mastic - MPR/Admin Building, Admin Entry Area
ECG-23-6621-04B	Blue/Gray 12" Vinyl Floor Tile (Top Layer) & Mastic - MPR/Admin Building, Admin Entry Area
ECG-23-6621-05A	Blue 12" Vinyl Floor Tile (Bottom Layer) & Mastic - MPR/Admin Building, Admin Entry Area
ECG-23-6621-06A	Dark Gray Speckled Sheet Vinyl Flooring (Top Layer) & Mastic - MPR/Admin Building, Women's Staff Restroom
ECG-23-6621-06B	Dark Gray Speckled Sheet Vinyl Flooring (Top Layer) & Mastic - MPR/Admin Building, Unisex Staff Restroom

**Delivered by:**  **Date:** 4 / 10 / 23 **Time:** 11:40 **AM**

**Received by:**  **Date:** 4 / 10 / 23 **Time:** 11:40 **AM**

70323



**BULK ASBESTOS MATERIAL** *Analysis Request*

**ENTEK CONSULTING GROUP, INC.**

4200 ROCKLIN ROAD, SUITE 7  
ROCKLIN, CA 95677  
(916) 632-6800 PHONE  
(916) 632-6812 FAX  
[mainoffice@entekgroup.com](mailto:mainoffice@entekgroup.com)

**Date of Sampling:** April 5-6, 2023

**Lab:** Asbestech

**Job Number:** 23-6621

**Collected by:** Blake Howes

**Client Name:** Sacramento City Unified School District

**Turnaround Time:** Friday, 4-21-23 by 5:00 pm


**Site Address:** Oak Ridge Elementary School  
4501 Martin Luther King Jr. Blvd  
Sacramento, CA 95820


**ANALYSIS REQUESTED:** Asbestos by PLM with Dispersion Staining

**Special Instruction:** Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-07A	Beige Sheet Vinyl Flooring (Bottom Layer) & Mastic - MPR/Admin Building, Women's Staff Restroom
ECG-23-6621-07B	Beige Sheet Vinyl Flooring (Bottom Layer) & Mastic - MPR/Admin Building, Unisex Staff Restroom
ECG-23-6621-08A	Brown Mottled 12" Vinyl Floor Tile & Mastic - MPR/Admin Building, Main Hallway
ECG-23-6621-08B	Brown Mottled 12" Vinyl Floor Tile & Mastic - MPR/Admin Building, Main Hallway
ECG-23-6621-09A	Gray Speckled Sheet Vinyl Flooring & Mastic - MPR/Admin Building, Main MPR West Storage Room
ECG-23-6621-09B	Gray Speckled Sheet Vinyl Flooring & Mastic - MPR/Admin Building, Main MPR West Storage Room
ECG-23-6621-10A	Leveling Compound & Concrete Slab - MPR/Admin Building, Plant Manager Office
ECG-23-6621-11A	Gray Mottled 12" Vinyl Floor Tile & Mastic - MPR/Admin Building, Plant Manager Office
ECG-23-6621-12A	Dark Brown Vinyl Tile & Mastic - MPR/Admin Building, Stage Area Steps
ECG-23-6621-13A	Red 6" Clay Floor Tile, Grout, & Mortar - MPR/Admin Building, Kitchen

**Delivered by:**  **Date:** 4 / 10 / 23 **Time:** 11:40 **AM**

**Received by:**  **Date:** 4 / 10 / 23 **Time:** 11:40 **AM**



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# BULK ASBESTOS MATERIAL *Analysis Request*

## ENTEK CONSULTING GROUP, INC.

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**Date of Sampling:** April 5-6, 2023

**Lab:** Asbestech

**Job Number:** 23-6621

**Collected by:** Blake Howes

**Client Name:** Sacramento City Unified School District

**Turnaround Time:** Friday, 4-21-23 by 5:00 pm

**Site Address:** Oak Ridge Elementary School  
4501 Martin Luther King Jr. Blvd  
Sacramento, CA 95820

**ANALYSIS REQUESTED:** Asbestos by PLM with Dispersion Staining

**Special Instruction:** Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-13B	Red 6" Clay Floor Tile, Grout, & Mortar - MPR/Admin Building, Kitchen Addition
ECG-23-6621-14A	Dark Brown 4" Vinyl Base Cove & Mastic - MPR/Admin Building, Stage Area Steps
ECG-23-6621-15A	Gray 4" Vinyl Base Cove & Mastic - MPR/Admin Building, Northwest Admin Office
ECG-23-6621-15B	Gray 4" Vinyl Base Cove & Mastic - MPR/Admin Building, Southwest Admin Office
ECG-23-6621-16A	Black 4" Vinyl Base Cove & Mastic - MPR/Admin Building, Northwest Admin Office Beneath Gray Cove
ECG-23-6621-17A	Concrete - MPR/Admin Building, Pipe Chase Tunnel
ECG-23-6621-17B	Concrete - MPR/Admin Building, Pipe Chase Tunnel
ECG-23-6621-18A	Plaster - MPR/Admin Building, Unisex Staff Restroom
ECG-23-6621-18B	Plaster - MPR/Admin Building, Northwest Admin Office
ECG-23-6621-18C	Plaster - MPR/Admin Building, Main Hallway Southeast Area
ECG-23-6621-18D	Plaster - MPR/Admin Building, Main Hallway North Area
ECG-23-6621-18E	Plaster - MPR/Admin Building, Main MPR Area
ECG-23-6621-18F	Plaster - MPR/Admin Building, Kitchen Area

**Delivered by:**  **Date:** 4 / 10 / 23 **Time:** 11:40 **AM**

**Received by:**  **Date:** 4 / 10 / 23 **Time:** 11:40 **AM**



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### BULK ASBESTOS MATERIAL *Analysis Request*

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**Date of Sampling:** April 5-6, 2023

**Lab:** Asbestech

**Job Number:** 23-6621

**Collected by:** Blake Howes

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**Turnaround Time:** Friday, 4-21-23 by 5:00 pm

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-18G	Plaster - MPR/Admin Building, Stage Area
ECG-23-6621-18H	Plaster - MPR/Admin Building, Old Boiler Room
ECG-23-6621-18I	Plaster - MPR/Admin Building, Old Boiler Room
ECG-23-6621-19A	Plasterboard Lath - MPR/Admin Building, Main Hallway Attic Space
ECG-23-6621-19B	Plasterboard Lath - MPR/Admin Building, Main Hallway Attic Space
ECG-23-6621-19C	Plasterboard Lath - MPR/Admin Building, Main Hallway Attic Space
ECG-23-6621-20A	Drywall & Joint Compound - MPR/Admin Building, Women's Staff Restroom
ECG-23-6621-20B	Drywall & Joint Compound - MPR/Admin Building, Unisex Staff Restroom
ECG-23-6621-21A	Drywall & Joint Compound - MPR/Admin Building, Main MPR Ceiling & Plenum
ECG-23-6621-21B	Drywall & Joint Compound - MPR/Admin Building, Main MPR Ceiling & Plenum
ECG-23-6621-21C	Drywall & Joint Compound - MPR/Admin Building, Main MPR Ceiling & Plenum
ECG-23-6621-22A	12" Acoustic Ceiling Tile & Tan Mastic Tab - MPR/Admin Building, Main MPR Ceiling
ECG-23-6621-22B	12" Acoustic Ceiling Tile & Tan Mastic Tab - MPR/Admin Building, Main MPR Ceiling

**Delivered by:**  **Date:** 4 / 10 / 23 **Time:** 11:40 **AM**

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70323

### BULK ASBESTOS MATERIAL *Analysis Request*

**ENTEK CONSULTING GROUP, INC.**

4200 ROCKLIN ROAD, SUITE 7  
ROCKLIN, CA 95677  
(916) 632-6800 PHONE  
(916) 632-6812 FAX  
[mainoffice@entekgroup.com](mailto:mainoffice@entekgroup.com)

**Date of Sampling:** April 5-6, 2023

**Lab:** Asbestech

**Job Number:** 23-6621

**Collected by:** Blake Howes

**Client Name:** Sacramento City Unified School District

**Turnaround Time:** Friday, 4-21-23 by 5:00 pm

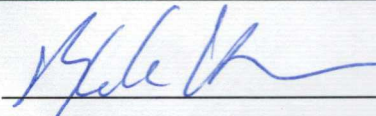
**Site Address:** Oak Ridge Elementary School  
4501 Martin Luther King Jr. Blvd  
Sacramento, CA 95820


**ANALYSIS REQUESTED:** Asbestos by PLM with Dispersion Staining

**Special Instruction:** Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-22C	12" Acoustic Ceiling Tile & Tan Mastic Tab - MPR/Admin Building, Main MPR Ceiling
ECG-23-6621-23A	HVAC Duct Seam Tape - MPR/Admin Building, Old Boiler Room
ECG-23-6621-23B	HVAC Duct Seam Tape - MPR/Admin Building, Old Boiler Room
ECG-23-6621-24A	Roofing Debris - MPR/Admin Building, Attic Space Over Main Hallway
ECG-23-6621-24B	Roofing Debris - MPR/Admin Building, Attic Space Over Main Hallway
ECG-23-6621-24C	Roofing Debris - MPR/Admin Building, Attic Space Over Main Hallway
ECG-23-6621-24D	Roofing Debris - MPR/Admin Building, Attic Space Over Main Hallway
ECG-23-6621-24E	Roofing Debris - MPR/Admin Building, Attic Space Over Main Hallway
ECG-23-6621-25A	Yellow Carpet Mastic - Building with Rooms 5-8, Room 5 (Library)
ECG-23-6621-26A	Green 9" Vinyl Floor Tile & Mastic - Building with Rooms 5-8, Room 5 (Library)
ECG-23-6621-26B	Green 9" Vinyl Floor Tile & Mastic - Building with Rooms 5-8, Room 6
ECG-23-6621-26C	Green 9" Vinyl Floor Tile & Mastic - Building with Rooms 5-8, Room 7
ECG-23-6621-27A	Black 4" Vinyl Base Cove & Mastic - Building with Rooms 5-8, Room 5 (Library)
ECG-23-6621-27B	Black 4" Vinyl Base Cove & Mastic - Building with Rooms 5-8, Room 6

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**Date of Sampling:** April 5-6, 2023

**Lab:** Asbestech

**Job Number:** 23-6621

**Collected by:** Blake Howes

**Client Name:** Sacramento City Unified School District

**Turnaround Time:** Friday, 4-21-23 by 5:00 pm

**Site Address:** Oak Ridge Elementary School  
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**ANALYSIS REQUESTED:** Asbestos by PLM with Dispersion Staining

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-27C	Black 4" Vinyl Base Cove & Mastic - Building with Rooms 5-8, Room 7
ECG-23-6621-28A	Slab Concrete - Building with Rooms 5-8, Room 7
ECG-23-6621-29A	Beige with Brown & White Streaks 9" Vinyl Floor Tile & Mastic - Building with Rooms 5-8, Room 8
ECG-23-6621-30A	Beige with Brown & White Streaks 12" Vinyl Floor Tile & Mastic - Building with Rooms 5-8, Room 8
ECG-23-6621-30B	Beige with Brown & White Streaks 12" Vinyl Floor Tile & Mastic - Building with Rooms 5-8, Room 8
ECG-23-6621-31A	Dark Brown 4" Vinyl Base Cove & Mastic - Building with Rooms 5-8, Room 8
ECG-23-6621-32A	Plaster - Building with Rooms 5-8, Room 5 (Library)
ECG-23-6621-32B	Plaster - Building with Rooms 5-8, Room 6
ECG-23-6621-32C	Plaster - Building with Rooms 5-8, Room 7
ECG-23-6621-33A	Plasterboard Lath - Building with Rooms 5-8, Room 7
ECG-23-6621-34A	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 5-8, Room 6
ECG-23-6621-34B	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 5-8, Room 8
ECG-23-6621-35A	Ceiling Insulation Paper - Building with Rooms 5-8, Room 6
ECG-23-6621-35B	Ceiling Insulation Paper - Building with Rooms 5-8, Room 8

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-36A	Roofing Debris - Building with Rooms 5-8, Room 5 (Library) Attic Space
ECG-23-6621-36B	Roofing Debris - Building with Rooms 5-8, Room 6 Attic Space
ECG-23-6621-36C	Roofing Debris - Building with Rooms 5-8, Room 7 Attic Space
ECG-23-6621-37A	Slab Concrete - East Restroom/Storage Building, South Small Storage Room
ECG-23-6621-38A	Gray/Blue Pebble Sheet Vinyl Flooring & Mastic - East Restroom/Storage Building, Boy's Restroom
ECG-23-6621-38B	Gray/Blue Pebble Sheet Vinyl Flooring & Mastic - East Restroom/Storage Building, Boy's Restroom
ECG-23-6621-39A	Light Brown Streaked 12" Vinyl Floor Tile & Mastic - East Restroom/Storage Building, South Large Storage Room
ECG-23-6621-39B	Light Brown Streaked 12" Vinyl Floor Tile & Mastic - East Restroom/Storage Building, South Large Storage Room Restroom
ECG-23-6621-40A	Dark Brown Mottled 12" Vinyl Floor Tile & Mastic - East Restroom/Storage Building, North Storage Room
ECG-23-6621-40B	Dark Brown Mottled 12" Vinyl Floor Tile & Mastic - East Restroom/Storage Building, North Storage Room
ECG-23-6621-41A	Yellow Pebble Sheet Vinyl Flooring & Mastic - East Restroom/Storage Building, North Storage Room Restroom

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-42A	Light Blue Speckled Sheet Vinyl Flooring & Mastic - East Restroom/Storage Building, Girl's Restroom
ECG-23-6621-42B	Light Blue Speckled Sheet Vinyl Flooring & Mastic - East Restroom/Storage Building, Girl's Restroom
ECG-23-6621-43A	Gray 6" Vinyl Base Cove & Mastic - East Restroom/Storage Building, Girl's Restroom
ECG-23-6621-44A	Gray 4" Vinyl Base Cove & Mastic - East Restroom/Storage Building, North Storage Room
ECG-23-6621-45A	Black 4" Vinyl Base Cove & Mastic - East Restroom/Storage Building, South Large Storage Room
ECG-23-6621-46A	Gray 6" Vinyl Base Cove & Mastic - East Restroom/Storage Building, Boy's Restroom
ECG-23-6621-47A	Plaster - East Restroom/Storage Building, Boy's Restroom
ECG-23-6621-47B	Plaster - East Restroom/Storage Building, Custodial Closet
ECG-23-6621-47C	Plaster - East Restroom/Storage Building, North Storage Room
ECG-23-6621-48A	Plasterboard Lath - East Restroom/Storage Building, Boy's Restroom
ECG-23-6621-49A	Roofing Debris - East Restroom/Storage Building, North Storage Room Attic Space

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**Lab:** Asbestech

**Job Number:** 23-6621

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**Client Name:** Sacramento City Unified School District

**Turnaround Time:** Friday, 4-21-23 by 5:00 pm

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-49B	Roofing Debris - East Restroom/Storage Building, North Storage Room Attic Space
ECG-23-6621-50A	Carpet Mastic - Building with Rooms 31-34, Room 34
ECG-23-6621-50B	Carpet Mastic - Building with Rooms 31-34, Room 34
ECG-23-6621-51A	Green 9" Vinyl Floor Tile & Mastic - Building with Rooms 31-34, Room 31
ECG-23-6621-51B	Green 9" Vinyl Floor Tile & Mastic - Building with Rooms 31-34, Room 32
ECG-23-6621-51C	Green 9" Vinyl Floor Tile & Mastic - Building with Rooms 31-34, Room 33
ECG-23-6621-52A	Black 4" Vinyl Base Cove & Mastic - Building with Rooms 31-34, Room 31
ECG-23-6621-53A	Gray Pebble Pattern Sheet Vinyl Flooring (Top Layer) & Mastic - Building with Rooms 31-34, Room 34
ECG-23-6621-53B	Gray Pebble Pattern Sheet Vinyl Flooring (Top Layer) & Mastic - Building with Rooms 31-34, Room 34
ECG-23-6621-54A	Green 9" Vinyl Floor Tile (Bottom Layer) & Mastic - Building with Rooms 31-34, Room 34
ECG-23-6621-54B	Green 9" Vinyl Floor Tile (Bottom Layer) & Mastic - Building with Rooms 31-34, Room 34
ECG-23-6621-55A	Gray 4" Vinyl Base Cove & Mastic - Building with Rooms 31-34, Room 34
ECG-23-6621-56A	Plaster - Building with Rooms 31-34, Room 32

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**Date of Sampling:** April 5-6, 2023  
**Job Number:** 23-6621  
**Client Name:** Sacramento City Unified School District  
**Site Address:** Oak Ridge Elementary School  
4501 Martin Luther King Jr. Blvd  
Sacramento, CA 95820

**Lab:** Asbestech  
**Collected by:** Blake Howes  
**Turnaround Time:** Friday, 4-21-23 by 5:00 pm  
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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-56B	Plaster - Building with Rooms 31-34, Room 33
ECG-23-6621-56C	Plaster - Building with Rooms 31-34, Room 34
ECG-23-6621-57A	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 31-34, Room 32
ECG-23-6621-57B	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 31-34, Room 34
ECG-23-6621-58A	Ceiling Insulation Paper - Building with Rooms 31-34, Room 32
ECG-23-6621-58B	Ceiling Insulation Paper - Building with Rooms 31-34, Room 34
ECG-23-6621-59A	Roofing Debris - Building with Rooms 31-34, Room 32 Attic Space
ECG-23-6621-59B	Roofing Debris - Building with Rooms 31-34, Room 34 Attic Space
ECG-23-6621-60A	Tan 2" Ceramic Floor Tile & Grout - Building with Rooms 31-34, Staff Restrooms
ECG-23-6621-61A	White 4" Ceramic Wall Tile & Grout - Building with Rooms 31-34, Staff Restrooms
ECG-23-6621-62A	Stucco - Admin/MPR, Classrooms 5-8, East Restroom/Storage, & Classrooms 31-34 Buildings Exterior, East Area
ECG-23-6621-62B	Stucco - Admin/MPR, Classrooms 5-8, East Restroom/Storage, & Classrooms 31-34 Buildings Exterior, East Area
ECG-23-6621-62C	Stucco - Admin/MPR, Classrooms 5-8, East Restroom/Storage, & Classrooms 31-34 Buildings Exterior, North Area

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**Date of Sampling:** April 5-6, 2023

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**Job Number:** 23-6621

**Collected by:** Blake Howes

**Client Name:** Sacramento City Unified School District

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Sacramento, CA 95820

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-62D	Stucco - Admin/MPR, Classrooms 5-8, East Restroom/Storage, & Classrooms 31-34 Buildings Exterior, Northwest Area
ECG-23-6621-62E	Stucco - Admin/MPR, Classrooms 5-8, East Restroom/Storage, & Classrooms 31-34 Buildings Exterior, Southwest Area
ECG-23-6621-62F	Stucco - Admin/MPR, Classrooms 5-8, East Restroom/Storage, & Classrooms 31-34 Buildings Exterior, South Area
ECG-23-6621-62G	Stucco - Admin/MPR, Classrooms 5-8, East Restroom/Storage, & Classrooms 31-34 Buildings Exterior, Central Area
ECG-23-6621-63A	Window Glazing Putty - Building with Rooms 31-34, Exterior North Side
ECG-23-6621-63B	Window Glazing Putty - Building with Rooms 31-34, Exterior North Side
ECG-23-6621-63C	Window Glazing Putty - Building with Rooms 31-34, Exterior North Side
ECG-23-6621-63D	Window Glazing Putty - Building with Rooms 31-34, Exterior South Side
ECG-23-6621-63E	Window Glazing Putty - Building with Rooms 31-34, Exterior South Side
ECG-23-6621-63F	Window Glazing Putty - MPR/Admin Building, Exterior West Side
ECG-23-6621-63G	Window Glazing Putty - MPR/Admin Building, Exterior West Side
ECG-23-6621-64A	Gray Speckled Sheet Vinyl Flooring (Top Layer) & Mastic - Building with Rooms 1-4, Room 1

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-65A	Gray Vinyl Floor Tile (Bottom Layer) & Black mastic - Building with Rooms 1-4, Room 1
ECG-23-6621-66A	Gray Stone Pattern Sheet Vinyl Flooring (Top Layer) & Mastic - Building with Rooms 1-4, Room 1 Child Restroom
ECG-23-6621-66B	Gray Stone Pattern Sheet Vinyl Flooring (Top Layer) & Mastic - Building with Rooms 1-4, Room 2 Child Restroom
ECG-23-6621-66C	Gray Stone Pattern Sheet Vinyl Flooring (Top Layer) & Mastic - Building with Rooms 1-4, Room 3 Child Restroom
ECG-23-6621-67A	Gray Vinyl Floor Tile (Bottom Layer) & Black mastic - Building with Rooms 1-4, Room 1 Child Restroom
ECG-23-6621-68A	Gray Sheet Vinyl Flooring (Bottom Layer) & Mastic - Building with Rooms 1-4, Room 2 Child Restroom
ECG-23-6621-69A	Gray Pebble Pattern Sheet Vinyl Flooring (Top Layer) & Mastic - Building with Rooms 1-4, Room 2
ECG-23-6621-69B	Gray Pebble Pattern Sheet Vinyl Flooring (Top Layer) & Mastic - Building with Rooms 1-4, Room 4 Child Restroom
ECG-23-6621-70A	Gray Vinyl Floor Tile (Bottom Layer) & Black mastic - Building with Rooms 1-4, Room 2
ECG-23-6621-71A	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Building with Rooms 1-4, Room 2

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-71B	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Building with Rooms 1-4, Room 3
ECG-23-6621-71C	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Building with Rooms 1-4, Room 1
ECG-23-6621-72A	Beige Vinyl Floor Tile (Bottom Layer) & Mastic - Building with Rooms 1-4, Room 2
ECG-23-6621-73A	Green 9" Vinyl Floor Tile & Mastic - Building with Rooms 1-4, Room 2
ECG-23-6621-74A	Gray Vinyl Floor Tile (Bottom Layer) & Mastic - Building with Rooms 1-4, Room 3
ECG-23-6621-75A	Carpet Mastic - Building with Rooms 1-4, Room 4
ECG-23-6621-76A	Light Brown Streaked 9" Vinyl Floor Tile & Mastic - Building with Rooms 1-4, Room 1
ECG-23-6621-76B	Light Brown Streaked 9" Vinyl Floor Tile & Mastic - Building with Rooms 1-4, Room 1
ECG-23-6621-77A	Gray Vinyl Floor Tile (Bottom Layer) & Mastic - Building with Rooms 1-4, Room 1
ECG-23-6621-78A	Gray 4" Vinyl Base Cove & Mastic - Building with Rooms 1-4, Room 1
ECG-23-6621-79A	Black 4" Vinyl Base Cove & Mastic - Building with Rooms 1-4, Room 2

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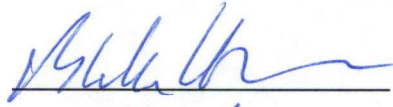
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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-80A	Gray 4" Vinyl Base Cove & Mastic - Building with Rooms 1-4, Room 2
ECG-23-6621-81A	Gray 4" Vinyl Base Cove & Mastic - Building with Rooms 1-4, Room 3
ECG-23-6621-82A	Gray 4" Vinyl Base Cove & Mastic - Building with Rooms 1-4, Room 4
ECG-23-6621-83A	Plaster - Building with Rooms 1-4, Room 4
ECG-23-6621-83B	Plaster - Building with Rooms 1-4, Room 3
ECG-23-6621-83C	Plaster - Building with Rooms 1-4, Room 2
ECG-23-6621-83D	Plaster - Building with Rooms 1-4, Room 1
ECG-23-6621-83E	Plaster - Building with Rooms 1-4, Room 1
ECG-23-6621-84A	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 1-4, Room 4
ECG-23-6621-84B	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 1-4, Room 1
ECG-23-6621-85A	Ceiling Insulation Paper - Building with Rooms 1-4, Room 4
ECG-23-6621-85B	Ceiling Insulation Paper - Building with Rooms 1-4, Room 1
ECG-23-6621-86A	Stucco - Building with Rooms 1-4, Exterior Southwest Area
ECG-23-6621-86B	Stucco - Building with Rooms 1-4, Exterior Northwest Area
ECG-23-6621-86C	Stucco - Building with Rooms 1-4, Exterior Northeast Area

**Delivered by:**  **Date:** 4 / 10 / 23 **Time:** 11:40 **AM**

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70323

### BULK ASBESTOS MATERIAL *Analysis Request*

**ENTEK CONSULTING GROUP, INC.**

4200 ROCKLIN ROAD, SUITE 7  
ROCKLIN, CA 95677  
(916) 632-6800 PHONE  
(916) 632-6812 FAX  
[mainoffice@entekgroup.com](mailto:mainoffice@entekgroup.com)

**Date of Sampling:** April 5-6, 2023

**Lab:** Asbestech

**Job Number:** 23-6621

**Collected by:** Blake Howes

**Client Name:** Sacramento City Unified School District

**Turnaround Time:** Friday, 4-21-23 by 5:00 pm

**Site Address:** Oak Ridge Elementary School  
4501 Martin Luther King Jr. Blvd  
Sacramento, CA 95820

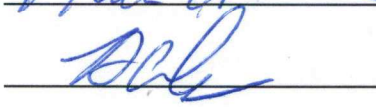
**ANALYSIS REQUESTED:** Asbestos by PLM with Dispersion Staining

**Special Instruction:** *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-87A	Composition Asphalt Rolled Roofing - Building with Rooms 1-4, Upper Roof
ECG-23-6621-87B	Composition Asphalt Rolled Roofing - Building with Rooms 1-4, Lower Roof
ECG-23-6621-88A	Roof Jack Mastic - Building with Rooms 1-4, Roof
ECG-23-6621-89A	Gray Stone Pattern Sheet Vinyl Flooring & Mastic - South Restroom Building, Student Restrooms
ECG-23-6621-90A	Light Blue/Gray Speckle Sheet Vinyl Flooring & Mastic - South Restroom Building, Staff Restrooms
ECG-23-6621-91A	Gray 6" Vinyl Base Cove & Mastic - South Restroom Building, Staff Restroom
ECG-23-6621-92A	Drywall & Joint Compound - South Restroom Building, Ceilings
ECG-23-6621-93A	Cementitious Wall Panel - South Restroom Building, Exterior
ECG-23-6621-93B	Cementitious Wall Panel - South Restroom Building, Exterior
ECG-23-6621-94A	Composition Asphalt Rolled Roofing - South Restroom Building, Roof
ECG-23-6621-95A	Roof Jack Mastic - South Restroom Building, Roof
ECG-23-6621-96A	Composition Asphalt Rolled Roofing - Shed Near South Restroom Building, Roof
ECG-23-6621-97A	Cementitious Wall Panel - Shed Near South Restroom Building, Exterior
ECG-23-6621-97B	Cementitious Wall Panel - Shed Near South Restroom Building, Exterior

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-98A	Carpet Mastic - Building with Rooms 9-15, Room 9
ECG-23-6621-99A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Building with Rooms 9-15, Room 9
ECG-23-6621-100A	Gray 4" Vinyl Base Cove & Mastic - Building with Rooms 9-15, Room 9
ECG-23-6621-100B	Gray 4" Vinyl Base Cove & Mastic - Building with Rooms 9-15, Room 11
ECG-23-6621-101A	Drywall & Joint Compound - Building with Rooms 9-15, Room 9 at HVAC Closet
ECG-23-6621-101B	Drywall & Joint Compound - Building with Rooms 9-15, Room 15 at HVAC Closet
ECG-23-6621-102A	Gray Vinyl Floor Tile & Black Mastic - Building with Rooms 9-15, Room 10 Beneath Carpet
ECG-23-6621-103A	Gray Pebble Pattern Sheet Vinyl Flooring (Top Layer) & Mastic - Building with Rooms 9-15, Room 11
ECG-23-6621-104A	Light Brown Vinyl Floor Tile (Bottom Layer) & Mastic - Building with Rooms 9-15, Room 11
ECG-23-6621-105A	Light Brown 9" Vinyl Floor Tile & Mastic - Building with Rooms 9-15, Room 11
ECG-23-6621-105B	Light Brown 9" Vinyl Floor Tile & Mastic - Building with Rooms 9-15, Room 13
ECG-23-6621-106A	Light Brown Vinyl Floor Tile & Mastic - Building with Rooms 9-15, Room 12 Beneath Carpet

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-107A	Dark Brown 4" Vinyl Base Cove & Mastic - Building with Rooms 9-15, Room 13
ECG-23-6621-108A	Brown Streaked 12" Vinyl Floor Tile & Mastic - Building with Rooms 9-15, Room 14
ECG-23-6621-109A	Black 4" Vinyl Base Cove & Mastic - Building with Rooms 9-15, Room 14
ECG-23-6621-110A	Gray Vinyl Floor Tile & Mastic - Building with Rooms 9-15, Room 15 Beneath Carpet
ECG-23-6621-111A	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 9-15, Room 9
ECG-23-6621-111B	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 9-15, Room 12
ECG-23-6621-111C	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 9-15, Room 15
ECG-23-6621-112A	HVAC Duct Seam Tape - Building with Rooms 9-15, Room 15 at HVAC Closet
ECG-23-6621-113A	Ramp Concrete - Building with Rooms 9-15, Exterior of Room 15
ECG-23-6621-114A	Cementitious Panels - Building with Rooms 9-15, Exterior West Area
ECG-23-6621-114B	Cementitious Panels - Building with Rooms 9-15, Exterior North Area
ECG-23-6621-114C	Cementitious Panels - Building with Rooms 9-15, Exterior East Area
ECG-23-6621-115A	Composition Asphalt Rolled Roofing - Building with Rooms 9-15, Roof
ECG-23-6621-115B	Composition Asphalt Rolled Roofing - Building with Rooms 9-15, Roof

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-116A	Roof Jack Mastic - Building with Rooms 9-15, Roof
ECG-23-6621-116B	Roof Jack Mastic - Building with Rooms 9-15, Roof
ECG-23-6621-117A	Carpet Mastic - Portables 16-18, Portable 16
ECG-23-6621-118A	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Portables 16-18, Portable 16
ECG-23-6621-118B	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Portables 16-18, Portable 17
ECG-23-6621-119A	Gray Vinyl Floor Tile (Bottom Layer) & Mastic - Portables 16-18, Portable 16
ECG-23-6621-119B	Gray Vinyl Floor Tile (Bottom Layer) & Mastic - Portables 16-18, Portable 17
ECG-23-6621-120A	Dark Gray 4" Vinyl Base Cove & Mastic - Portables 16-18, Portable 16
ECG-23-6621-121A	Drywall (No Joint Compound) - Portables 16-18, Portable 16 Beneath Fiberboard Wall Panels
ECG-23-6621-121B	Drywall (No Joint Compound) - Portables 16-18, Portable 18 Beneath Fiberboard Wall Panels
ECG-23-6621-122A	2'x4' Ceiling Panel - Portables 16-18, Portable 16 Ceiling
ECG-23-6621-123A	Single Ply Membrane Roofing - Portables 16-18, Portable 16 Roof
ECG-23-6621-124A	Metal Roof Mastic - Portables 16-18, Portable 17

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-124B	Metal Roof Mastic - Portables 16-18, Portable 18
ECG-23-6621-125A	Carpet Mastic - Portables 19-20, Portable 19
ECG-23-6621-126A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portables 19-20, Portable 19
ECG-23-6621-127A	Gray 4" Vinyl Base Cove & Mastic - Portables 19-20, Portable 19
ECG-23-6621-128A	Drywall (No Joint Compound) - Portables 19-20, Portable 20 Beneath Fiberboard Wall Panels
ECG-23-6621-129A	Metal Roof Mastic - Portables 19-20, Roof
ECG-23-6621-130A	Concrete Ramp - Portables 19-20, Exterior Access Ramp
ECG-23-6621-131A	Carpet Mastic - Portable 21
ECG-23-6621-132A	Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Portable 21
ECG-23-6621-133A	Gray Vinyl Floor Tile (Bottom Layer) & Mastic - Portable 21
ECG-23-6621-134A	Dark Gray 4" Vinyl Base Cove & Mastic - Portable 21
ECG-23-6621-135A	Drywall (No Joint Compound) - Portable 21 Beneath Fiberboard Wall Panels
ECG-23-6621-136A	Metal Roof Mastic - Portables 21, Roof
ECG-23-6621-137A	Carpet Mastic - Portable 22
ECG-23-6621-138A	Light Gray Mottled 12" Vinyl Floor Tile (Top Layer) & Mastic - Portable 22

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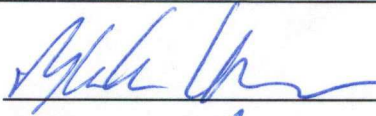
**Site Address:** Oak Ridge Elementary School  
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Sacramento, CA 95820

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-139A	Gray Vinyl Floor Tile (Bottom Layer) & Mastic - Portable 22
ECG-23-6621-140A	Gray 4" Vinyl Base Cove & Mastic - Portable 22
ECG-23-6621-141A	2'x4' Ceiling Panel - Portable 22, Ceiling
ECG-23-6621-142A	Drywall (No Joint Compound) - Portable 22 Beneath Fiberboard Wall Panels
ECG-23-6621-143A	Metal Roof Mastic - Portables 22, Roof
ECG-23-6621-144A	Carpet Mastic - Portables 23-25, Portable 24
ECG-23-6621-144B	Carpet Mastic - Portables 23-25, Portable 25
ECG-23-6621-145A	Brown Vinyl Floor Tile & Mastic - Portables 23-25, Portable 23 Beneath Carpet
ECG-23-6621-146A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portables 23-25, Portable 23 Entry
ECG-23-6621-146B	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portables 23-25, Portable 25
ECG-23-6621-147A	Gray 4" Vinyl Base Cove & Mastic - Portables 23-25, Portable 23
ECG-23-6621-148A	Brown Mottled 12" Vinyl Floor Tile & Mastic - Portables 23-25, Portable 24
ECG-23-6621-148B	Brown Mottled 12" Vinyl Floor Tile & Mastic - Portables 23-25, Portable 24
ECG-23-6621-149A	Vinyl Wall Covering - Portables 23-25, Portable 25
ECG-23-6621-150A	2'x4' Ceiling Panel - Portables 23-25, Portable 24

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-150B	2'x4' Ceiling Panel - Portables 23-25, Portable 25
ECG-23-6621-151A	Fibrous Wall Panel - Portables 23-25, Exterior Walls
ECG-23-6621-151B	Fibrous Wall Panel - Portables 23-25, Exterior Walls
ECG-23-6621-151C	Fibrous Wall Panel - Portables 23-25, Exterior Walls
ECG-23-6621-152A	HVAC Duct Seam Tape - Portables 23-25, Portable 25 at HVAC Closet
ECG-23-6621-153A	Composition Asphalt Rolled Roofing - Portables 23-25, Roof
ECG-23-6621-153B	Composition Asphalt Rolled Roofing - Portables 23-25, Roof
ECG-23-6621-154A	Roof Jack Mastic - Portables 23-25, Roof
ECG-23-6621-155A	Carpet Mastic - Portables 26-28, Portable 26
ECG-23-6621-155B	Carpet Mastic - Portables 26-28, Portable 27
ECG-23-6621-156A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portables 26-28, Portable 26
ECG-23-6621-156B	Gray Mottled 12" Vinyl Floor Tile & Mastic - Portables 26-28, Portable 28
ECG-23-6621-157A	Gray 4" Vinyl Base Cove - Portables 26-28, Portable 26
ECG-23-6621-157B	Gray 4" Vinyl Base Cove - Portables 26-28, Portable 27
ECG-23-6621-158A	Drywall (No Joint Compound) - Portables 26-28, Portable 27 Beneath Fiberboard Wall Panels

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-158B	Drywall (No Joint Compound) - Portables 26-28, Portable 28 Beneath Fiberboard Wall Panels
ECG-23-6621-159A	Metal Roof Mastic - Portables 26-28, Portable 26 at Roof
ECG-23-6621-159B	Metal Roof Mastic - Portables 26-28, Portable 28 at Roof
ECG-23-6621-160A	Carpet Mastic - Building with Rooms 29-30, Room 29
ECG-23-6621-161A	Gray Mottled 12" Vinyl Floor Tile & Mastic - Building with Rooms 29-30, Room 29
ECG-23-6621-161B	Gray Mottled 12" Vinyl Floor Tile & Mastic - Building with Rooms 29-30, Room 30
ECG-23-6621-162A	Black 4" Vinyl Base Cove & Mastic - Building with Rooms 29-30, Room 29
ECG-23-6621-163A	Carpet Mastic - Building with Rooms 29-30, Room 30
ECG-23-6621-164A	Gray 4" Vinyl Base Cove & Mastic - Building with Rooms 29-30, Room 30
ECG-23-6621-165A	Drywall & Joint Compound - Building with Rooms 29-30, Room 29
ECG-23-6621-166A	HVAC Duct Seam Tape - Building with Rooms 29-30, Room 29 at HVAC Closet
ECG-23-6621-167A	12" Acoustic Ceiling Tile (Nailed On) - Building with Rooms 29-30, Room 29
ECG-23-6621-168A	Cementitious Panels - Building with Rooms 29-30, Exterior

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-168B	Cementitious Panels - Building with Rooms 29-30, Exterior
ECG-23-6621-168C	Cementitious Panels - Building with Rooms 29-30, Exterior
ECG-23-6621-169A	Concrete Ramp - Building with Rooms 29-30, Exterior Access Ramp
ECG-23-6621-170A	Composition Asphalt Rolled Roofing - Building with Rooms 29-30, Roof
ECG-23-6621-170B	Composition Asphalt Rolled Roofing - Building with Rooms 29-30, Roof
ECG-23-6621-171A	Roof Jack Mastic - Building with Rooms 29-30, Roof
ECG-23-6621-172A	CMU Block & Mortar - Ball Wall Near Building with Rooms 29-30
ECG-23-6621-173A	Single Ply Membrane Roofing - East Restroom/Storage Building, Roof
ECG-23-6621-173B	Single Ply Membrane Roofing - Building with Rooms 5-8, Upper Roof
ECG-23-6621-173C	Single Ply Membrane Roofing - Building with Rooms 5-8, Lower Covered Walkway Roof
ECG-23-6621-173D	Single Ply Membrane Roofing - Building with Rooms 31-34, Lower Covered Walkway Roof
ECG-23-6621-173E	Single Ply Membrane Roofing - Building with Rooms 31-34, Upper Roof
ECG-23-6621-173F	Single Ply Membrane Roofing - Admin/MPR Building, North Lower Roof
ECG-23-6621-173G	Single Ply Membrane Roofing - Admin/MPR Building, South Lower Roof

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**Site Address:** Oak Ridge Elementary School  
4501 Martin Luther King Jr. Blvd  
Sacramento, CA 95820

**ANALYSIS REQUESTED:** Asbestos by PLM with Dispersion Staining


**Special Instruction:** Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-173H	Single Ply Membrane Roofing - Admin/MPR Building, MPR Upper Roof

C:\Users\lhowes\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\Sacramento City USD\23-6621 Oak Ridge ES - AsbPb\Bulk Asb\Bulk Request 04-06-23.wpd

Delivered by:  Date: 4 / 10 / 23 Time: 11:40 AM

Received by:  Date: 4 / 10 / 23 Time: 11:40 AM

ASBESTECH  
11151 Sun Center Drive, Suite B  
Rancho Cordova, CA 95670  
Tel.(916) 481-8902 asbestech@sbcglobal.net

**Client:**

Entek Consulting Group, Inc.  
4200 Rocklin Rd., Suite 7  
Rocklin, CA 95677

**Job:**

23-6621 Sacramento City USD  
Oak Ridge Elementary, 4501 Martin Luther King Jr. Blvd.  
Sacramento , Ca

**BULK ASBESTOS ANALYSIS REPORT**

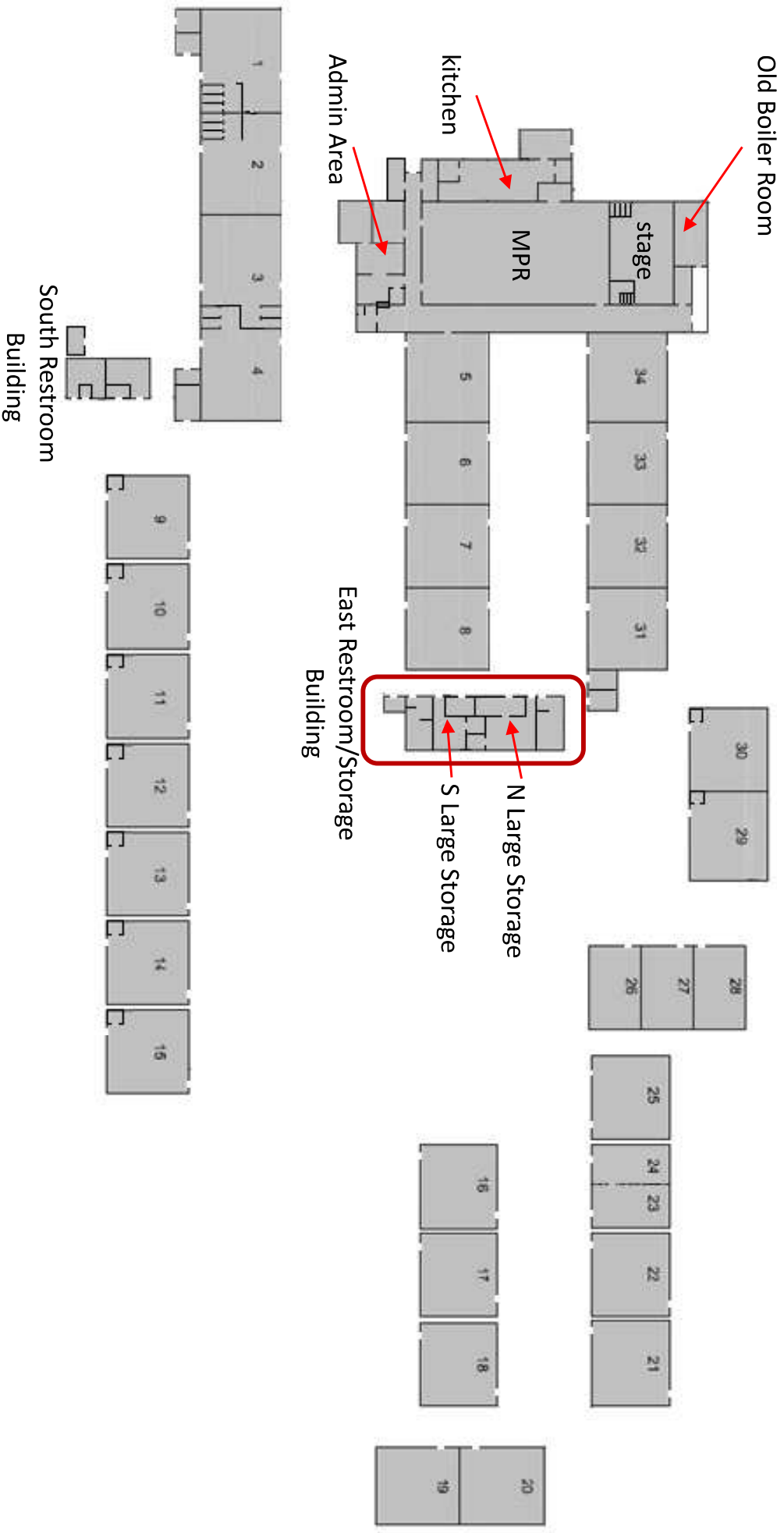
LAB JOB # 70351  
Date/Time Collected: 4/5-6/23  
Date Received: 4/10/23

NVLAP Lab Code 101442-0  
CDPH # 1153  
Date Analyzed: 4/20/23

<i>Sample No.</i>	<i>Color/Description</i>	<i>% Type Asbestos</i>	<i>Other Materials</i>
ECG-23-6621-92A	White drywall/joint compound composite south restroom bldg, ceilings	TRACE CHRYSOTILE	Gypsum Fibrous Glass Calcite

NOTE: This sample was analyzed by quantitative Point Counting using a Chalkley Point Array over 400 non-empty points.

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A), THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

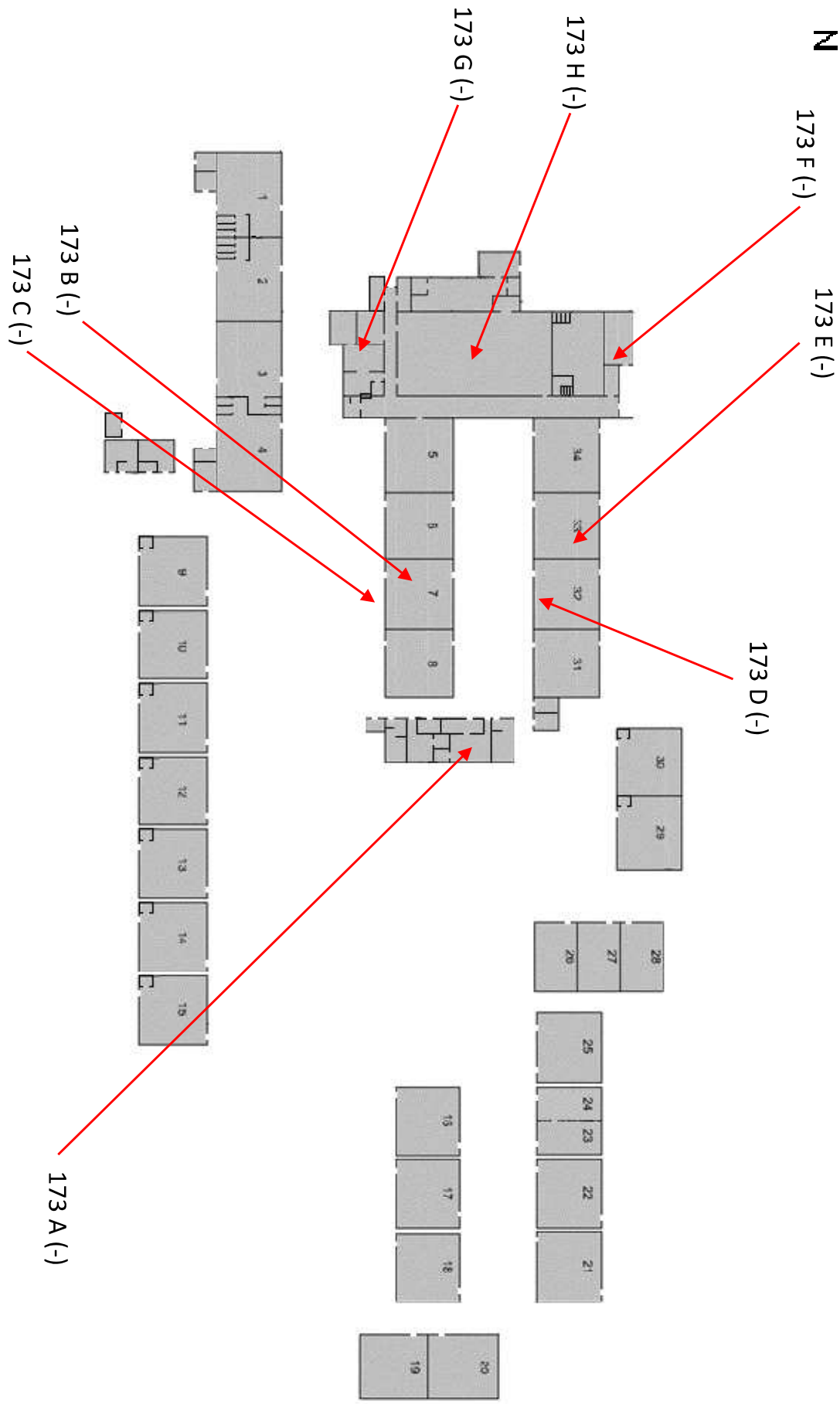


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Map Not to Scale

Asbestos Bulk Sample Locations  
Collected by Blake Howes  
On April 5-6, 2023  
Project Number 23-6621

# Site Plan



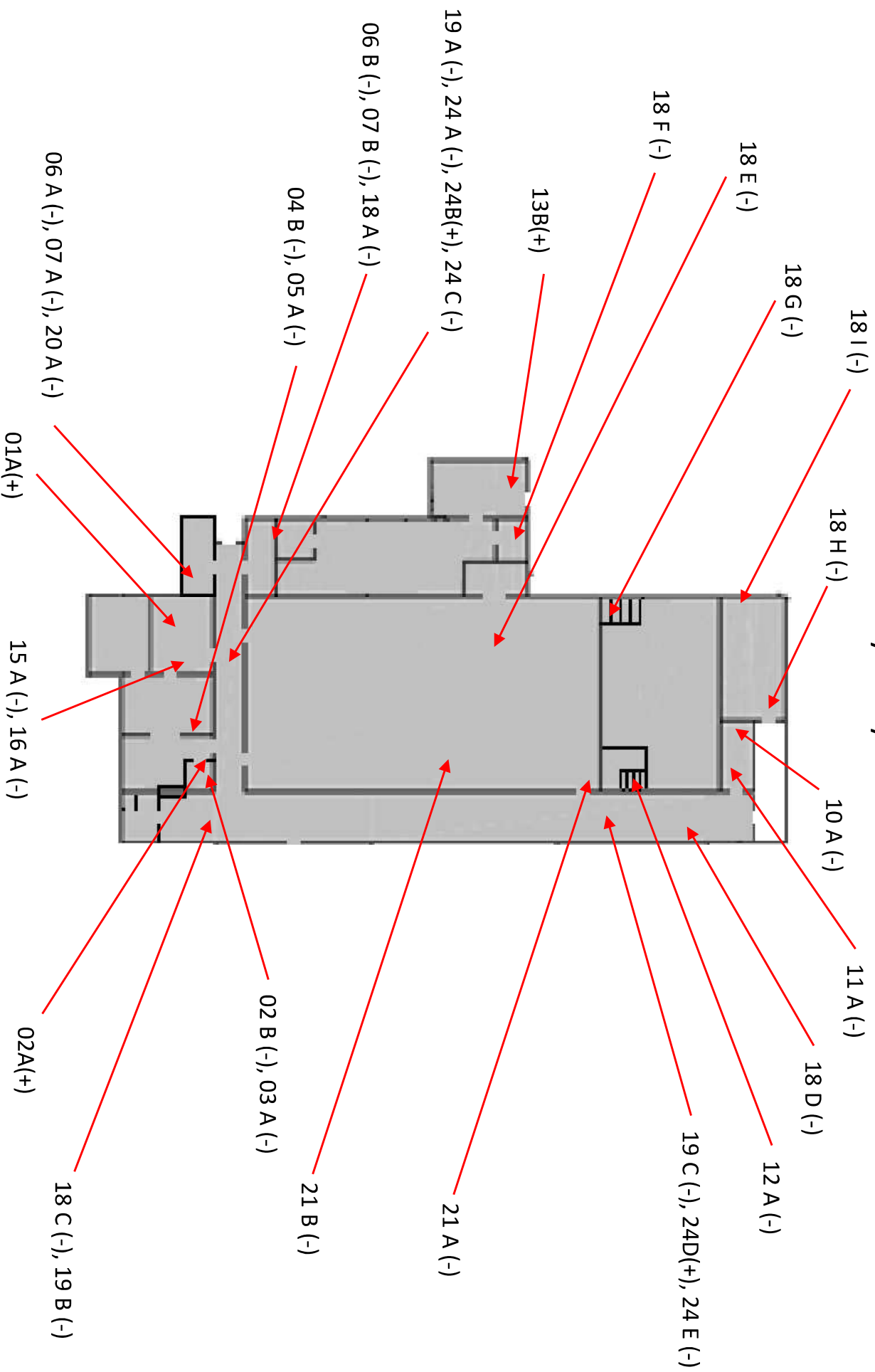
Sacramento City Unified School District  
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### Admin/MPR/Kitchen

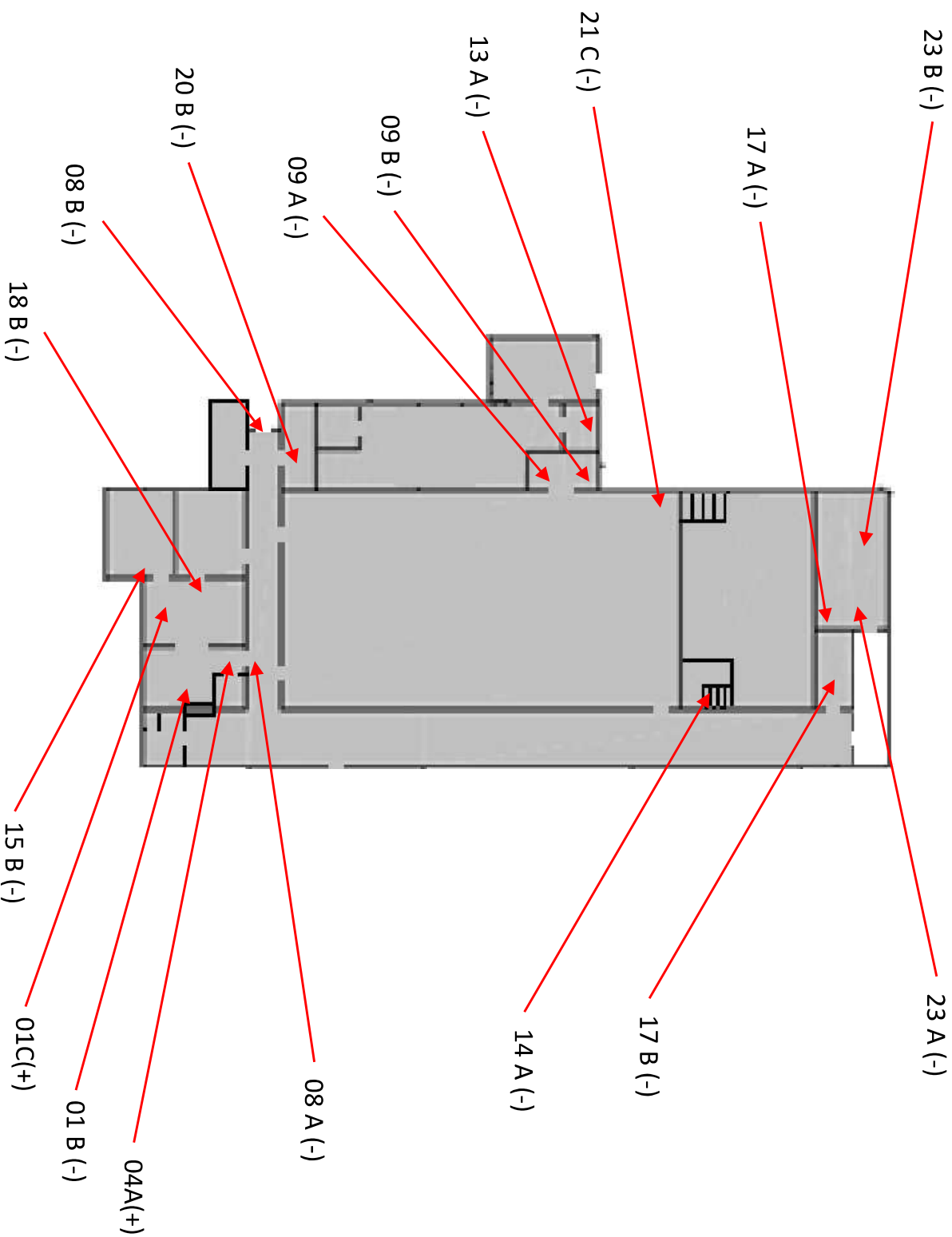


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# Admin/MPR/Kitchen

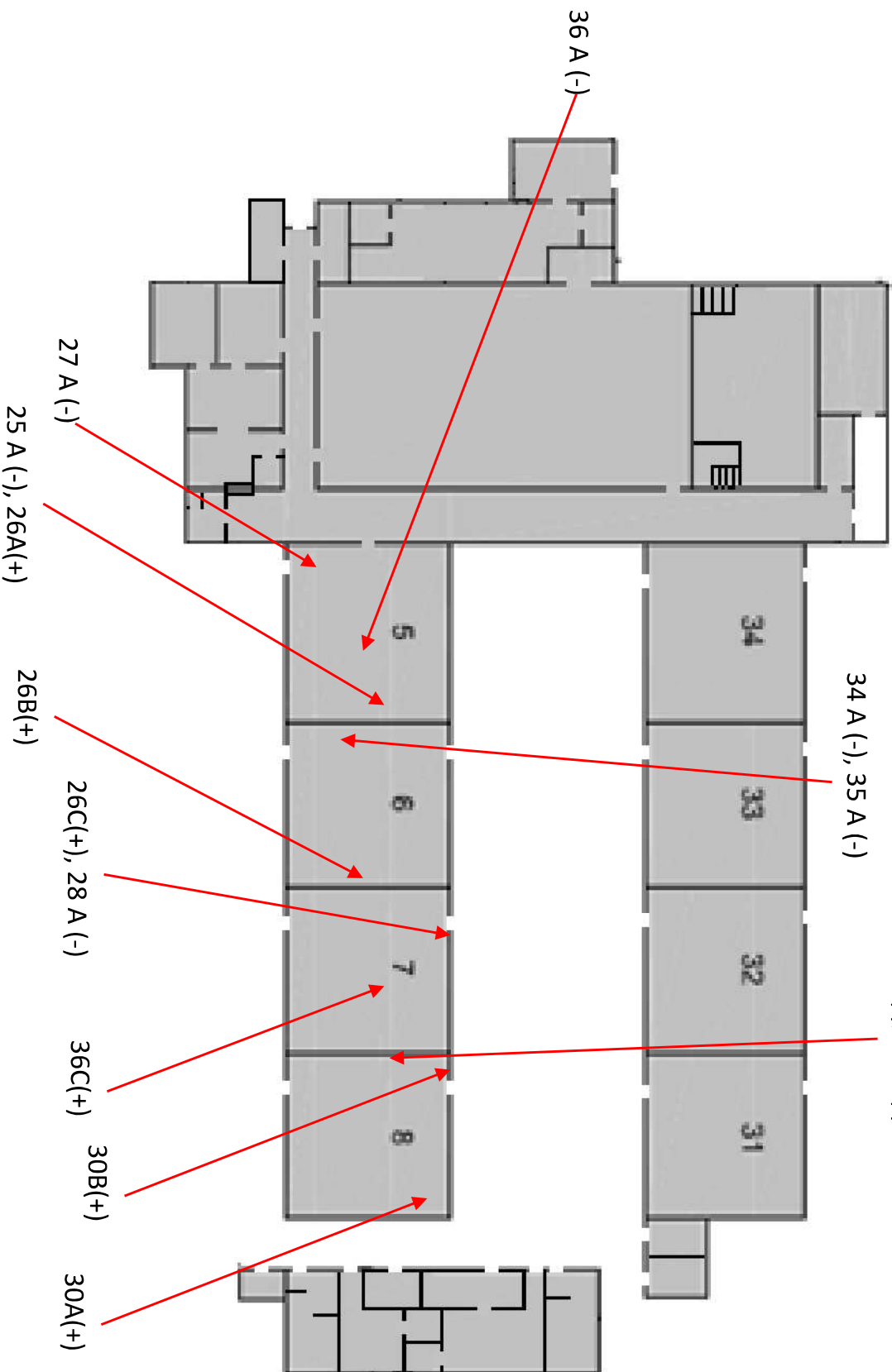


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# Admin/MPR/Kitchen, Rooms 5-8, Rooms 31-34, East Storage/RR Building

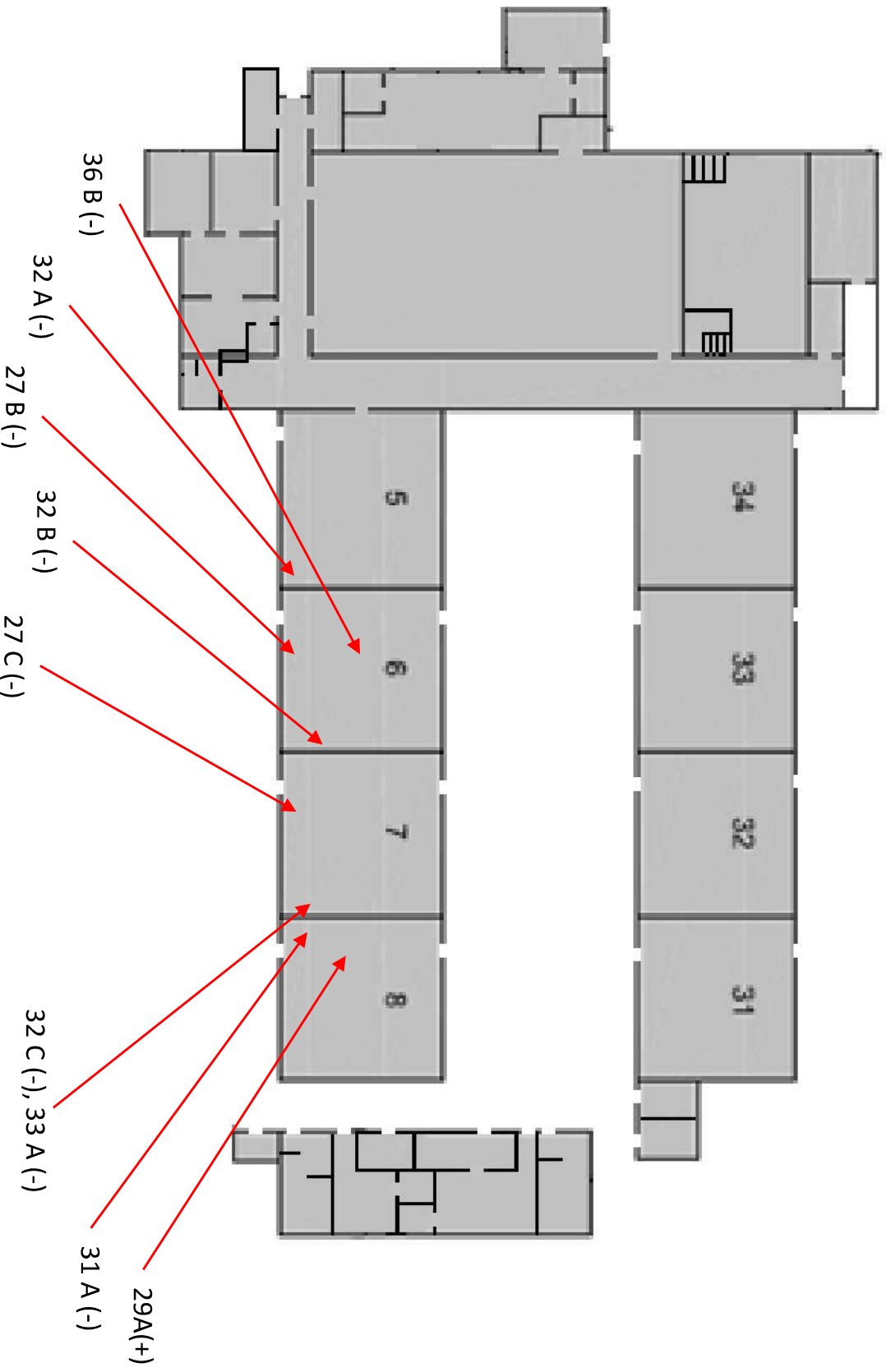


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# Admin/MPR/Kitchen, Rooms 5-8, Rooms 31-34, East Storage/RR Building



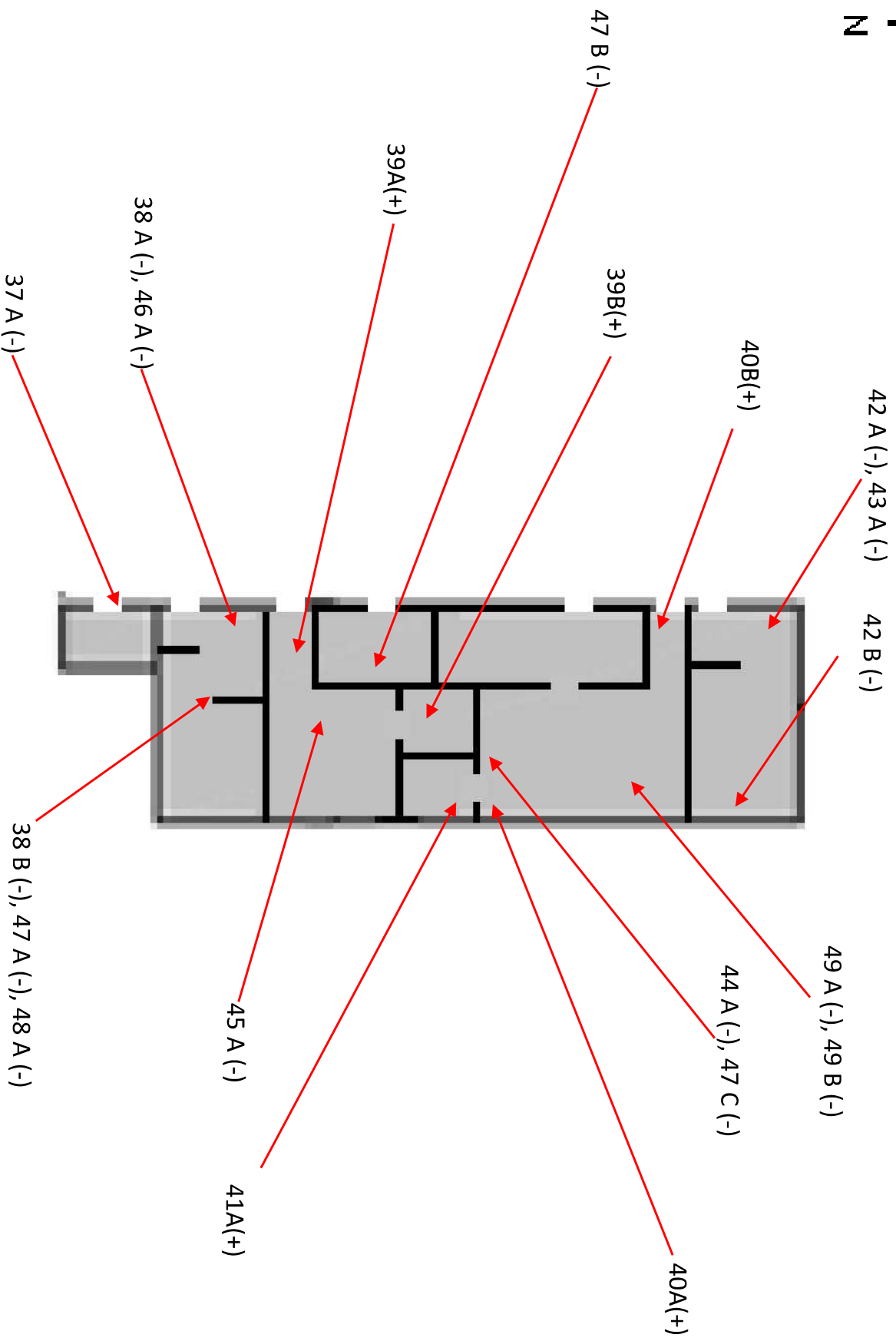
Sacramento City Unified School District  
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# East Restroom/Storage Building

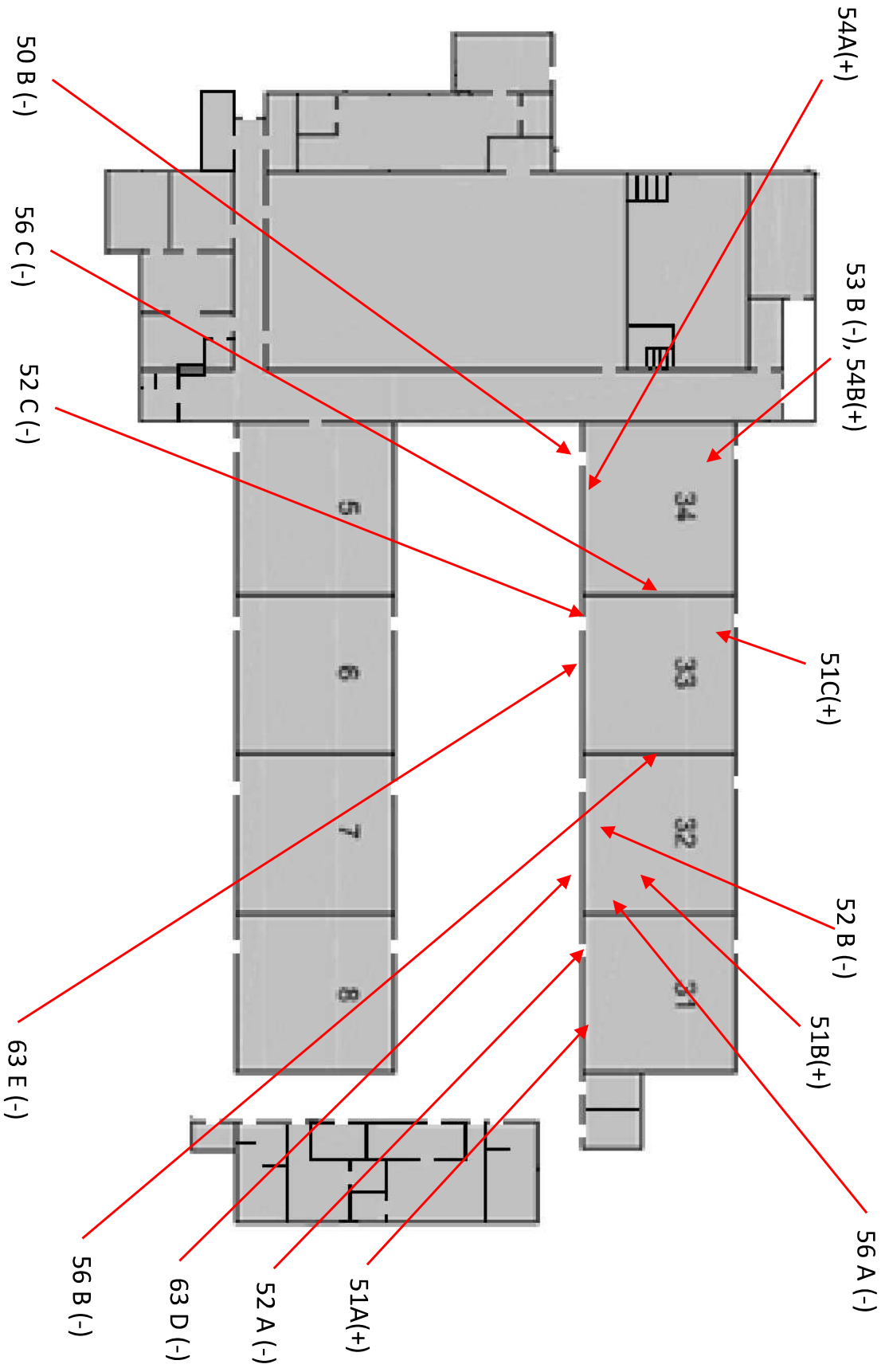
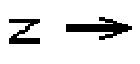


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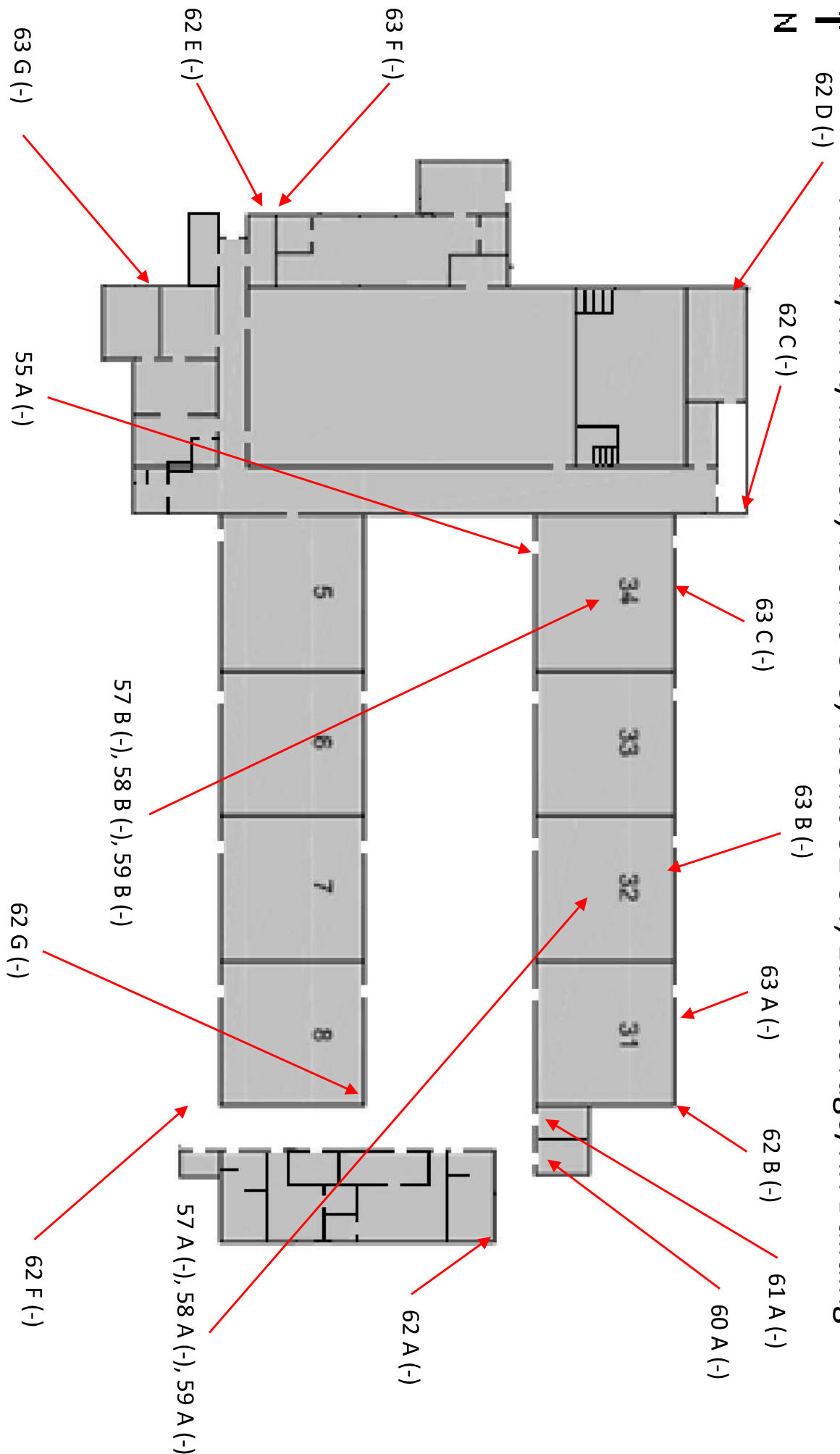


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# Admin/MPPR/Kitchen, Rooms 5-8, Rooms 31-34, East Storage/RR Building

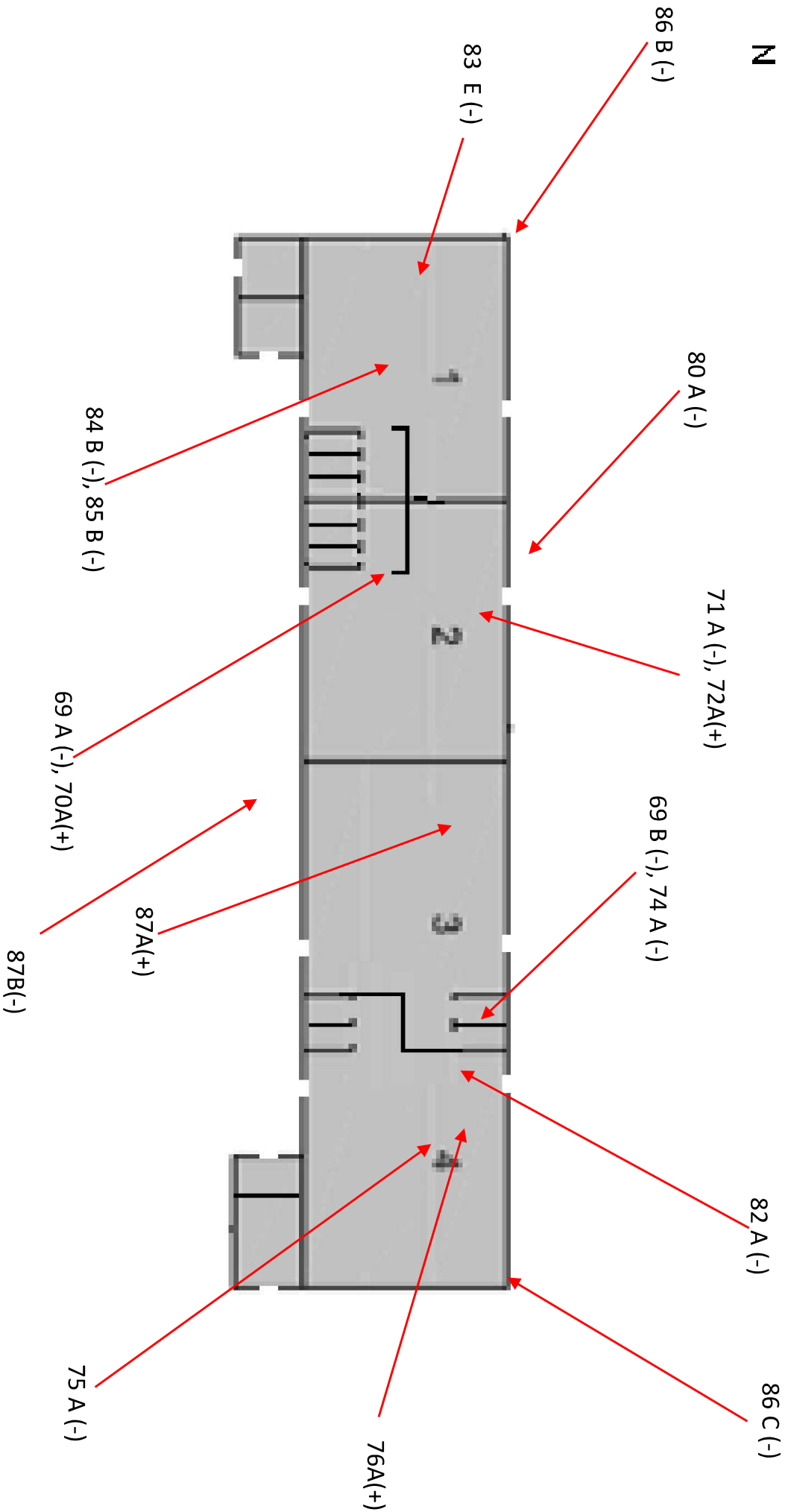


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 On April 5-6, 2023  
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# Kindergarten Rooms 1-4

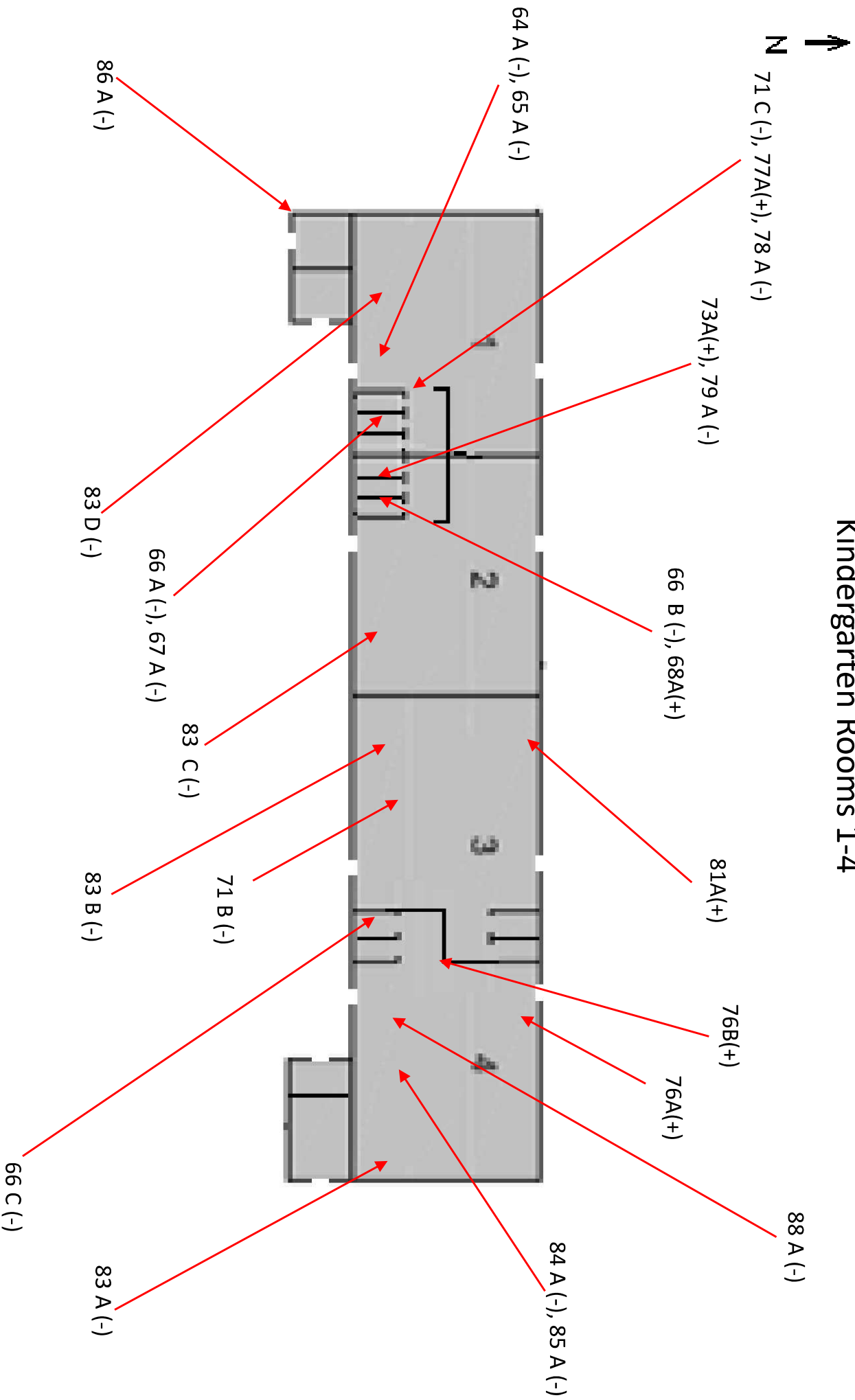


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# Kindergarten Rooms 1-4

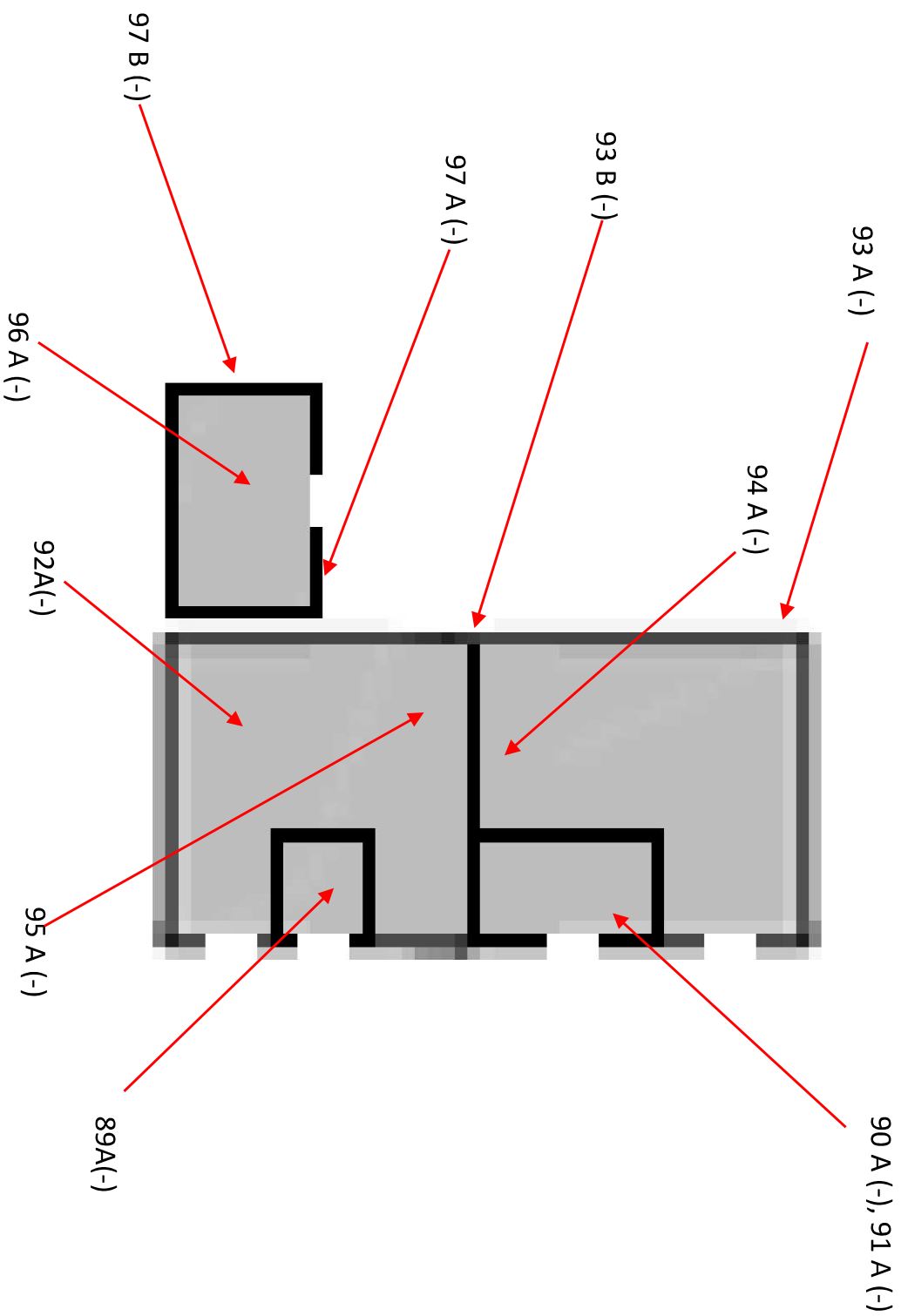


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# South Restroom Building

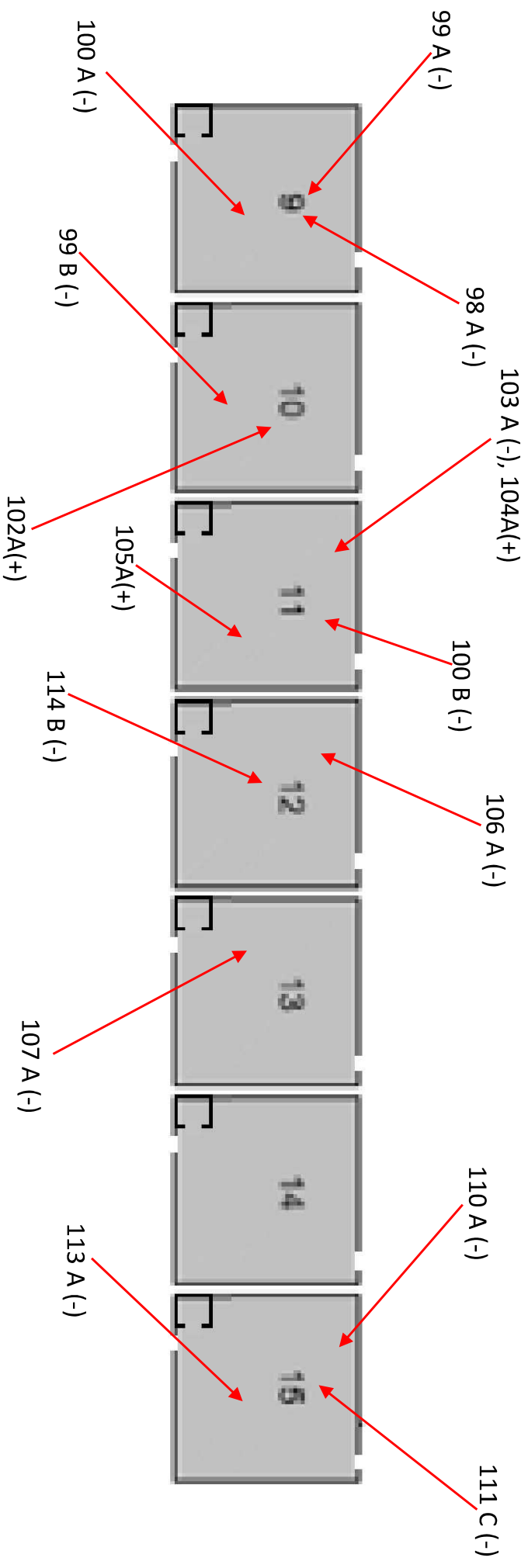


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# Rooms 9-15

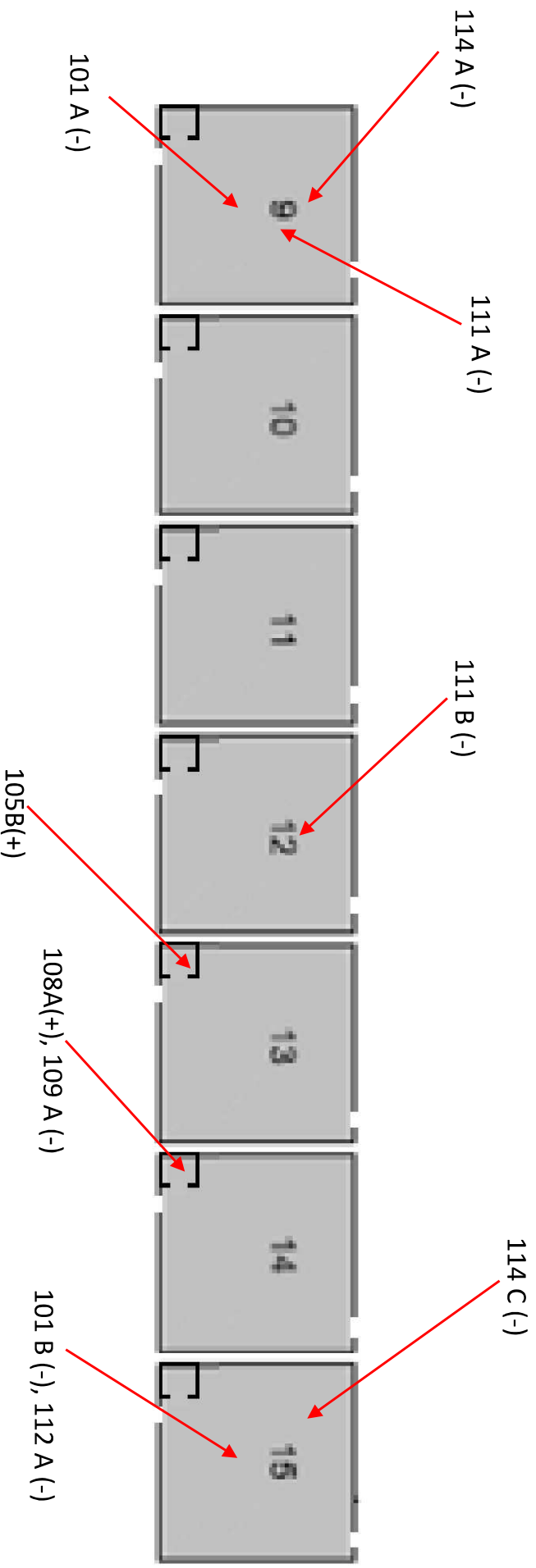


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# Rooms 9-15



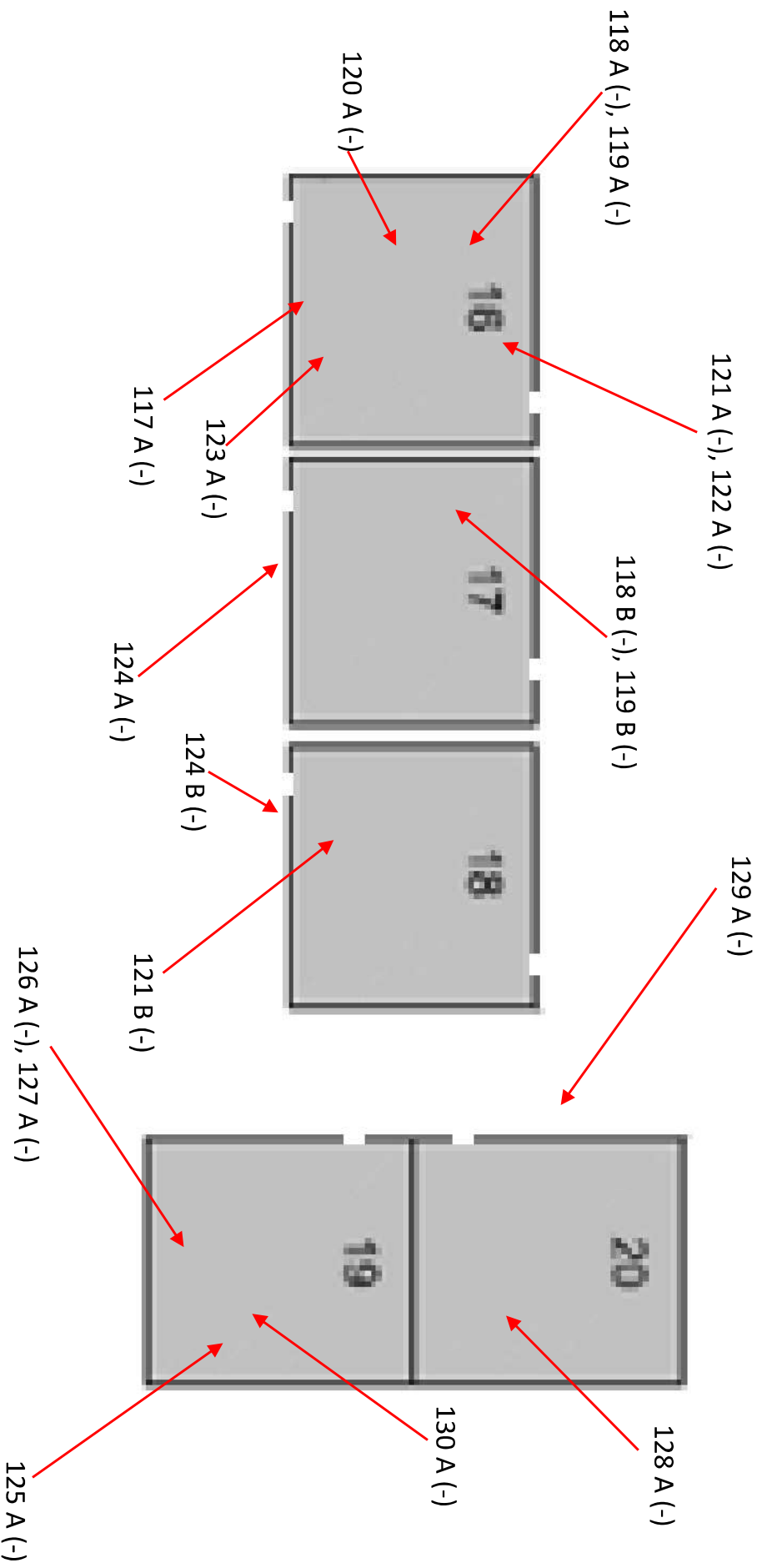
Sacramento City Unified School District  
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# Portables 16-20

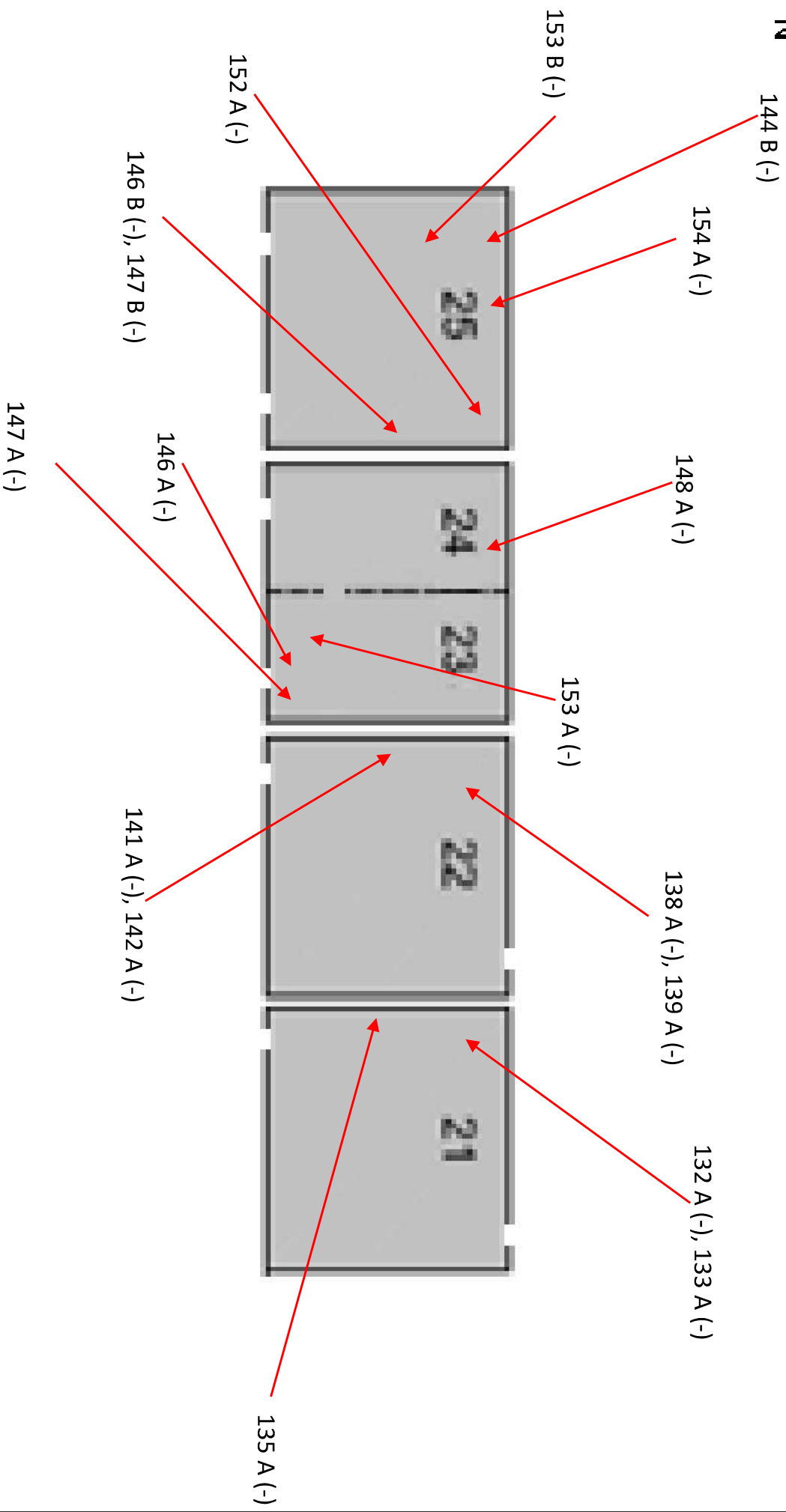


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# Portables 21-25

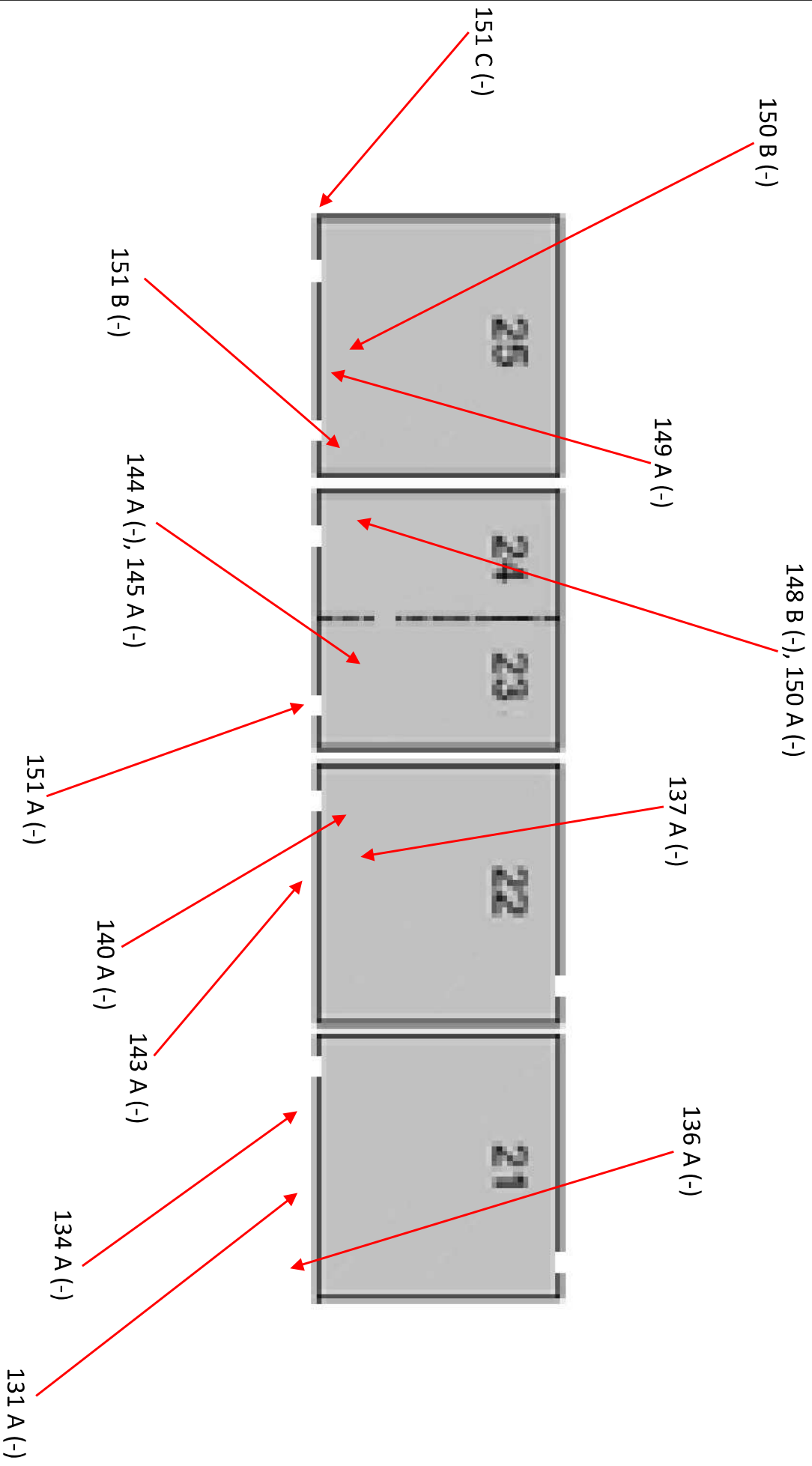


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# Portables 21-25

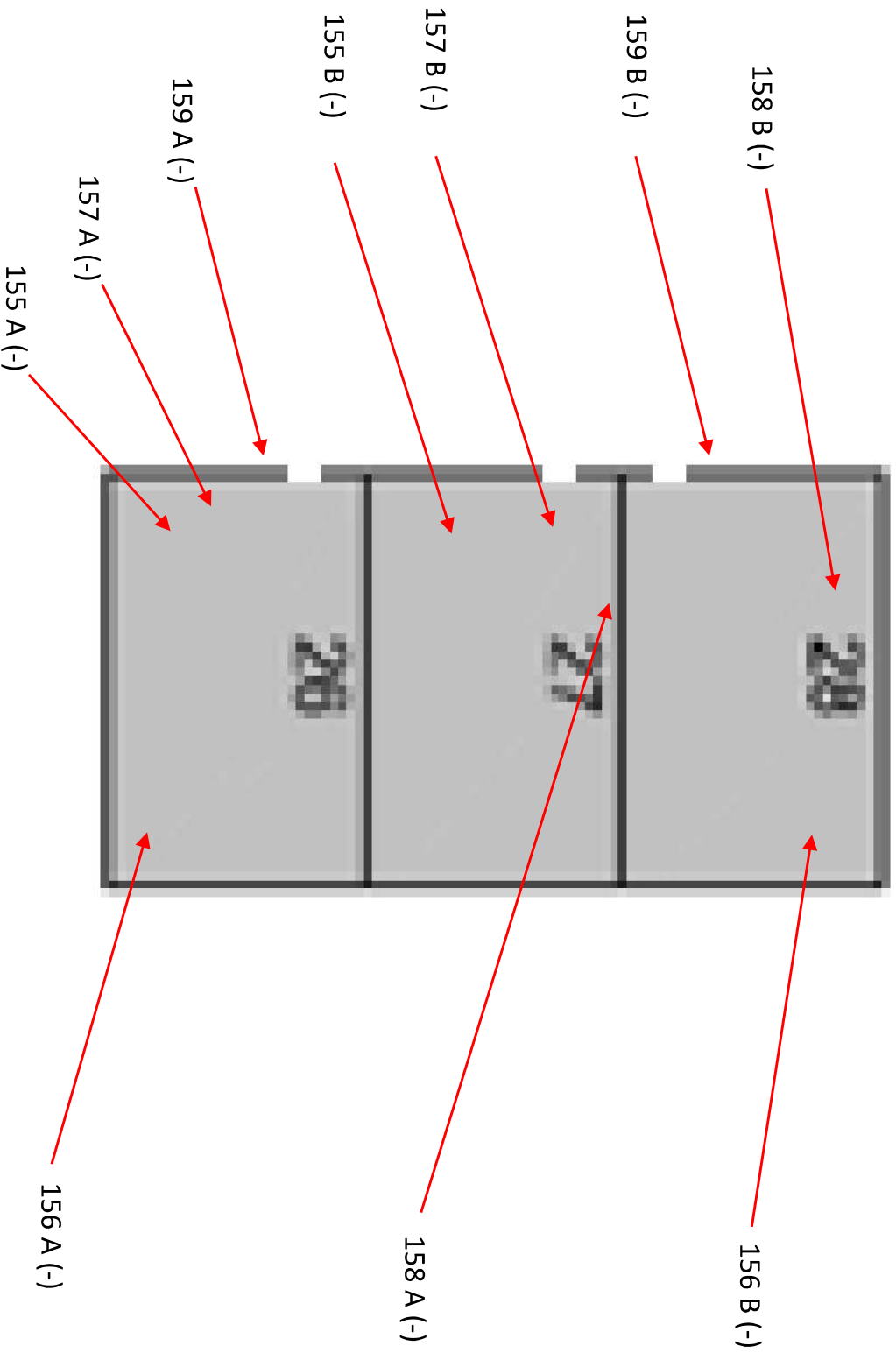


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# Portables 26-28

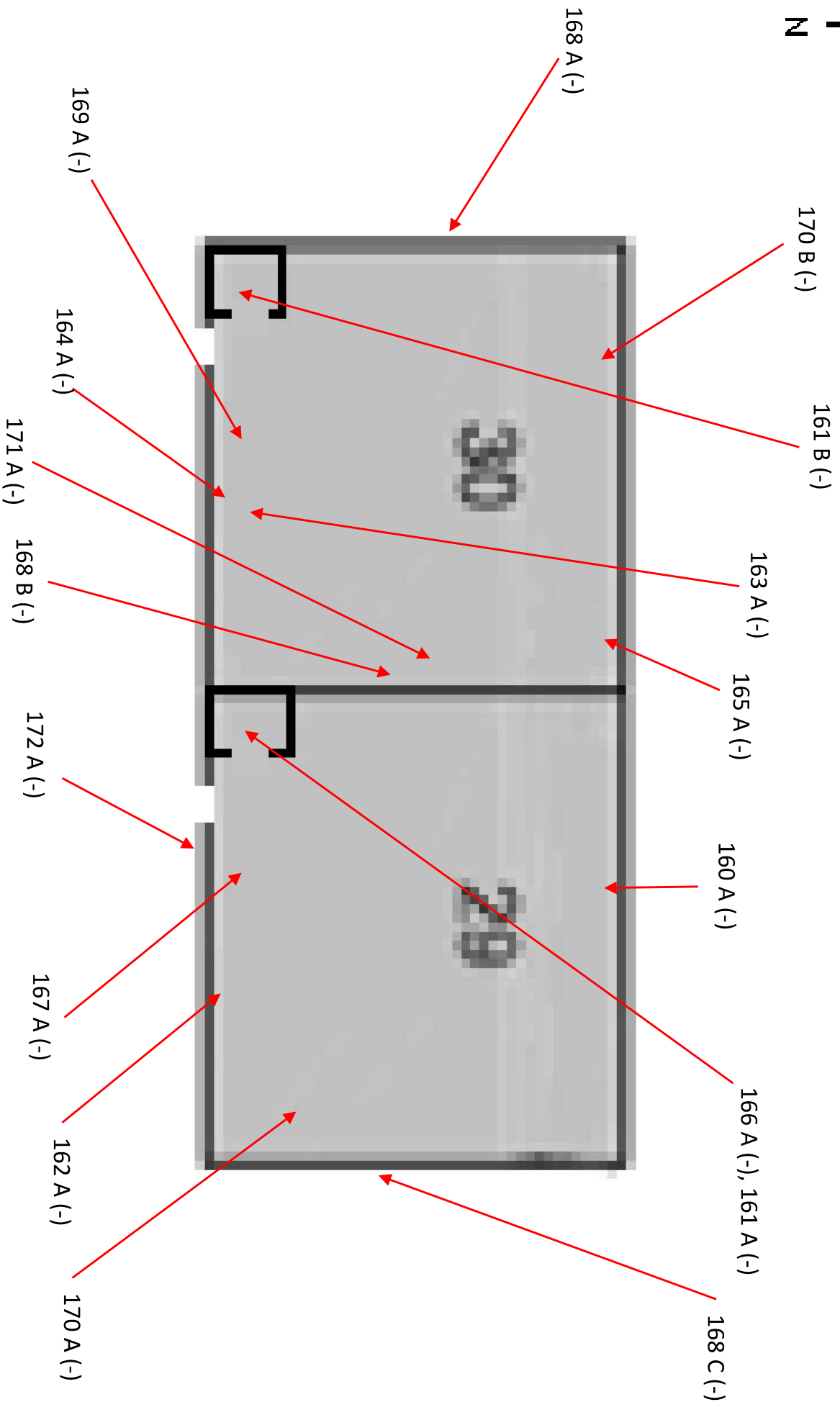


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# Rooms 29-30



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Collected by Blake Howes  
On April 5-6, 2023  
Project Number 23-6621



# Asbestos Survey Form

(See Instructions)

777 12<sup>th</sup> Street, 3<sup>rd</sup> Floor  
 Sacramento, CA 95814  
 Office (916) 874-4800  
 Fax (916) 874-4899  
 Email:  
[asbestos@airquality.org](mailto:asbestos@airquality.org)

<b>1. Purpose of Survey</b>		<input type="checkbox"/> Renovation		<input checked="" type="checkbox"/> Demolition		
<b>2. Facility Information</b>						
Project Area(s) Description      Oak Ridge Elementary - Full Campus						
Address      4501 Martin Luther King Jr. Blvd			City      Sacramento		# of Structures      10	
<b>3. Owner Information</b>						
Name      Sacramento City Unified School District						
Address      5735 47 <sup>th</sup> Street			City/State      Sacramento California		Zip      95824	
Contact	Phone	Fax	Email			
Brendin Swanson	916-559-0616		brendin-swanson@scusd.edu			
<b>4. Consultant Information</b>		Survey Date(s):      April 5-6, 2023				
Company Name      Entek Consulting Group, Inc.						
Name      Blake Howes				DOSH #      13-5015		
Address      4200 Rocklin Road, Suite 7			City/State      Rocklin, California		Zip      95677	
Phone (916) 632-6800	Fax (916) 632-6812	Email <a href="mailto:bhowes@entekgroup.com">bhowes@entekgroup.com</a>	Signature <i>Blake Howes</i>			
<b>5. Client Information (If different than owner)</b>						
<input type="checkbox"/> Architect		<input type="checkbox"/> General Contractor		<input type="checkbox"/> Insurance Company		
<input type="checkbox"/> Property Manager		<input type="checkbox"/> Other _____				
Name						
Address			City/State		Zip	
Contact	Phone	Fax	Email			
<b>6. Have all of the suspect materials that will be disturbed been sampled?</b>					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If no, explain why:						
<b>7. Summary of Total Asbestos Containing Material (ACM) Findings</b>						
<b>Regulated Asbestos Containing Material (RACM)</b> (Includes materials subject to known mechanical removal and fire damaged materials)			<b>Category II</b>		<b>Category I</b>	
Square Ft.	Linear Ft.	Cubic Ft.	Square Ft.	Linear Ft.	Square Ft.	Linear Ft.
90	0	0	200	0	48,000	0
<b>To receive future SMAQMD Rule updates and changes affecting your industry (check one box):</b>						
<input type="checkbox"/> Please send e-mail notices to			<input type="checkbox"/> I will sign up myself at <a href="http://www.airquality.org/listserve/">www.airquality.org/listserve/</a> to receive emailed notices.			
<input checked="" type="checkbox"/> I am already subscribed.		<input type="checkbox"/> I want the District to mail notices to the address on this application:			<input type="checkbox"/> Owner	<input type="checkbox"/> Consultant



# Asbestos Renovation/Demolition Notification Form

777 12<sup>th</sup> Street, 3<sup>rd</sup> Floor  
Sacramento, CA 95814  
Office (916) 874-4800  
Fax (916) 874-4899  
Asbestos@airquality.org

<b>1</b>	Building Department Permit Application # (if known) : _____	<input type="checkbox"/> Renovation (Do not complete Section 5) <input checked="" type="checkbox"/> Demolition (Complete all sections) <input type="checkbox"/> Ordered Demo - Attach ordered demo letter <input type="checkbox"/> Emergency Demo - SMAQMD Emergency #. _____
----------	---	--

<b>2</b>	Contractor	Owner	Sacramento City Unified School District
	Address	Address	5735 47 <sup>th</sup> Street
	City, State / Zip	City, State / Zip	Sacramento California 95824
	Email	Email	Brendin-swanson@scusd.edu
	Telephone	Telephone	916-559-0616

<b>3</b>	Structure Name	Oak Ridge Elementary	Renovation Area	Full Campus	# of Floors	1
	Project Address	4501 Martin Luther King Jr. Blvd	City / Zip	Sacramento 95820	Year Built	1960's

<b>4</b>	Preference for return of form	<input type="checkbox"/> E-mail	<input type="checkbox"/> Other :
----------	-------------------------------	---------------------------------	----------------------------------

*DEMOLITIONS ONLY - Start date must be at least 10 working days from the day of your postmark or hand delivery of this form.*

<b>5</b>		Revision # 1 2 3 4 5 6 7 8 9 (circle)		
	Start Date	____/____/____	New Start Date	____/____/____
	Completion Date	____/____/____	New Completion Date	____/____/____
	Method of Demo: (Check Applicable): <input type="checkbox"/> Manual/Hand Tools <input type="checkbox"/> Mechanical/Heavy Equipment <input type="checkbox"/> Other			
	Procedure to be followed if RACM is found or Category II material becomes friable:			

***I have read and understand the directions. The information on this form is true and accurate. I certify that the asbestos survey conducted represents the facility as built.***

<b>6</b>	Application Name (Print)	<input type="checkbox"/> Owner <input type="checkbox"/> Rep / Agent <input type="checkbox"/> Contractor	Permit may be issued on:
	Phone Number		
	Application Signature	Date	

***Have DOSH Consultant complete and sign below OR attach completed Asbestos Survey Form and Consultant's report.***

<b>CONSULTANT USE ONLY</b>	Company Name	Entek Consulting Group, Inc.	Telephone	(916) 632-6800	
	Surveyor Name	Blake Howes	DOSH #	13-5015	
	Analytical Method	PLM by Dispersion Staining	Pt Count Materials <10%	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Declined by Client	
	Amount of RACM	Square Feet 90	Linear Feet	0	
			Cubic Feet	0	
	Amount of Category I	48,000 Sq.	Amount of Category II	200	
	Project Address	4501 Martin Luther King Jr. Blvd	City	Sacramento	Zip
Suspect Materials Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Consultant's Signature	<i>Blake Howes</i>		

**SMAQMD USE ONLY**

Date Received / Date Postmark \_\_\_\_\_ Date Approved & Returned \_\_\_\_\_  
 Project # \_\_\_\_\_ Check # \_\_\_\_\_ Receipt # \_\_\_\_\_ Amount Paid \_\_\_\_\_ Staff \_\_\_\_\_



## **APPENDIX B**

### **LEAD RELATED DOCUMENTATION**

- Bulk Lead Analysis Report From MicroTest
- Bulk Lead Material Analysis Request Form for Entek
- Lead Bulk Sample Location Drawing
- CDPH Form 8552





**MicroTest Laboratories, Inc. | AIHA ELPAT #160934**  
 3110 Gold Canal Dr, Ste. A, Rancho Cordova, CA 95670  
 PH 916.567.9808 | FX 916.404.0302  
 www.microtestlabsinc.com | service@microtestlabsinc.com

\*\*\*for office use only\*\*\*

**Project ID**  
**L32271-88**

**CLIENT INFORMATION**

**Company** Entek Consulting Group, Inc  
**Name** Ryan Metzen  
**Address** 4200 Rocklin Road, Suite 7  
 Rocklin, CA 95677  
**Phone** 916.632.6800  
**Email** mainoffice@entekgroup.com  
 rmetzen@entekgroup.com

**SAMPLE**  
**Date** Thursday, April 6, 2023  
**Time**

**MicroTest Laboratories**

Analytical Data

**JOB SITE INFORMATION**

**Sampler** Blake Howes  
**Project** Sacramento City Unified School District  
**Site** Oak Ridge Elementary School  
**Address** 4501 Martin Luther King Jr. Blvd  
 Sacramento, CA 95820  
**Job #** 23-6621

**EPA METHOD 7420/7000B**

Client	Laboratory	Client	Reporting	Results	Units	Results	Units
Sample ID	Sample ID	Sample Location / Description	Limits	Matrix	Units	Comments	Units
ECG-23-6621-01Pb	L32271	Beige Colored Paint - Metal Window Frame, Exterior of Building with Rooms 31-34	0.01%	Paint	Wt %	83863	PPM
ECG-23-6621-02Pb	L32272	Blue Colored Paint - Wood Fascia, Exterior of Building with Rooms 31-34	0.01%	Paint	Wt %	775	PPM
ECG-23-6621-03Pb	L32273	Blue Colored Paint - Metal Gutter, Exterior of MPR Building	0.01%	Paint	Wt %	<100	PPM
ECG-23-6621-04Pb	L32274	Blue Colored Paint - Round Metal Column, Exterior of Building with Rooms 5-8 at Covered Walkways	0.01%	Paint	Wt %	54852	PPM
ECG-23-6621-05Pb	L32275	Blue Colored Paint - Wood Covered Walkway Ceiling Deck & Beams, Exterior of Building with Rooms 5-8 at Covered Walkways	0.01%	Paint	Wt %	7266	PPM
ECG-23-6621-06Pb	L32276	Beige Colored Paint - Stucco, Exterior of Administration Building	0.01%	Paint	Wt %	<100	PPM
ECG-23-6621-07Pb	L32277	Beige Colored Paint - Cementitious Wall Panel, Exterior of Buildings with Rooms 9-15	0.01%	Paint	Wt %	<100	PPM
ECG-23-6621-08Pb	L32278	Blue Colored Paint - Metal Hand Rail, Exterior of Buildings with Rooms 9-15	0.01%	Paint	Wt %	<100	PPM
ECG-23-6621-09Pb	L32279	White Colored Paint - Wood Wall Panel, Interior of Room 10	0.01%	Paint	Wt %	315	PPM
ECG-23-6621-10Pb	L32280	Beige Colored Paint - Metal Frame, Exterior of Portable 25	0.01%	Paint	Wt %	165	PPM

**Date Received:** Monday, April 10, 2023  
**Date Analyzed:** Wednesday, April 12, 2023  
**Date Reported:** Monday, April 17, 2023

Samples Received: 18  
 Samples Analyzed: 18

Analyst: Erich Bowman

Authorized Signatory:   
 Kelly Favero - Lab Manager

This report applies to the standards and procedures indicated and to the specific samples analyzed. Samples have NOT been corrected for blank values. EPA 3050B Hotblock Preparaton Method



**MicroTest Laboratories, Inc. | AIHA ELPAT #160934**  
 3110 Gold Canal Dr, Ste. A, Rancho Cordova, CA 95670  
 PH 916.567.9808 | FX 916.404.0302  
 www.microtestlabsinc.com | service@microtestlabsinc.com

\*\*\*for office use only\*\*\*

**Project ID**  
**L32271-88**

**CLIENT INFORMATION**

**Company** Entek Consulting Group, Inc  
**Name** Ryan Metzen  
**Address** 4200 Rocklin Road, Suite 7  
 Rocklin, CA 95677  
**Phone** 916.632.6800  
**Email** mainoffice@entekgroup.com  
 rmetzen@entekgroup.com

**SAMPLE**  
**Date** Thursday, April 6, 2023  
**Time**

**MicroTest Laboratories**

Analytical Data

**JOB SITE INFORMATION**

**Sampler** Blake Howes  
**Project** Sacramento City Unified School District  
**Site** Oak Ridge Elementary School  
**Address** 4501 Martin Luther King Jr. Blvd  
 Sacramento, CA 95820  
**Job #** 23-6621

**EPA METHOD 7420/7000B**

Client	Laboratory	Client	Reporting	Results	Units	Results	Units
Sample ID	Sample ID	Sample Location / Description	Limits	Matrix	Results	Comments	Units
ECG-23-6621-11Pb	L32281	Beige Colored Paint - Wood Wall Panel, Exterior of Portable 17	0.01%	Paint	<0.01%	<100	PPM
ECG-23-6621-12Pb	L32282	Blue Colored Paint - Door & Frame, Exterior of Room 32	0.01%	Paint	3.31%	33092	PPM
ECG-23-6621-13Pb	L32283	Light Blue Colored Paint - Wood Casework, Interior of Room 34	0.01%	Paint	0.56%	5552	PPM
ECG-23-6621-14Pb	L32284	Beige Colored Paint - Plaster, Interior of MPR/Administration Building, Hallway	0.01%	Paint	0.05%	503	PPM
ECG-23-6621-15Pb	L32285	Tan Colored Paint - Wood Wainscot and Trim - Interior of MPR Building Main Room	0.01%	Paint	<0.01%	<100	PPM
ECG-23-6621-16Pb	L32286	Tan Colored Paint - Plaster, Interior of MPR/Admin Building, Kitchen	0.01%	Paint	0.56%	5648	PPM
ECG-23-6621-17Pb	L32287	Blue Colored Paint - Wood Baseboard, Interior of MPR/Admin Building, Hallway	0.01%	Paint	<0.01%	<100	PPM
ECG-23-6621-18Pb	L32288	Beige Colored Paint - Wood Window Frame, Exterior of MPR/Admin Building at West Side	0.01%	Paint	4.91%	49113	PPM

**Date Received:** Monday, April 10, 2023  
**Date Analyzed:** Wednesday, April 12, 2023  
**Date Reported:** Monday, April 17, 2023

Samples Received: 18  
 Samples Analyzed: 18

Analyst: Erich Bowman

Authorized Signatory:   
 Kelly Favero - Lab Manager

This report applies to the standards and procedures indicated and to the specific samples analyzed. Samples have NOT been corrected for blank values. EPA 3050B Hotblock Preparaton Method



## BULK LEAD MATERIAL *Analysis Request*

### ENTEK CONSULTING GROUP, INC.

4200 ROCKLIN ROAD, SUITE 7  
 ROCKLIN, CA 95677  
 (916) 632-6800 PHONE  
 (916) 632-6812 FAX  
[mainoffice@entekgroup.com](mailto:mainoffice@entekgroup.com)

**Date of Sampling:** April 6, 2023

**Lab:** MicroTest Laboratories

**Job Number:** 23-6621

**Collected by:** Blake Howes

**Client Name:** Sacramento City Unified School District

**Turnaround Time:** 5-Day

**Site Address:** Oak Ridge Elementary School  
 4501 Martin Luther King Jr. Blvd  
 Sacramento, CA 95820

**ANALYSIS REQUESTED:** Lead by Flame Atomic Absorption Spectroscopy

**Special Instruction:** *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-01Pb	Beige Colored Paint - Metal Window Frame, Exterior of Building with Rooms 31-34
ECG-23-6621-02Pb	Blue Colored Paint - Wood Fascia, Exterior of Building with Rooms 31-34
ECG-23-6621-03Pb	Blue Colored Paint - Metal Gutter, Exterior of MPR Building
ECG-23-6621-04Pb	Blue Colored Paint - Round Metal Column, Exterior of Building with Rooms 5-8 at Covered Walkways
ECG-23-6621-05Pb	Blue Colored Paint - Wood Covered Walkway Ceiling Deck & Beams, Exterior of Building with Rooms 5-8 at Covered Walkways
ECG-23-6621-06Pb	Beige Colored Paint - Stucco, Exterior of Administration Building
ECG-23-6621-07Pb	Beige Colored Paint - Cementitious Wall Panel, Exterior of Buildings with Rooms 9-15
ECG-23-6621-08Pb	Blue Colored Paint - Metal Hand Rail, Exterior of Buildings with Rooms 9-15
ECG-23-6621-09Pb	White Colored Paint - Wood Wall Panel, Interior of Room 10
ECG-23-6621-10Pb	Beige Colored Paint - Metal Frame, Exterior of Portable 25
ECG-23-6621-11Pb	Beige Colored Paint - Wood Wall Panel, Exterior of Portable 17
ECG-23-6621-12Pb	Blue Colored Paint - Door & Frame, Exterior of Room 32
ECG-23-6621-13Pb	Light Blue Colored Paint - Wood Casework, Interior of Room 34
ECG-23-6621-14Pb	Beige Colored Paint - Plaster, Interior of MPR/Administration Building, Hallway

Delivered by:

Date: 4/10/23 Time: 11:45 AM/PM

Received by:

Date: 4/10/23 Time: 11:45 AM/PM


**BULK LEAD MATERIAL** *Analysis Request*
**ENTEK CONSULTING GROUP, INC.**

4200 ROCKLIN ROAD, SUITE 7  
 ROCKLIN, CA 95677  
 (916) 632-6800 PHONE  
 (916) 632-6812 FAX  
[mainoffice@entekgroup.com](mailto:mainoffice@entekgroup.com)

**Date of Sampling:** April 6, 2023

**Lab:** MicroTest Laboratories

**Job Number:** 23-6621

**Collected by:** Blake Howes

**Client Name:** Sacramento City Unified School District

**Turnaround Time:** 5-Day

**Site Address:** Oak Ridge Elementary School  
 4501 Martin Luther King Jr. Blvd  
 Sacramento, CA 95820

**ANALYSIS REQUESTED:** Lead by Flame Atomic Absorption Spectroscopy

**Special Instruction:** *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-23-6621-15Pb	Tan Colored Paint - Wood Wainscot and Trim - Interior of MPR Building Main Room
ECG-23-6621-16Pb	Tan Colored Paint - Plaster, Interior of MPR/Admin Building, Kitchen
ECG-23-6621-17Pb	Blue Colored Paint - Wood Baseboard, Interior of MPR/Admin Building, Hallway
ECG-23-6621-18Pb	Beige Colored Paint - Wood Window Frame, Exterior of MPR/Admin Building at West Side

C:\Users\lhowes\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\Sacramento City USD\23-6621 Oak Ridge ES - AsbPb\Bulk Pb\Bulk Request Pb 04-06-23.wpd

**Delivered by:**
**Date:**

4/10/23

**Time:**

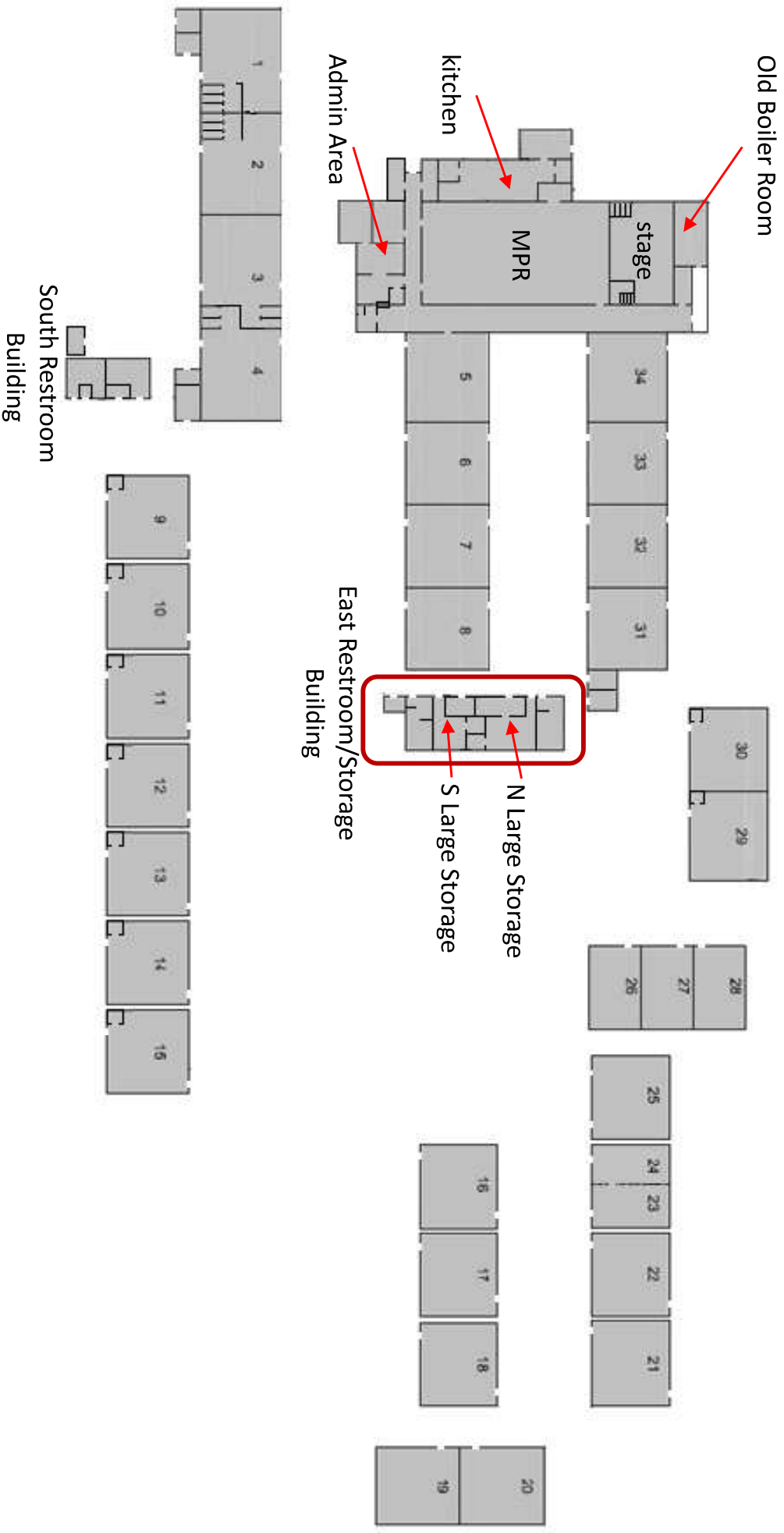
11:45 AM/PM

**Received by:**
**Date:**

4/10/23

**Time:**

11:45 AM/PM

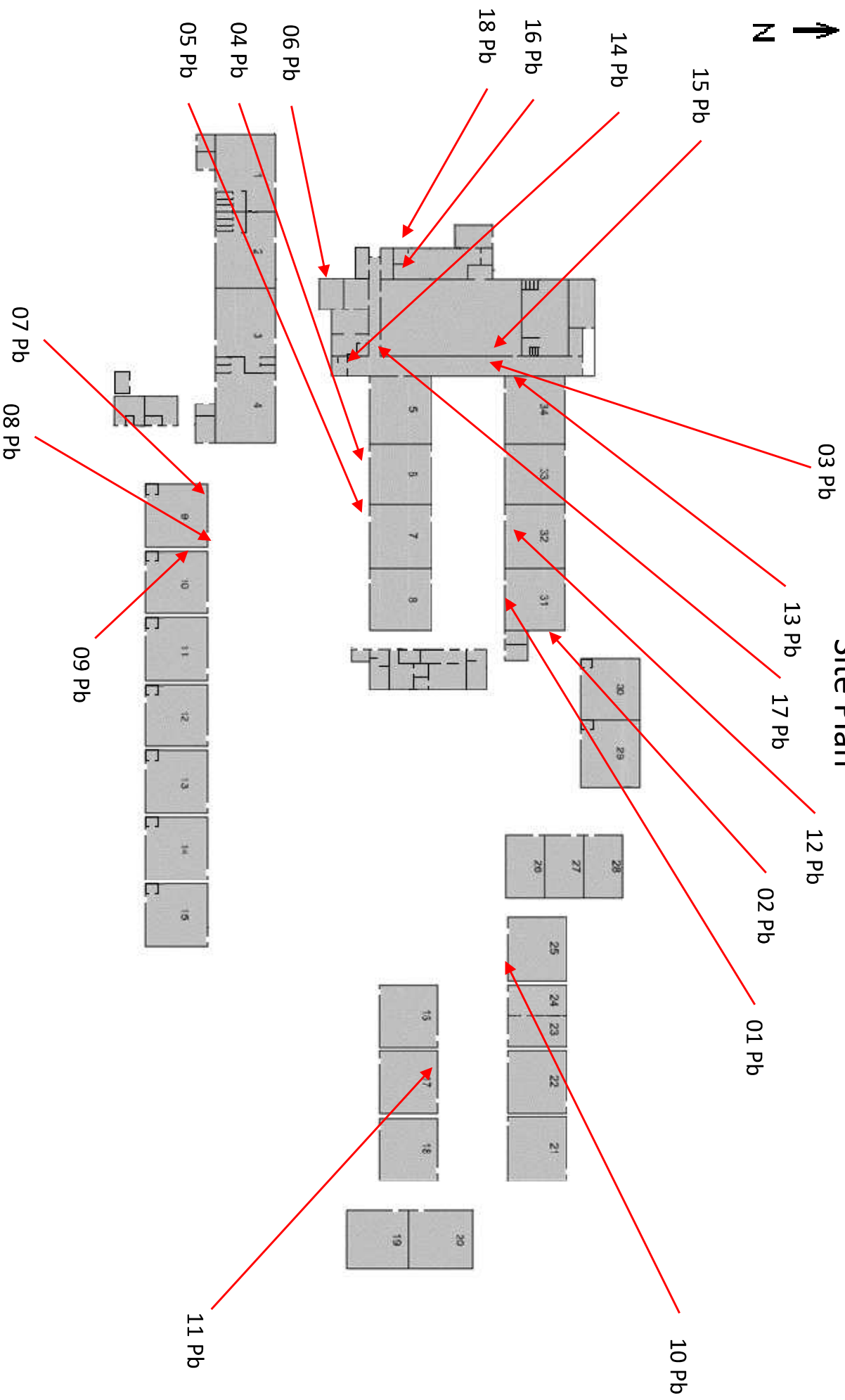


Sacramento City Unified School District  
Oak Ridge Elementary School  
4501 Martin Luther King Jr Blvd  
Sacramento, CA 95820

Entek Consulting Group, Inc.  
4200 Rocklin Road, Suite 7  
Rocklin, CA 95677  
Map Not to Scale

Asbestos Bulk Sample Locations  
Collected by Blake Howes  
On April 5-6, 2023  
Project Number 23-6621

# Site Plan



Sacramento City Unified School District  
Oak Ridge Elementary School  
4501 Martin Luther King Jr. Blvd  
Sacramento, CA 95820

Entek Consulting Group, Inc.  
4200 Rocklin Road, Suite 7  
Rocklin, CA 95677  
Map Not to Scale

Lead Bulk Sample Locations  
Collected by Blake Howes  
On April 5-6, 2023  
Project Number 23-6621

## LEAD HAZARD EVALUATION REPORT

**Section 1 — Date of Lead Hazard Evaluation** April 6, 2023

**Section 2 — Type of Lead Hazard Evaluation (Check one box only)**

Lead Inspection     Risk assessment     Clearance Inspection     Other (specify)  

**Section 3 — Structure Where Lead Hazard Evaluation Was Conducted**

Address [number, street, apartment (if applicable)]		City	County	Zip Code
4501 Martin Luther King Jr. Blvd		Sacramento	Sacramento	95820
Construction date (year) of structure	Type of structure		Children living in structure?	
1960's	<input type="checkbox"/> Multi-unit building <input checked="" type="checkbox"/> School or daycare <input type="checkbox"/> Single family dwelling <input type="checkbox"/> Other <span style="border: 1px solid black; padding: 2px;"> </span>		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Don't Know	


**Section 4 — Owner of Structure (if business/agency, list contact person)**

Name		Telephone number		
Sacramento City Unified School District - Mr. Brendin Swanson		(916) 519-0616		
Address [number, street, apartment (if applicable)]		City	State	Zip Code
5735 47th Avenue		Sacramento	California	95824

**Section 5 — Results of Lead Hazard Evaluation (check all that apply)**

No lead-based paint detected     Intact lead-based paint detected     Deteriorated lead-based paint detected  
 No lead hazards detected     Lead-contaminated dust found     Lead-contaminated soil found     Other  

**Section 6 — Individual Conducting Lead Hazard Evaluation**

Name		Telephone number		
Entek Consulting Group, Inc. - Blake Howes		(916) 632-6800		
Address [number, street, apartment (if applicable)]		City	State	Zip Code
4200 Rocklin Road, Suite 7		Rocklin	CA	95677
CDPH certification number	Signature		Date	
3315			5-3-23	

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Jose Hernandez - 10754

**Section 7 — Attachments**

- A. A foundation diagram or sketch of the structure indicating the specific locations of each lead hazard or presence of lead-based paint;
- B. Each testing method, device, and sampling procedure used;
- C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector  
 Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:  
 California Department of Public Health  
 Childhood Lead Poisoning Prevention Branch Reports  
 850 Marina Bay Parkway, Building P, Third Floor  
 Richmond, CA 94804-6403  
 Fax: (510) 620-5656



## **APPENDIX C**

### **BACK UP DOCUMENTATION**

- Inspector Accreditations and Certifications
- Laboratory Accreditations for Asbestos Analysis



State of California  
Division of Occupational Safety and Health  
**Certified Asbestos Consultant**

**Blake W Howes**

Name



Certification No. **13-5015**

Expires on **04/17/23**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

State of California  
Division of Occupational Safety and Health  
**Certified Asbestos Consultant**



**Blake W. Howes**  
Name

Certification No. **13-5015**

Expires on **04/17/24**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

State of California  
Division of Occupational Safety and Health  
**Certified Asbestos Consultant**

**Jose A Hernandez**

Name



Certification No. 22-6995

Expires on 01/21/24

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.



# LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:                      CERTIFICATE TYPE:



Lead Inspector/Assessor

NUMBER:

LR-00003315

EXPIRATION DATE:

9/27/2023

Blake Howes

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at [www.cdph.ca.gov/programs/clppb](http://www.cdph.ca.gov/programs/clppb) or calling (800) 597-LEAD



# LEAD-RELATED CONSTRUCTION CERTIFICATE

**INDIVIDUAL:**



**CERTIFICATE TYPE:**

Lead Inspector/Assessor

Lead Sampling Technician

**NUMBER:**

LRC-00010754

LRC-00003446

**EXPIRATION DATE:**

1/9/2024

10/27/2023

**Jose Hernandez**

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at [www.cdph.ca.gov/programs/clppb](http://www.cdph.ca.gov/programs/clppb) or calling (800) 597-LEAD

United States Department of Commerce  
National Institute of Standards and Technology

NVLAP<sup>®</sup>



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# Certificate of Accreditation to ISO/IEC 17025:2017

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NVLAP LAB CODE: 101442-0

**ASBESTECH**  
Rancho Cordova, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:

## **Asbestos Fiber Analysis**

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2022-07-01 through 2023-06-30

Effective Dates



*[Signature]*  
For the National Voluntary Laboratory Accreditation Program

**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017**

**ASBESTECH**

11151 Sun Center Drive, Suite B

Rancho Cordova, CA 95670

Mr. Tommy Conlon

Phone: 916-481-8902 Fax: 916-481-3975

Email: [asbestech@sbcglobal.net](mailto:asbestech@sbcglobal.net)

<http://www.asbestechlab.com>

**ASBESTOS FIBER ANALYSIS**

**NVLAP LAB CODE 101442-0**

**Bulk Asbestos Analysis**

**Code**

**Description**

18/A01

EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

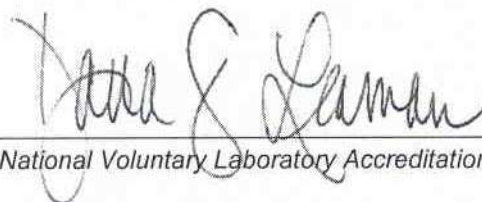
**Airborne Asbestos Analysis**

**Code**

**Description**

18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



STATE WATER RESOURCES CONTROL BOARD  
REGIONAL WATER QUALITY CONTROL BOARDS



CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

**CERTIFICATE OF  
ENVIRONMENTAL LABORATORY ACCREDITATION**

Is hereby granted to

**MicroTest Laboratories, Inc.**

3110 Gold Canal Drive  
Rancho Cordova, CA 95670

Scope of the certificate is limited to the  
"Fields of Accreditation"  
which accompany this Certificate.

Continued accredited status depends on compliance with applicable laws and regulations,  
proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of  
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2974**

Effective Date: **7/1/2022**

Expiration Date: **6/30/2024**

A handwritten signature in blue ink, appearing to read "Christine Sotelo".

Sacramento, California  
subject to forfeiture or revocation

Christine Sotelo, Program Manager  
Environmental Laboratory Accreditation Program





**CALIFORNIA STATE  
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM  
Fields of Accreditation**



**MicroTest Laboratories, Inc.**

3110 Gold Canal Drive  
Rancho Cordova, CA 95670  
Phone: 9165679808

**Certificate Number: 2974  
Expiration Date: 6/30/2024**

**Field of Accreditation:114 - Inorganic Constituents in Hazardous Waste**

114.345 002	Antimony	EPA 6020 B
114.345 003	Arsenic	EPA 6020 B
114.345 004	Barium	EPA 6020 B
114.345 005	Beryllium	EPA 6020 B
114.345 006	Cadmium	EPA 6020 B
114.345 008	Chromium	EPA 6020 B
114.345 009	Cobalt	EPA 6020 B
114.345 010	Copper	EPA 6020 B
114.345 012	Lead	EPA 6020 B
114.345 016	Nickel	EPA 6020 B
114.345 018	Selenium	EPA 6020 B
114.345 021	Thallium	EPA 6020 B
114.345 023	Zinc	EPA 6020 B
114.345 024	Molybdenum	EPA 6020 B
114.515 001	Lead	EPA 7420
114.545 001	Mercury	EPA 7471 B

**Field of Accreditation:115 - Leaching/Extraction Tests and Physical Characteristics of Hazardous Waste**

115.055 001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
115.085 001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311

**Field of Accreditation:121 - Bulk Asbestos Analysis of Hazardous Waste**

121.010 001	Bulk Asbestos	EPA 600/M4-82-020
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**SECTION 1. ASBESTOS BIDDING REQUIREMENTS**

**Part 1.1 - Site Investigations**

By submitting a bid for asbestos related work, the asbestos abatement contractor acknowledges that they have investigated and satisfied themselves as to: a) the conditions affecting the work, including but not limited to, physical conditions of the site which may bear upon site access, handling, and storage of tools and materials, access to water, electric, or other utilities, or otherwise affect performance of required activities; b) the character and quality of all surface and subsurface materials or obstacles to be encountered, in so far as, this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the Owner or a designated consultant, as well as, information presented in drawings and specifications included with this contract. Any failure by the asbestos abatement contractor to acquaint themselves with available information will not relieve them from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner is not responsible for any conclusions or interpretations made by the asbestos abatement contractor on the basis of the information made available by the Owner.

**Part 1.2 - Insurance Requirements**

Successful asbestos abatement contractor shall purchase and maintain insurance that will protect them from claims that may arise out of or result from the activities under this Contract, whether those activities are performed by the asbestos abatement contractor, by any Subcontractor, or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.

Successful asbestos abatement contractor shall submit proof of coverage, as well as, Subcontractors under the Worker's Compensation insurance system of the State of California or other similar benefit acts.

Successful asbestos abatement contractor shall submit a certificate of general liability insurance protecting against liability for bodily injury and property damage arising from asbestos abatement contractor's activities under this contract.

Such certificate of insurance must contain the following provisions:

- (a) The limit of liability shall not be less than \$1,000,000.00 per occurrence for bodily injury and property damage liability combined.
- (b) The Owner, Owner's Agents, and Consultant must be named as additional insured, but only in respect to liability arising or resulting from activities under this contract.
- (c) In the event of cancellation of the insurance policy, the Owner shall be given thirty days advance written notice.
- (d) The insurance certificate must state that the insurance includes liability coverage for asbestos abatement work.

Successful asbestos abatement contractor's Subcontractors shall submit a certificate of general liability insurance protecting against liability for bodily injury and property damage arising from Contractor's activities under this contract.

Such certificates of insurance must contain the following provisions:

- (a) The limit of liability shall not be less than \$1,000,000.00 per occurrence for bodily

injury and property damage liability combined.

- (b) The Owner, Owner's Agents, and Consultant must be named as an additional insured, but only in respect to liability arising or resulting from activities under this contract.
- (c) In the event of cancellation of the insurance policy, the Owner shall be given thirty days advance written notice.

**Part 1.3 - Licenses and Qualifications Requirements**

The asbestos abatement contractor shall be duly licensed in the State of California with the Contractors State License Board (CSLB) in accordance with the provisions of Chapter 9 of Division 3 of the Business and Professions Code, as amended. This includes certification for asbestos-related work, and all other trades or work required under this contract and within these specifications.

The asbestos abatement contractor shall submit a statement, signed by an officer of the company, containing the following information:

- 1. A record of any citations issued by Federal, State, or Local regulatory agencies within the last 3 years, relating to asbestos abatement activity. Include projects, dates, and resolutions.
- 2. A list of penalties incurred through non-compliance with asbestos abatement project specifications, including liquidated damages, overruns in scheduled time limitations, and resolutions.
- 3. Situations in which an asbestos-related contract has been terminated including projects, dates, and reasons for terminations.
- 4. A list of any asbestos-related legal proceedings/claims in which the Contractor (or employees scheduled to participate in this project) has participated or is currently involved. Include descriptions or role, issue, and resolution to date.

The asbestos abatement contractor is fully and totally responsible at all times for compliance with payment of prevailing wage rates pursuant to provisions of the California Labor Code, for compliance with Division 2, Part 7, Chapter 1, California Labor Code, including but not limited to Section 1776; and for compliance with California Labor Code, Section 1777.5 for all apprentice able occupations.

**SECTION 2. ASBESTOS GENERAL REQUIREMENTS - DEFINITIONS**

**Abatement** - Procedures beyond a special operations and maintenance program to control fiber release from asbestos-containing materials. Includes removal, encapsulation, enclosure, repair.

**ACGIH** - American Conference of Governmental Industrial Hygienists, 6500 Glenway Avenue, Building D-5, Cincinnati, Ohio 45211

**AHERA** - Asbestos Hazard Emergency Response Act

**AIHA** - American Industrial Hygiene Association, 475 Wolf Ledges Parkway, Akron, Ohio 44311

**Air Filtration Device** - See "Pressure Differential Unit"

**Airlock** - A system for permitting ingress and egress with minimum air movement between a contaminated

area and an uncontaminated area, typically consisting of two curtained doorways separated by a distance of at least three (3) feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

**Air Monitoring** - The process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure normally utilized for asbestos follows the NIOSH Standard Analytical Method for Asbestos in Air P&CAM 239 or Method 7400. For clearance air monitoring, electron microscopy methods may be utilized for lower detection and specific fiber identification.

**Air Sampling Professional** - The professional contracted or employed by the Owner to supervise and/or conduct air monitoring and analysis schemes. This individual may also function as the Asbestos Project Manager, if qualified. Supervision of air sampling and evaluation of results should be performed by an individual certified in the Comprehensive Practice of Industrial Hygiene (CIH) or having specialized experience in air sampling for asbestos. Other acceptable Air Sampling Professionals include Environmental Engineers, Architects, Chemists and Environmental Scientists or others with equivalent experience in asbestos air monitoring. This individual shall not be affiliated in any way other than through this contract with the contractor performing the abatement work.

**Ambient Air** - The air outside the buildings and structures or the air as it normally exists in a space prior to abatement.

**Amended Water** - Water to which a surfactant has been added.

**ANSI** - American National Standards Institute, 1430 Broadway, New York, New York, 10018

**Asbestos** - Means the asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite grunerite (amosite), anthophyllite, actinolite, and tremolite.

**Asbestos Containing Hazardous Waste** - Materials defined by the State of California to be packaged, labeled, transported, and disposed of as an asbestos hazardous waste. This includes all friable asbestos-containing material over one-percent (1%) asbestos. This also includes all asbestos-containing material containing less than one-percent asbestos for which one or more bulk samples have not been point counted and found to contain less than one-percent (1%) asbestos.

**Asbestos Containing Material (ACM)** - Cal/OSHA - Material composed of asbestos of any type and in an amount greater than one percent (1%) either alone or mixed with fibrous or non-fibrous materials.

**Asbestos Containing Construction Material (ACM)** - a manufactured construction material containing greater than 0.1% asbestos by weight by the PLM method.

**Asbestos Containing Waste** - Asbestos-containing material or asbestos-contaminated objects requiring disposal.

**Asbestos Project Manager (APM)** - (Competent Person) - An individual qualified by virtue of experience and education, designated as the Owner's representative and responsible for overseeing the asbestos abatement project.

**ASTM** - American Society for Testing and Materials, 916 Race Street, Philadelphia, PA 19103.

**Authorized Visitor** - The Owner (and any designated representative) and any representative of a regulatory or other agency having jurisdiction over the project.

**Bidder** - A duly licensed and accredited asbestos contractor who was present at the bid-walk and has submitted a bid.

**Cal/OSHA** - California Division of Occupational Safety and Health.

**Certified Asbestos Consultant (CAC)** - A certified asbestos consultant as defined by the Department of Industrial Relations (Cal/OSHA).

**Certified Industrial Hygienist (CIH)** - An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

**Clean Room** - An uncontaminated area or room which is a part of the worker decontamination enclosure system with provisions for storage of workers' street clothes and clean protective equipment.

**Competent Person** - A person who is an accredited EPA Asbestos Contractor/Supervisor and whose accreditation is current.

**Containment** - Isolation of the work area from the rest of the building to prevent escape of asbestos fibers.

**Contract Documents** - Written contractual agreements between the Owner and the Contractor that pertain to the work on this project.

**Contractor** - The individual and/or legal entity and its subcontractors and employees of the contractor and subcontractor awarded the contract.

**Contractor/Supervisor** - A person who successfully completed an initial U.S. EPA and/or state-approved five-day AHERA accreditation course and who has maintained that training through approved annual refresher training, and possesses current and valid AHERA accreditation documentation as a AHERA accredited Contractor/Supervisor.

**Class I, II, III, or IV Work** - Work classes described in 8 CCR 1529 that describe different levels of asbestos work.

**Critical Barrier** - Critical Barriers used to restrict water and air flow. Critical Barriers are the barriers placed over openings in the walls and ceilings of a work area in order to ensure that airborne fibers cannot escape the work area via these openings. The Contractor will construct impermeable barriers at all exits or openings, including doorways, duct chases, mechanical shafts, elevator shafts, floor openings, drains, and the like, so that all possible exit or entrance routes are effectively barricaded and sealed. Unless otherwise specified in the Contract documents, critical barriers shall be constructed of at least one layer of 6-mil thick poly.

**Critical Barrier Negative Pressure Test** - Required test for negative pressure with only critical barriers and air filtration units installed. This test must be conducted prior to the installation of cleaning barriers, but may be conducted with or without the decontamination unit in place.

**Decontamination Enclosure System** - (Also known as Decon or Waste Transfer Decon) A series of connected rooms designed for the decontamination of workers and equipment that is separated from the work area and from each other by z-flapped curtained doorways. This unit shall be constructed with at least six-mil poly for the floors, walls, and ceiling. All decontamination enclosure systems used for worker entry and exit shall be equipped with a shower.

**Demolition** - The wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations.

**DOP** - Dispersed Oil Particulate which are normally used as an agent for testing the efficiency of HEPA filters.

**Dust or Debris** - Any visible dust or debris remaining in an abatement area will be considered asbestos-containing residue.

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

**EPA** - U.S. Environmental Protection Agency

**Equipment Room** - A contaminated area or room which is part of the worker decontamination enclosure system with provisions for storage of contaminated clothing and equipment.

**Exterior of Containment HEPA Filtered Pressure Differential Unit** - An air-purifying unit positioned outside, rather than inside the regulated work area. The face, or filter portion of the unit is integrated within the work area, and the remainder of the unit (housing, wheels, rivets, control panel, etc.) is located outside of the work area. This allows filters on the air intake to be changed from within the regulated area but access to the machine itself is available to those outside the area. Pressure differential units which pass DOP testing across the HEPA filter, but fail at rivets, control panels, wheels, etc. may be used in this fashion as long as the failure point of the unit can remain on the exterior of containment while the face of the unit and filters are inside containment.

**Facility** - Any institutional, commercial or industrial structure, installation, or building.

**Facility component** - Any pipe, duct, boiler, tank, reactor, turbine, or furnace at or in a facility or any structural member or a facility.

**Fed OSHA or OSHA** - Federal Occupational Safety and Health Administration.

**Fixed object** - A piece of equipment or furniture in the work area which cannot be removed from the work area.

**Friable asbestos** - Asbestos-containing material which can be crumbled to dust when dry, under hand pressure or by mechanical means.

**Glove Bag Technique** - A method with limited applications for removing small amounts of friable asbestos-containing materials from ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces. The glove bag is constructed of 6 mil transparent polyethylene with two inward projecting long sleeves, an internal tool pouch, and an attached, labeled receptacle for asbestos waste.

**HVAC** - Heating, ventilation and air conditioning system.

**HEPA Filter** - A high efficiency particulate air filter capable of removing particles 0.3 microns in diameter from an air stream with 99.97% efficiency.

**HEPA Vacuum** - A vacuum system equipped with HEPA filtration.

**Lock-down** - To mist the air and to wet surfaces with an agent designed to bind asbestos fibers together.

**Magnehelic gauge** - Instrument for measuring the static air-pressure differential across a barrier.

**Manometer** - See "Magnehelic gauge".



**Mini-Enclosure** - Mini-enclosures shall be constructed of 6 mil polyethylene (attached with tape and/or glue to walls and floors) and shall be small enough for 1-2 workers who can enter the enclosure, complete the abatement exercise, pass out the containerized debris and exit.

**Monitoring** - May include:

- a) Visual inspection for the presence of visible emissions; or
- b) Air monitoring performed in accordance with accepted methods;
- c) Core samples of encapsulated or bridged materials.
- d) Bulk sampling of soil during and following abatement.
- e) Sampling substrata following abatement.

**Movable Object** - An unattached piece of equipment or furniture in the work area which can be removed from the work area.

**NVLAP** - National Voluntary Laboratory Accreditation Program.

**NESHAP** - The National Emissions Standards for Hazardous Air Pollutants (40 CFR Part 61, Nov. 20, 1990)

**NIOSH** - The National Institute for Occupational Safety and Health CDC-NIOSH, Building J N.E. Room 3007, Atlanta, GA 30033

**Outside Air** - The air outside buildings and structures.

**Owner** - The Owner or Owners authorized Representative.

**PCM** - Phase contrast microscopy according to NIOSH Method 7400.

**Plasticize** - See "Poly".

**Poly** - Polyethylene sheeting. Used to cover floors, walls, ceilings, create critical barriers, and seal open vents on mechanical systems, etc. Note: All poly must be flame-retardant.

**Pressure Differential Unit (PDU)** - Also called negative air units. A portable exhaust system equipped with HEPA filtration and capable of exhausting air out the asbestos work area to create a negative pressure work environment..

**Regulated Area** - means an area established by a Contractor to demarcate areas where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit. Additionally "Regulated Area" means any measure used to restrict access to an area where personnel impacting asbestos-containing materials are required to wear respiratory protection and/or protective clothing by the project specifications regardless of airborne asbestos concentration levels.

**Regulations** - shall include but not be limited to:

- a. U.S. Environmental Protection Agency Regulations for Asbestos (Title 40, Code of Federal Regulations, Part 61, Subparts A & B)
- b. U.S. Environmental Protection Agency, Office of Toxic Substances, Asbestos-Containing Materials in School Buildings, A Guidance Document, Parts 1 & 2.
- c. Title 8, Chapter 4, Subchapters 1 through 21, California Administrative Code, General Industry Safety orders, Section 5208 "Asbestos" or the applicable sections of the Federal Asbestos Regulations. Cal/OSHA Construction Safety Orders, Section 1529.

- d. "Asbestos Hazard Emergency Response Act", U. S. Environmental Protection Agency, 40 CFR, Part 763. Final Rule and Notice.
- e. Applicable local county Air Pollution Control Owners and Air Quality Management Districts.

**Removal** - The stripping of any asbestos-containing materials from surface or components of a facility.

**Renovation** - Altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

**Shower Room** - A room between the clean room and the equipment room in the decontamination enclosure with hot and cold or warm running water controllable at the tap and suitably arranged for complete showering during decontamination. The shower room must be equipped with an overflow pan to contain water splashed, leaked or spilled out of the shower unit.

**Staging Area** - Either the holding area or some area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.

**Structural Member** - Any load-supporting member of a facility, such as beams and load-supporting walls or any non-load-supporting member, such as ceilings and non-load supporting walls.

**Submittals** - Pre, interim, and post job documents submitted by the contractor to Owner/Owner's Representative as indicated in General Requirements and Bidding Requirements.

**Surfactant** - A chemical agent added to water to improve wetting and penetration into asbestos materials.

**TEM** - Transmission Electron Microscopy according to AHERA specifications for Level II analysis.

**Visible emissions** - Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

**Waste Load-out/Transfer System** - A decontamination system utilized for transferring containerized waste from inside to outside of the work area. A series of three connected rooms used for the load-out of asbestos-containing materials that have been properly containerized. The waste load out chamber system shall normally consist of three connected chambers adjacent to the work area. Each chamber shall be constructed with six-mil thick poly for the floors, walls, and ceiling

**Wet Cleaning** - The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other utensils which have been dampened with water and afterwards thoroughly decontaminated or disposed of as asbestos contaminated waste.

**Work Area** - Designated rooms, spaces, or areas of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A contained work area is a work area which has been sealed, plasticized, and equipped with a decontamination enclosure system. A non-contained work area is an isolated or controlled-access work area which has not been plasticized nor equipped with a decontamination enclosure system.

**Worker** - Contractor employee who has completed course work and passed the exam for an EPA accredited, AHERA asbestos abatement worker. Certificate must be current.

**SECTION 3. NOTIFICATIONS, SUBMISSIONS, POSTINGS**

**Part 3.1 - Notification**

Prior to commencement of work the Contractor shall send notices of work to be completed to the agencies listed below with a copy of each to be provided to the Owner or its representative at the pre-construction meeting.

For compliance with 40 CFR part 61.146 of Subpart M, send notice at least 10 working days prior to start of work to the following appropriate agencies if trigger quantities of RACM are met or for a demolition:

Sacramento Metropolitan AQMD	Phone: (916) 874-4800
777 12 <sup>th</sup> Street, Third Floor	Fax: (916) 874-4899
Sacramento, CA 95814-1908	

U.S. EPA - Region IX  
Asbestos NESHAP Notification (Air 5)  
75 Hawthorne Street  
San Francisco, California 94105  
Tel (415) 947-4182

For compliance with Title 8, California Administrative Code, Construction Safety Order 1529, Asbestos Regulations send written notice at least one day prior to start of work to:

State of California  
Department of Occupational Safety and Health (Cal/OSHA)

These notices shall include, at a minimum, the name and address of the Contractor, the name and address of the work site, the type of work to be done including the percent asbestos content of the material, the methods used to prevent migration of the fibers, personal protective measures, the number of his workers involved, any union representation of the workers and the methods of disposal including the names and EPA numbers of both the certified hauler and the waste disposal site. The notices shall also include start and finish dates. Changes in start and completion dates shall be reported immediately to the proper agency. Use forms provided by agency whenever possible.

**Part 3.2 - Pre-Construction Submittals**

Submit copies of documents required to be included in the Bidding Requirements. At a minimum these documents will include:

1. Copy of State of California Contractor License Issued by CSLB
2. Copy of State of California CSLB Active License
3. Copy of State of California CSLB Asbestos Certification
4. Copy of Department of Industrial Relations; Division of Occupational Safety and Health; Certificate of Registration for Asbestos-related Work
5. Copy of signed statement from company officer listing citations and pending proceedings against the Contractor, or if there have been no citations, a copy of the statement that no actions by regulatory agencies have occurred in the last three years signed by an officer of the company.

Submit copies of insurance certificates which meet requirements as outlined in Section 1, Part 1.2, of this Specification.

Submit copies of notifications to government agencies.

Submit proof satisfactory to the Owner that required permits have been acquired applicable to the project being performed and specific to the project site and location. If no city, county, or other permits for parking, waste container location, or variances for scheduled work hours are required this should be stated in writing and submitted to the Owner.

Submit Sub-contractors information or statement that Sub-contractors will not be required or used during this project. This statement should also include that if it becomes necessary to use a Sub-contractor during this project that Sub-contractor will not be allowed to perform work until all required documentation has been submitted for review by the Owner or Owner's CAC, and the Contractor receives written approval for use of the Sub-contractor on this project.

Submit a complete list of all rented equipment, or equipment expected to be rented from an outside contractor for use in "Regulated Areas", "Work Areas", or "Containments", where the equipment may be exposed to elevated levels of airborne asbestos. If no equipment is to be rented a statement should be submitted stating no equipment will be used on the project. The statement should also include that if it becomes necessary to use rented equipment that written statements from each rental company will be provided to the Owner prior to its use, indicating the rental companies acknowledgment that the equipment is provided for and may be used in areas where airborne levels of asbestos may be present.

Submit non-emergency telephone numbers, other than 911, for the appropriate Police, Sheriff, and Fire Departments. This list of numbers shall also include the Name, pager or cell phone numbers of the on-site supervisor and his immediate company supervisor.

Submit detailed written directions from the project site to the medical facility to be used in case of an emergency. Also include a map which sufficiently shows the route to be taken from the site to the designated medical facility.

Submit written emergency procedures pertinent to the work to be performed and which can be implemented by site personnel if the need arises.

Submit detailed information on preparation of work area, personal protective equipment, employee experience, training and assigned responsibilities during the project. Also list decontamination procedures for personnel, work area and equipment, abatement methods and procedures, required air monitoring program, procedures for handling and disposing of waste materials and procedures for final decontamination and cleanup.

Submit a detailed work schedule. The schedule shall have, as a minimum, the work area and the day/month for beginning and terminating work in each work area. During progress of work, it shall be the Contractor's responsibility to keep the schedule current and up to date.

Submit documentation satisfactory to the Owner that the Contractor's employees, including foremen, supervisor, and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of abatement activities, have received required US EPA AHERA training.

Submit documentation from physician that all employees or agents who may be exposed to airborne asbestos in excess of background levels have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. In addition, document that personnel have received medical monitoring as required by Cal/OSHA regulations. The Contractor must be aware of and provide information to the examining physician

about unusual conditions in the workplace environment (e.g., high temperatures, humidity, chemical contaminants) that may impact on the employee's ability to perform work activities.

Submit documentation of respirator fit-testing for all Contractor employees and agents who must enter any work area where asbestos-containing materials may or will be impacted. This fit-testing shall be in accordance with qualitative procedures as required by OSHA regulations or be quantitative in nature. Documentation pertaining to NIOSH approvals for all respiratory protective devices utilized on site shall also be included.

Submit copy of waste transporters Department of Toxic Substances Control, Hazardous Waste Transporter Registration if hazardous asbestos-containing waste is to be removed during the project. If hazardous asbestos-containing waste will not be generated submit the name, address, and registration information for the waste hauler to be used for transporting the waste.

Submit documentation listing the name and site address of the waste facility designated to receive asbestos-containing waste generated during this project. This documentation shall also include the EPA Identification number, and a copy of the current permit authorizing the waste facility to accept and dispose of asbestos-containing waste.

Submit Safety data sheets (SDS) for any and all applicable, materials, supplies, etc. These documents must be legible and completely reveal information required to be communicated to the Contractor's employees, visitors, and Owner Representatives.

Submit manufacturers' certifications that high efficiency particulate air (HEPA) vacuums, pressure differential units and other local exhaust ventilation equipment conform to ANSI Z9.2-79.

Submit name of laboratory/person to be used for Phase Contrast Microscopy (PCM) analysis and copy of current NVLAP Certificate of Accreditation (if applicable), and most recent NIOSH Proficiency Analytical Testing Program results.

Submit a written statement that OSHA monitoring will be performed for all asbestos-related activities performed during this project. This statement must be on company letterhead, dated, include name of the site or project being worked on, and signed by an authorized agent of the company performing the asbestos-related work.

Submit manufactures documentation pertaining to the capability of waste water filters to filter particles of 1.0 micron in size.

### **Part 3.3 - Submittals During the Work Process**

Submit weekly - copies of work site entry/exit logs as well as information on worker and visitor access.

Submit weekly - copies of results of air sampling data collected during the course of the abatement including OSHA compliance air monitoring results.

Submit weekly - copies of air-differential manometer graphs and HEPA filter change logs. (see Section 13)

Submit weekly - copies of all transport manifests, trip tickets, weights and disposal receipts as applicable for all asbestos waste materials removed from the site during the abatement process.

Submit as applicable - copies of current insurance certificates, notifications, worker documentation, etc. if these items expire during the course of the project.

During abatement the Owner will upon request submit to the Contractor results of bulk material analyses and air sampling data collected during the course of the abatement. These serve only to monitor Contractor

performance during the project.

Submit upon request during or after completion of the project, documentation deemed by the Owner to be pertinent to the project.

**Part 3.4 - On-Site/Clean-Room Area Postings and Documentation**

The following items shall be posted at the entrance to “Regulated Areas”, “Work Areas”, and “Containments”, or in the possession of the Contractor’s on-site supervisor where respiratory protection or protective clothing is required by this Specification.

A Cal/OSHA Information poster and a Cal/OSHA Construction Site poster.

A copy of the CAL-OSHA and the local AQMD/APCD or EPA NESHAP Notification (if applicable).

Non-emergency telephone numbers, other than 911, for the appropriate Police, Sheriff, and Fire Departments. This list of numbers shall also include the Name, pager or cell phone numbers of the on-site supervisor and his immediate company supervisor. Detailed written directions from the project site to the medical facility to be used in case of an emergency. Also a map which sufficiently shows the route to be taken from the site to the designated medical facility.

Written emergency procedures pertinent to the work to be performed and which can be implemented by site personnel if the need arises.

Written entry/exit procedures shall be posted in the clean room and equipment room. (See Section 12)

List of persons authorized to be in restricted area. The list shall include, among others, the following names with addresses and phone numbers:

Contractor	Air-sampling Professional	Asbestos Project Manager
Testing Laboratory	Owner's representatives	Any other designated by the Owner

Entry/exit log for work performed in all “Regulated Areas”, “Work Areas”, and “Containments” where respiratory protection or protective clothing is required by this Specification. Contractor shall maintain copies of all entry/exit logs on the site during the performance of asbestos-related work.

All of the Contractor’s personnel and area air sampling results shall be posted in the clean room area or in the possession of the Contractor’s site supervisor if no decontamination unit is required for the work being performed within 72 hours of collection, and submitted to Owner’s CAC weekly unless otherwise noted.

Copies of Safety data sheets (SDS) for all materials on-site.

**Part 3.5 - Job Site Documents**

The following shall be in the possession of the Contractor’s supervisor at each job site:

1. All contract specifications to include, change orders, etc. Contractor competent person must sign a document stating he has full knowledge of all Sections included in this specification.
2. Written Injury and Illness Prevention Program.
3. Written Respiratory Protection Program
4. An updated list of all contractor employees who have worked on this job.
5. List of all US EPA AHERA competent employees (supervisors).
6. Training records
7. Medical records

- 8. Respiratory fit test records

**Part 3.6 - Project Close-out Documents**

Contractor shall submit post-construction submittals to Owner/Owner’s Representative within thirty (30) days of the completion of asbestos-related work. This documentation shall include at a minimum any and all applicable documents as outlined in Part 3.2 and Part 3.3 of this Section. In addition the Contractor should consult and submit as applicable documents identified in Section 24, Part 24.3 - Post Construction Submittal List

**SECTION 4. SITE SECURITY**

The work area is to be restricted to authorized, trained and protected personnel. A list of authorized personnel shall be established prior to job start and posted in the clean room of the work decontamination facility, or in the possession of the on-site supervisor for the Contractor.

Contractor shall report to the Owner immediately entry into the work area by unauthorized individuals.

A log book shall be maintained during the project. Anyone who enters the work areas must record name, affiliation, time in, and time out for each entry.

Access to all “Regulated Areas”, “Work Areas”, and “Containments” shall be through a designated entry point. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from these areas. The only exceptions for this rule are the waste pass out air-lock, and emergency exits in case of fire or accident.

Emergency exits shall NOT be locked, however, they shall be sealed with polyethylene sheeting and tape until needed. All emergency exits shall be clearly designated. They shall also have a razor knife permanently in place to facilitate emergency exit.

Contractor should have control of site security during abatement operations whenever possible, in order to protect work efforts and equipment. During off-hours access to the abatement area shall be restricted by a lockable entry.

Contractor will have Owner's assistance in the enforcement of restricted access by Owner's employees.

Storage of debris will be such that access to it is limited to the Contractor. Lockable bins shall be utilized and they shall be locked at all times except when loading occurs. No soft covers will be allowed for any storage containers. When a container with rolling tops is being used all access points to the interior of the container must be secured by the Contractor with locks of sufficient strength to require special effort to gain access to the interior of the waste container.

**SECTION 5. EMERGENCY PLANNING**

Emergency planning and procedures shall be developed by the Contractor and shall include considerations of fire, explosion, toxic atmospheres, electrical hazards, slips, trips and falls, and heat related injury and agreed to by Contractor and Owner prior to abatement initiation. These emergency procedures shall be established and presented to all employees and the Owner prior to the beginning of any work. A written emergency plan shall be posted or in the possession of the on-site supervisor for the Contractor regardless of the work being performed.

A copy of the Contractor’s written Injury and Illness Prevention Program shall be posted or in the possession of the on-site supervisor for the Contractor regardless of the work being performed.

Employees shall be trained in evacuation procedures in the event of workplace emergencies. Telephone numbers of all emergency response personnel shall either be in the possession of the on-site supervisor, or be prominently posted in the clean change area and equipment room, along with the locations of the nearest telephone indicated on a map or diagram.

At least two fire extinguishers shall be present on site and in close proximity to the work being performed regardless of the type of work being conducted. At least one fire extinguisher shall be present outside of any containment. Additional extinguishers shall be distributed according to Cal/OSHA requirements or as identified in this Specification.

When open abatement is being performed, an emergency blast horn (canned air horn) shall be placed inside of containment for emergency evacuation in the event of a fire or other emergency.

If noted in any other section of this Specification, a means of communication shall be established between inside and outside of containment whenever a decontamination setup is required, particularly for all open abatement projects. This requirement may be met through walkie talkies or cell phones.

During hot working conditions, such as in an attic space during summer, or in containments where live steam or hot water lines are exposed, special attention must be given to the possibility of heat stress and burns. The Owner's site representative may make recommendations for work breaks for employees, but the supervisor is ultimately responsible for his workers.

## **SECTION 6. PRE-CONSTRUCTION MEETING**

A pre-construction meeting will be held at a time and location to be determined by the Owner. The successful Bidder, his on-site supervisory personnel, and Air Sampling Professional (if applicable), representatives of the Owner, Owner's Representative, and other individuals as necessary shall be present at this meeting.

At this meeting the Contractor shall provide all required submittals, as indicated above in Section 3, Part 3.2. The Contractor should use the Pre-Construction Submittal List provided in Section 24, Part 24.1 to assure all required submittals are included in his submittal package.

## **SECTION 7. MATERIALS AND EQUIPMENT**

### **Part 7.1 - Contractor Equipment and Supplies**

Deliver all consumable materials in the original packages, containers or bundles bearing the name of the manufacturer and brand name (where applicable). These must be approved by the Owner. Polyethylene (Poly) sheeting, of appropriate thicknesses for walls, floors, and ceilings, (4 mil's thick for walls, 10 mil's thick for lining of waste containers, 6 mil's thick for floors and all other uses), shall be provided in widths selected to minimize the frequency of joints.

All poly shall be flame-retardant (fire-rated) regardless of its designated use inside or outside any building.

Poly sheeting utilized for worker decontamination enclosure shall be opaque white or black in color and each layer shall be a minimum of 6 mil thick. Modesty barriers are to be erected whenever and wherever the Owner's CAC determines one is needed.

Disposal bags shall be constructed of 6 mil poly with labels required by OSHA, CDPH, Toxic Substance Control regulations. Disposal drums shall be metal or fiber board with locking ring tops to be used only if required and/or allowed by selected waste facility.

Stick-on labels as per DTSC, DOT and OSHA requirements for disposal drums shall be provided.



Warning signs as required by OSHA shall be provided and posted per regulations.

Surfactant (wetting agent) shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent, mixed in a proportion of one (1) fluid ounce to five (5) gallons of water or as specified by manufacturer. If amphibole asbestos is present in the materials being removed, the Contractor shall use a surfactant that is designed to wet the materials. This information shall be submitted to the Owner's CAC before the start of the project.

A sufficient quantity of pressure differential units equipped with HEPA filtration and operated in accordance with ANSI Z9.2-79 and EPA guidance document EPA 560/5-83-002 Guidance for Controlling Friable Asbestos-Containing Materials in Buildings, Appendix F: Recommended Specifications and Operating Procedures for the Use of Negative Pressure Systems for Asbestos Abatement, shall be utilized so as to meet the requirements of Section 12.

An adequate number of respirators for the work force shall be on hand. These respirators will include, when specified:

- a. Type "C" air-supplied respirators in positive pressure or pressure demand mode with full face pieces and HEPA-filtered disconnects.
- b. Full-face powered-air respirators with HEPA-filters.
- c. Half-face or full face respirators with HEPA filters.

All respirators shall be NIOSH-approved and be equipped with supplies for immediate replacement of defective parts.

Full body disposable protective clothing, including head, body, and foot coverings consisting of material impenetrable by asbestos fibers shall be provided to all workers and authorized visitors in sizes adequate to accommodate movement without tearing.

Additional safety equipment such as hard hats, eye protection, safety shoes, disposable PVC gloves, etc., as necessary shall be provided to all workers and authorized visitors.

Non-skid footwear shall be provided to all abatement workers.

If launderable clothing is to be worn underneath disposable protective clothing, it shall be provided by the Contractor to all abatement workers. Laundering must occur in accordance with applicable OSHA requirements.

A sufficient supply of scaffolds, ladders, lifts and hand tools (e.g., scrapers, wire cutters, brushes, utility knives, wire saws, etc.) shall be provided as needed.

Rubber dustpans and rubber squeegees shall be provided for cleanup.

A sufficient supply of HEPA-filtered vacuums and HEPA filtered negative air units shall be provided to meet the specifications.

All HEPA equipment to be used on the project must be delivered to the site empty of all debris, clean, free of dust, and in full operating condition. All HEPA equipment to be used shall be DOP tested onsite by a third party at the start of the project before being used on the project. This DOP certification must be verified by Owner's CAC prior to its use.

DOP certification testing shall be observed and witnessed by an Owner's CAC. Copies of DOP test results and certification must be submitted to Owner's CAC within 24 hours of the testing being performed.

No product or material will be used on the project unless the product data sheets and all SDS's have been submitted, reviewed, and approved by the Owner for use. Any product or material found on the project which has a product data sheet and/or SDS available and has not been approved will be removed from the site by the Contractor until review and approval has been completed by the Owner.

**Part 7.2 - Rental Equipment and Supplies**

Any equipment rented and delivered to the site for the purpose of conducts asbestos abatement work must be accompanied with documentation verifying that the rental agency has been notified, and acknowledges receipt of notification that the equipment being rented will be used for asbestos abatement work. This documentation must be submitted to the Owner's CAC prior to the equipment being delivered to the job site. Rental equipment, including scaffolding, will be held to the same standard of cleanliness as all other equipment on this project.

All rented equipment must be inspected and accepted by Owner's CAC as it arrives onsite. Any equipment covered with dust (no matter the source of dust), plaster debris, multiple layers of encapsulant and/or spray glue, or any other debris will not be accepted. Delays caused by a lack of clean equipment will not extend Contractor's schedule. Equipment rejected due to a lack of cleanliness must be removed from Owner's grounds in order to be cleaned. Dirty equipment wrapped in plastic will not be acceptable.

The Owners' agent/site representative must be informed 24 hours prior to the delivery of any rental equipment.

The decision of the Owner or its representative on all rental equipment and supplies shall be final.

**SECTION 8. WORK SITE FACILITIES**

The Owner shall provide sanitary facilities for abatement personnel outside of the enclosed work area. To use these facilities all workers shall wear street clothes, not bathing suits or disposable coverall while using the facilities.

The Owner shall provide water for construction purposes. Contractor shall connect to existing Owner system.

The Owner shall provide the electrical source.

The Owner or its representative shall specify the waste water discharge location and location of waste containers.

The Owner shall specify on-site parking areas, if available, and access to the site.

**SECTION 9. RESPIRATORY PROTECTION**

All respiratory protection shall be provided to workers in accordance with the submitted written respiratory protection program, which includes all items as required by OSHA. This program shall be posted in the clean room of the worker decontamination enclosure system or adjacent to the clean room.

The Contractor shall ensure that all workers entering the regulated area wear appropriate respiratory protection. Respiratory protection provided workers shall be in accordance with 8 CCR 1529, and 8 CCR 5144 and the respiratory protection program submitted by the Contractor. This program shall be available at the project site.

The Owner or their representative may deny access to a regulated area to anyone who, in the final judgement of the Owner or their representative, is not properly wearing adequate respiratory protection for the project conditions. This includes but is not limited to those wearing unidentified respirators, those with improperly

sealed respirators, those wearing respirators in an improper manner such as over their protective suit hood, or in any other fashion judged by the Owner or their representative to be improper or inadequate to protect the individual from the airborne asbestos at the project site.

The Contractor shall provide each worker needing respiratory protection with his or her own, individually identified, NIOSH-approved respirator. At a minimum, these respirators will be equipped with a P-100 series HEPA filter. The Contractor shall provide additional filter types if that becomes necessary for specific hazards discovered on the job site or if required in the contract documents.

The Contractor shall ensure that all workers use the respirator in compliance with the manufacturer's instructions for proper use and care of that product.

Workers must perform positive and negative respirator seal checks each time a respirator is put on, provided the respirator design so permits.

The Contractor shall ensure that those workers wearing powered air purifying respirators test the air flow rate according to the frequency and methods specified by the manufacturer.

Workers shall be given, at least, a qualitative fit test in accordance with procedures detailed in the Cal/OSHA requirements for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test.

The Contractor shall ensure and provide written records to the Owner's CAC that all workers wearing tight-fitting respirators have been appropriately fit tested in accordance with the requirements of 8 CCR 5144.

The Contractor shall ensure that nothing interferes with the seal of the respirator to the face of the worker. This includes but is not limited to facial hair, clothing, protective clothing, equipment or anything else that comes between the respirator and the face of the worker.

Use of any respirator must be in compliance with the manufacturer's instructions for proper use and care of that product.

The Contractor shall ensure that workers wear respirators underneath protective clothing.

Workers conducts any work that may create an airborne release of asbestos must wear appropriate respiratory protection. This includes, but is not limited to the pre-cleaning of asbestos contamination off of furniture, equipment and floors, and the set-up of contaminated work areas.

The judgement of the Owner's CAC shall be final if there is a disagreement between the Owner and the Contractor regarding the need for wearing or the type of personal protection required..

In no event will a negative exposure assessment be allowed to lower respiratory protection, from that listed in the Scope of Work or required by regulation in the absence of an NEA, prior to the start of a project. Air samples used for negative exposure assessments created after the project has started must be from work conducted under this contract.

Minimum Respiratory Protection for OSHA Class I Work

All Class I asbestos work will require tight-fitting, full-face powered-air purifying respirators pursuant to Title 8 1529.

Unless stated otherwise in the contract documents, for the purposes of respiratory protection, Class I work will include the removal of materials such as gypsum board surfaces that are covered with a texturing or skim coat material that contains >1% asbestos.

Minimum Respiratory Protection for Class II and III Work Practices

Unless specified differently in the contract documents, the Contractor’s employees conducts Class II or III work will wear a minimum of half-face air-purifying respirators. Contract documents may require additional respiratory protection, such as the use of full face air-purifying respirators or powered air purifying respirators.

After work has begun, if a Contractor wishes to lower respiratory protection requirements, he or she must demonstrate to the Owner’s CAC that personal air sampling results from that project prove that airborne fibers levels are below the limit of quantification for the phase contrast microscopy method. The Owner’s CAC will normally require sampling results used for this purpose to include several days of sampling taken during the work expected to generate the highest expected airborne levels. The Owner’s CAC will have final authority regarding whether or not the respiratory protection may be reduced or eliminated. For example, the Owner’s CAC may require personal samples be analyzed by TEM before determining that asbestos does not pose an airborne health risk.

All Class I work shall require full-face powered air purifying respirators and are not subject to a reduced level of respiratory protection regardless of the air sample results.

The Owner’s CAC has full authority to raise the level of respiratory protection required for access to the regulated area if in his or her judgement additional respiratory protection is required. For example, if personal air sample results collected by either the Contractor or Owner’s CAC indicate higher than expected levels, the Owner’s CAC is authorized to increase the level of required respiratory protection. The Owner’s CAC will determine if the increased respiratory protection is due to new, unexpected developments such as the discovery of new materials, or if the increase is due to the Contractor failing to follow good work practices. The judgement on this matter by the Owner’s CAC will be final.

The Owner is not responsible for increased costs or delays resulting from the need to increase respiratory protection should the reason for the increased respiratory protection be due to the Contractor’s failure to adequately utilize good engineering controls and work practices and/or the prompt cleanup of debris.

The Contractor may only implement respiratory protection changes after receiving written approval for the change from the Owner’s CAC.

Powered-air purifying respirators must be worn if waste containers spill, break, or in any other fashion require a Class I work cleanup be performed.

The Contractor shall comply with the respiratory protection requirements in 8 CCR 5144 includes assigned protection factors for all respirators. The following list of respirators and their assigned "protection factors" shall be the criteria for the selection of respiratory protection.

<u>Respirator Selection</u>	<u>Protection Factor</u>
Half-face or full-face air purifying respirator equipped with HEPA filter.	10
Full-face air purifying respirator equipped with HEPA filter with quantitative fit test.	50
Full-face Type C continuous flow supplied air.	1000
Full-face, powered air purifying respirator equipped with HEPA filter.	1000
Full-face supplied air respirator operated in pressure demand mode.	1000

**Respirator Selection**

**Protection Factor**

Full-face supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

1000

Workers shall be provided respirators equipped with HEPA filters approved by NIOSH to be worn in the designated work area and/or whenever a potential exposure to asbestos exists. Owner or its representative may refuse entry to the work area to a worker with inappropriate respiratory protection.

Sufficient filters shall be provided for replacement as required by the workers or applicable regulations. Disposable respirators shall not be used.

Whenever type C respirator protection is used, compressed air systems shall be designed to provide air volumes and pressures to accommodate respirator manufacturer specifications. The compressed air system shall have a reservoir of adequate capacity to allow the escape of all respirator wearers from contaminated areas in the event of compressor failure.

Compressors must meet the requirements of 29 CFR 1910.134(d). Location of compressors must be approved by Owner for exhaust and noise considerations. Location of compressors must be approved by Owner for exhaust and noise considerations.

Compressors must have an in-line carbon monoxide monitor and periodic inspection of carbon monoxide monitors must be documented. Documentation of adequacy of compressed air systems/respiratory protection systems must be retained on site. This documentation will include a list of compatible components with the maximum number and type of respirators that may be used with the system. Periodic testing of compressed air shall insure that systems provide air of sufficient quality (Grade D breathing air). Documentation of this testing, including a description of the process used to perform the test and results of each test must be submitted to the Owner's CAC weekly.

Whenever powered air-purifying respirators are required, a sufficient supply of replacement batteries and HEPA filter cartridges shall be provided to the workers. Spare fully charged batteries must be available on-site for replacement. The flow rate delivered to the face piece shall be checked and recorded by the Contractor on the sheet provided by the Owner's CAC each time a worker dons the respirator. Written respiratory protection program must detail how this testing is to be performed by each employee or the onsite supervisor. The Contractor shall ensure that the flow rate for PAPRs meets the requirements listed in 8 CCR 1544 regarding tight and loose fitting respirators as appropriate. The Contractors shall also ensure that PAPRs are worn, checked and maintained according to the directions of the manufacturer.

During encapsulation operations or usage of other organic base aerosols (e.g. spray glue, expanding foam, etc.) workers shall be provided with combination organic vapor/HEPA filter respirator cartridges.

**SECTION 10. PERSONNEL PROTECTION REQUIREMENT AND TRAINING**

Prior to commencement of abatement activities all personnel who will be required to enter the work area or handle containerized asbestos containing materials must have received adequate training in accordance with the OSHA, EPA AHERA, EPA NESHAP and DTSC regulations.

All personnel performing asbestos related work shall possess a current accreditation certificate as an asbestos worker or contractor/supervisor as described in 40 CFR Part 763, Appendix C to subpart E, Asbestos Model Accreditation Plan.

Special on-site training on equipment and procedures unique to this job site shall be performed by the Contractor as required or recommended by the equipment manufacturer.

The Contractor shall provide training in emergency response and evacuation procedures.

Disposable clothing, including head, foot and full body protection, shall be provided in sufficient quantities and adequate sizes for all workers and authorized visitors. Damaged coveralls shall be immediately repaired or replaced.

Hard hats, protective eye-wear, safety shoes, proper protective gloves, rubber boots and/or other footwear shall be provided by the Contractor as required for workers and authorized visitors.

Contractor personnel shall not wear street clothes or clothes of any type underneath the protective disposable clothing during any Class I work where showering is required. Upon exiting the work area, no items worn in the work area, such as clothing, personal protective gear, footwear, or hair coverings will be allowed to be worn past the shower of the decontamination unit. Contractor workers have the option of wearing disposable undergarments or a bathing suit underneath protective disposable clothing.

Each time the worker(s) enter the work area they will don new disposable clothing. Street clothes, including but not limited to, underwear and street shoes shall not be allowed inside the work area, except during visual clearance activities.

The Owner's CAC may use personal judgement to allow authorized personal to wear street clothes under protective clothing during the construction of final visual or other short-duration visits into the regulated area during times which asbestos is not being disturbed and gross debris is not present.

## **SECTION 11. WORKER DECONTAMINATION ENCLOSURE SYSTEMS**

Worker decontamination enclosure systems shall be provided at all locations where workers will enter or exit the work area. Enclosure systems may be constructed out of metal, wood or plastic support as appropriate. Plans for construction, including materials and layout, shall be submitted as shop drawings and approved, in writing, by the Owner or its representative prior to work initiation. Detailed descriptions of portable, prefabricated units, if used, must be submitted for the Owner's approval. The worker decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room and shall be constructed with at least 6 mil fire rated plastic sheeting.

All decontamination units and pressure differential units located outside the building shall be enclosed with a 2"x 4" wood studs and ½" plywood enclosure for security. Pressure differential units shall be secured as necessary to the building or ground. Exhaust openings shall have metal grates to prevent objects from being put into the exhaust openings. Pressure differential exhaust shall be exhausted to an area acceptable to the Owner or Owner's CAC.

Entry and exit from the worker decontamination enclosure system shall be through doorways designed to restrict air movement between chambers when not in use by either means of overlapping plastic or by means of zippers. In all hospital settings, only zippered doors are acceptable between all decontamination chambers or anterooms. The dirty side shall have an extra layer of 6 mil poly sheeting on the floor as a "boat layer" and it shall be replaced at least daily.

The clean room shall be designed and sized and equipped to adequately accommodate the size of the work crew for their change of clothes, cleaning supplies and respiratory protection equipment. Lighting, heat and electricity shall be provided as necessary for comfort. The clean room space shall not be used for storage of tools, equipment or materials or as office space.

A shower is required on any project that involves removal of greater than 25 linear feet of asbestos containing TSI or greater than 10 square feet of asbestos containing surfacing material. In addition, if the scope of works dictates a shower these provisions shall also apply. The shower room shall contain one or more showers as necessary to adequately accommodate workers. The shower enclosure shall be constructed to ensure against leakage of any kind. In addition, the shower shall be a separate unit from the decontamination unit walls. The shower unit cannot be made from poly. Metal or hard plastic is acceptable. An adequate supply of soap, shampoo and towels shall be supplied by the Contractor and available at all times for use by employees. Shower water shall be drained, collected and filtered through a system with at least 5.0 micron particle size collection capability.

The shower pan in the shower chamber shall be, at least, 3' x 3' in size. The shower chamber shall be constructed so that no water from the shower can spray out of the chamber, nor any water run down the sides of the poly and miss the pan. The shower chamber dimensions shall be determined by the size of the shower pan but are not to be smaller than 3' wide by 3' long by 6' tall.

Multiple showers are required if the number of asbestos workers exceeds ten per Title 8 3366 Washing Facilities. When there are less than five employees, the same shower may be used by both sexes if the shower room can be locked from the inside. A minimum of two showers will be required for more than 10 workers.

Each decontamination chamber shall have, at least, a 4" lip of poly from the floor up the wall to prevent possible transfer of water and debris between chambers. Excess poly at the corners of this floor is to be fitted to the sides of the chamber by folding poly and taping, as opposed to cutting away excess poly and taping seams. In addition to this 4" lip of poly, the shower chamber shall have an overflow pan, in which the shower unit sits inside, that is capable of holding sufficient water in the event of an overflow. The filter system and any hose connections transferring contaminated water shall be located in a secondary containment, such as a metal pan. Any water leakage shall be collected and either filtered or placed into waste bags with other asbestos waste debris.

Unless otherwise specified in the scope of work, the minimum size of the decontamination chambers shall be the following:

Clean Room	3' x 3'
Shower	3' x 3'
Dirty Room	3' x 3'

Abatement work will be stopped if decontamination unit is not kept in acceptable condition.

Storage or consumption of food and/or beverages shall not be permitted inside the containment or within any of the decontamination chambers. Food or drink consumption within containment will result in the dismissal of the worker from the site.

Whenever and wherever possible, the Contractor shall enclose multiple rooms within a building or wing into a single containment. Where rooms are joined by a common interior hallway or have a common exterior walkway, multiple spaces shall be joined together creating one containment using poly enclosures. When multiple rooms in a building do not have a common interior hallway, multiple rooms shall be joined using a common work chamber built by the Contractor. The common work chamber shall be constructed of wood studs and plywood sheeting for security purposes, and shall be part of the decontamination chamber. Decontamination units and joined "common areas" outside of a building shall have lockable doors or gates created with temporary fencing for security during off-hours.

**SECTION 12. WORKPLACE ENTRY AND EXIT PROCEDURES**

All workers and authorized personnel shall enter the work area through the worker decontamination enclosure system.

All personnel who enter the work area must sign the entry log, located in the clean room. This log shall have space for the workers name, time in, time out, and be identified with the project name, date, and containment location.

All personnel, before entering the work area, shall read and be familiar with all posted regulations, personal protection requirements, workplace entry and exit procedures, and emergency procedures.

For Class I work, the worker shall proceed first to the clean room and remove all street clothes and don appropriate respiratory protection and disposable coveralls, head covering and foot covering. Hard hats, eye protection and gloves shall also be worn, as appropriate. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the work area. There shall be a location for storage of the street clothes in the clean room.

Personnel wearing designated personal protective equipment shall proceed from the clean room through the shower room and equipment room to the main work area.

Before leaving the work area all personnel shall remove gross contamination from the outside of respirators and protective clothing by brushing and/or wet-wiping procedures. HEPA vacuums with brush attachments may be utilized for this purpose.

The worker shall proceed into equipment room where they remove all protective equipment except respirators. Deposit disposable clothing into an appropriately labeled container for disposal.

Reusable, contaminated footwear such as rubber boots shall be stored in the equipment room when not in use in the work area. This footwear shall be cleaned prior to being removed from the work area. Placing footwear in two sealed 6 mil poly bags is sufficient for moving from one containment to another, but not for moving from one site to another.

Still wearing respirators, personnel shall proceed into the shower area, clean the outside of the respirators and the exposed face area under running water prior to removal of respirator, then shower and shampoo to remove residual asbestos contamination. Various types of respirators will require slight modification of these procedures.

After showering, proceed to the clean room to dry and put on the street clothes.

**SECTION 13. DIFFERENTIAL AIR PRESSURE SYSTEMS**

**Part 13.1 - Negative Pressure Requirements**

Negative pressure shall be maintained at 0.030" water differential at all times during abatement activities, including entry/exit and bag out procedures. Contractor shall assign crew members to determine cause of loss of pressure any time containment's negative pressure drops below 0.030" water differential. All work will be stopped in any containment for which the negative pressure drops below 0.025" water differential, until problem is resolved and pressure returns to 0.030" water differential or better.

In the event that containment cannot be brought up to 0.030" water differential, abatement contractor must increase number of negative pressure differential units until a calculated 10 air changes per hour is taking place. The Owner's CAC will assist and review possible remedies to the negative pressure requirement.



All negative pressure units that are installed to the containment system but are shut off or not working, shall be sealed at both the exhaust location and the intake of the machine to prevent back draft which could allow asbestos fiber contamination from the HEPA filter back into the work area.

**Part 13.2 - DOP Testing**

Contractor shall provide differential air pressure systems for each work area in accordance with Appendix J of EPA "Guidance for Controlling Asbestos-Containing Materials in Buildings," EPA 560/5-85-024.

All HEPA filtered systems used on this project shall be tested and certified by an independent third party company on-site prior to use. Contractors may not test their own equipment. All vacuums and pressure differential units shall meet ANSI Z9.2, using an appropriate testing agent. Written copies or electronic copies of documentation of these tests shall be provided to the Owner's CAC prior to the use of any HEPA system.

DOP, or equivalent, testing shall be conducted on-site, unless stated otherwise in the Scope of Work. All HEPA filtered units, including but not limited to, vacuums and air pressure differential units (negative air units) shall be tested onsite. Testing of air pressure differential units must include testing of the wheel attachments, control panel, seam, rivets of the housing, as well as, the HEPA filter itself.

All HEPA equipped equipment to be used on the project must be delivered to the site empty of all debris, clean and free of dust, and in full operating condition. Covering dirty units with poly, other than the HEPA filter surface, will not be acceptable.

DOP or equivalent testing is required when any HEPA filters are changed during the project

Any negative pressure unit turned upside down, or on its side, must be returned to an upright position and re-DOP tested. Negative pressure units shall not be used on this project while laid on their side or upside down.

In case of a power outage, Contractor must seal exhaust ducts against back draft into containment.

All negative air units shall will have the filter sealed with poly and tape before being shutdown to prevent back drafting before it is moved from the work area.

**Part 13.3 - Differential Pressure Recording Requirements**

Differential air pressure shall be continuously monitored by using a manometer that measures down to at least three digits to the right of the decimal point. For example, the manometer shall be able to read and display -0.035" wp, which shows three digits to the right of the decimal point. Other manometers not meeting this minimum criteria are not acceptable. The location of the pressure measurement shall be approved in advance by the Owner's CAC. The location where the air tubing of the manometer is inserted into the work area will be determined by both the contractor competent person and the Owner's CAC.

The pressure differential shall be checked a minimum of every hour during the work shift by the contractor's competent person.

On some projects, it may be specified for the manometer to maintain a printed copy of the negative pressure readings. The manometer readings will require the correct date and time. It will be the contractors responsibility to write on the recording information the location of the reading, including project name and containment location.

Defective or non-operating manometers may require temporary stoppage of work until instrumentation is replaced.

For larger projects at least one manometer station shall be in place for each 25,000 square feet of containment space. Additional manometers may be required on large projects, where a second location is

needed for the Owner and representatives.

**Part 13.4 - Differential Pressure System**

The location of the air filtration units (negative air units) exhaust out of the work area shall require careful consideration with regard to the work being performed and needs of the owner. All air exhaust from negative air units shall be directed out of the building when possible. This can be accomplished through use of flexible and semi-rigid exhaust ducts from the negative air units extending to windows, doors or other openings in the building. The first choice should always be to direct PDU air exhaust out of the building through the Contractor supplied ducts. Any alternative exhaust location of negative air that cannot exhaust out the building shall be determined by the Owner's CAC.

When directing exhaust to a buildings exterior through the use of temporary supplied duct, the Contractor shall select a path of travel for these ducts which does not impede building occupants or other trades, result in creation of a hazard to building occupants, or restrict the closing of entry and exit doors to the building. The exhaust opening must not be within 10' of any air intake vents, open windows or open doors, and must not be directed at paths of travel into or out of the building.

In some very limited cases, it might be possible to exhaust air from a negative air unit into an existing building's exhaust system. When utilizing a dedicated exhaust duct system present within the building the system must be investigated to determine its capability of handling the volume of exhaust air expected to be produced by the pressure differential system. Sufficient air volume of the existing dedicated exhaust duct system should have a minimum of 5X but preferably up to about 10X the total volume capacity of the exhaust of the pressure differential air system. For example, if a single 2,000 cfm negative air unit is to be used, the dedicated exhaust fan system which will exhaust the air produced by the negative air unit should be capable of handling about 10,000 cfm of total exhaust air capacity. Use of permanent dedicated exhaust duct systems may also require temporarily sealing of adjacent registers in the same exhaust system to make up the difference in exhaust volume.

The owner shall provide approval prior to the contractor utilizing any existing dedicated exhaust systems which might be considered, since the dedicated exhaust systems will be required to operate at all times the pressure differential air system is operable, and sealing any adjacent registers may not be acceptable. It is critical to note that a dedicated exhaust system is not the same as a return air duct system which re-circulates air from a given building space back to the HVAC fan unit and ultimately is supplied back to the work space. Return air duct systems will not be allowed for exhaust from negative air units.

Directing exhaust air into an attic or above ceiling space may only be utilized in specific conditions and is limited to attic spaces with only exposed wood, metal or concrete undersides of roof or flooring systems. The space may not under any circumstances have any existing known or assumed asbestos containing materials present regardless of their condition.

Regardless of the exhaust system utilized, the system and its components shall be inspected daily by the Contractor to ensure compliance with the requirements of this specification, remains in good repair and is otherwise not compromised in any way which could negate its designed purpose. Any deficiencies found in the system being used shall be repaired immediately and if necessary all work will cease until those repairs can be accomplished.

The work area shall have a differential air pressure of at least -0.030 inches water whenever the work is being performed including removal, gross clean-up, encapsulation of surfaces, bag-out operations and worker entry and exit procedures. If pressure differential ever drops below -0.025 inches water differential, all work, other than cleanup of waste on the floor of containment, must be halted until reason for pressure differential drop has been determined and corrected.

Only unused pre-manufactured, reinforced flexible ducts shall be used within the containment area for exhausting of filtered air. Contractor may not construct ducts using poly or other materials that do not maintain

the rigidity in the exhaust duct.

All interior of containment PDU's and flexible ducts must be wrapped in poly during all abatement activities. This poly wrap is to be removed after "finish detail" work has been completed, but prior to clearance visual.

Flexible ducts must be supported by solid surface at the point of exit from containment. This may require the Contractor to install plywood, or similar, structure at the exhaust point.

## **SECTION 14. EXECUTION, WORK SCHEDULE**

### **Part 14.1 - Execution**

#### **Owner Responsibilities**

The Owner shall provide the Contractor with access to the building during scheduled work hours through their representative. This representative is expected to be the General Contractor in charge of the site. The Owner shall also be responsible for arming and disarming alarm systems on buildings where work will be performed.

The Owner shall also provide the Contractor access to water and electrical hook-ups.

#### **Contractor Responsibilities**

The Contractor is responsible for all connections, electrical cords, GFCI's, water hoses, and hose bibs necessary for attachment. GFCI's are required to be used by the Contractor on all electrical circuits in use.

The Contractor and Owner's CAC shall investigate the work area and agree (in writing if necessary) on the pre-abatement condition of the work area.

The Contractor shall post danger signs meeting the OSHA specifications at locations and approaches to locations where airborne concentrations of asbestos may exceed ambient background levels including all doors sealed as a critical barrier and at all entries to asbestos work containments.

When electrical supply within area of abatement poses a hazard, the Contractor, in conjunction with the Owner, shall shut down and lock out electric power to all work areas. The Contractor shall provide temporary power and lighting sources, ensure safe installation, including ground fault circuit interrupters of temporary power sources and equipment by complying with all applicable electrical code requirements and OSHA requirements for temporary electrical systems. The Contractor shall have a licensed electrician shut down and lock out electric power, and setup temporary power and lighting sources. All cost of electricity shall be paid for by the Owner unless specified differently in the Scope of Work. The cost for set-up of temporary power is the responsibility of the abatement contractor unless specified differently in the scope of work.

When plumbing is required to be altered or becomes damaged, the Contractor shall have a licensed plumber disconnect and cap all water as necessary within the work area. Water shall be provided by the Owner from a location near the work area, but not necessarily within the work area.

Shut down and lock out all heating, ventilating and air-conditioning-system (HVAC) components that are in, supply, or pass through the work area. Seal all intake and exhaust vents in the work area with tape and 6-mil polyethylene within the work area at both the interior and on the exterior of the building. Seal any seams in system components that pass through the work area.

Pre-clean all fixed objects in all work areas using HEPA-filtered vacuums and/or wet-cleaning techniques as appropriate and deemed necessary by the Owner's CAC. Careful attention must be paid to machinery behind grills or gratings where access may be difficult but contamination significant. After pre-cleaning, enclose fixed objects in 6-mil polyethylene sheeting and seal securely in place with tape.

Pre-clean all surfaces in all work areas using HEPA filtered vacuums and/or wet cleaning methods as appropriate. Do not disturb asbestos-containing materials during the pre-cleaning phase.

Unless otherwise stated in the scope of work or by agreement with the Owner's CAC all non-asbestos-containing materials left in the work area shall be covered by with 6-mil polyethylene sheeting. If any non-asbestos containing materials become contaminated with asbestos during removal activities these materials shall be disposed of as asbestos-containing materials by the Contractor. The Owner's CAC shall determine the friability of these materials prior to disposal.

Contractor shall seal all windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and other openings between the work area and uncontaminated areas outside of the work area. These openings must be sealed with 6-mil polyethylene sheeting and tape. These protective layers shall be in addition to the two polyethylene layers on floors, ceilings and walls. These openings are referred to as critical barriers. Seal all cracks in critical barrier areas with tape, caulk, or foam prior to sealing critical barriers.

Prior to the Contractor covering critical barriers with additional layers of wall, floor, or ceiling poly, the installation and integrity of critical barrier seals must be approved by the Owner's CAC.

All items attached to asbestos-containing materials and items which cannot be removed without disturbing asbestos-containing materials shall be removed by the Contractor after establishment of containment and negative pressure. If these items are to be "saved and returned" or "reused" by the Owner, the Contractor must remove and clean them without damage. These items must be cataloged using the attached "Return Item Inventory Sheet" provided by the Owner.

Contractor shall cover floors in the work area with polyethylene sheeting. Floors shall be covered with a minimum of two layers of 6-mil polyethylene sheeting. Plastic shall be sized to minimize seams. A distance of at least six (6) feet between seams is sufficient. DO NOT locate any seams at wall/floor joints. Floor sheeting shall extend at least twelve inches (12") up the sidewalls of the work area. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material. A layer of 10-mil polyethylene sheeting and/or plywood may be required by the Owner's CAC to protect certain flooring materials -- carpets, hardwood floors, tiles, etc. and will be specified in the scope of work if required. At no time will wall or ceiling materials be permitted to be dropped onto unprotected floors. This includes areas where the floor surfaces contain asbestos.

Contractor shall cover walls in the work area with polyethylene sheeting. Walls shall be covered with a minimum of two layers of 4-mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate any seams at wall/floor joints. Wall sheeting shall overlap floor sheeting by at least twelve inches (12") beyond the wall/floor joint to provide a better seal against water damage and for pressure differential maintenance. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when pressure differential systems are utilized.

In some projects when specified in the scope of work, the Contractor shall cover ceilings in the work area with polyethylene sheeting. Ceilings shall be covered with a minimum of one layer of 4 mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate seams at wall/ceiling joints. Ceiling sheeting shall overlap wall sheeting by at least twelve inches (12") beyond the ceiling/wall joint to provide a better seal against water damage and for pressure differential maintenance. Ceiling sheeting shall be secured adequately to prevent it from falling away from the walls such as wires attached between walls to provide additional support. Additional support/attachment might be required when pressure differential systems are utilized.

The Contractor shall add clear viewing windows in the containment walls at least 1' x 2' in size. The Owner's CAC will approve quantity and placement of these inspection windows. The Owner's CAC has the right to require more clear viewing windows or require placement of windows to be altered.

The equipment room shall be used for storage of equipment and tools at the end of a shift after they have been decontaminated using a HEPA-filtered vacuum and/or wet-cleaning techniques as appropriate. A six-mil. disposal bag or a drum lined with a labeled 6-mil polyethylene bag for collection of disposable clothing and contaminated supplies shall be located in this room.

The Contractor shall be responsible for all clean-up and costs associated with the decontamination of occupied spaces adjacent to any containment where removal of asbestos-containing material is conducted.

The Contractor shall also be responsible for damage to building finishes and costs associated with removal of tape glue, staining of wall finishes, or destruction of wall surface integrity from spray glue application, staples, nails, hooks, etc. installed to support containment. It is the responsibility of the Contractor to identify with the General Contractor all aspects of the project requirements pertaining to these types of damages.

There shall be a sufficient number of negative air units in the work area to maintain a minimum -0.030 " water pressure in the regulated area. A sufficient number of negative air units shall be installed to maintain a minimum of four air changes per hour. All negative air units shall have pre-filters at the intake of the system which must be changeable from inside the containment area. Openings made in the enclosure system to accommodate these units shall be made airtight with tape and/or caulking as needed. They shall NOT be exhausted into occupied areas of the building. Twelve inch (12") extension ducts shall be used to reach from the work area to the outside when required. Careful installation, air monitoring and daily inspections shall be done to ensure that the ducts does not release fibers into uncontaminated building areas.

Once the containment has been constructed and reinforced as necessary with pressure differential units in operation as required, the Contractor shall test the enclosure for leakage utilizing smoke tubes. The containment shall be repaired or reconstructed as needed.

Contractor shall clearly identify and maintain emergency and fire exits from the work area.

Work shall not begin each day until:

- a. Enclosure systems, or modifications thereof, have been designed and built by the Contractor and each step approved by the CAC. If design of containment is to be altered in any way, after it is approved by the CAC, a written explanation of how and why the containment is to be altered must be submitted to the Owner's CAC for approval.
- b. Pressure-differential systems are functioning according to an acceptable design.
- c. All pre-abatement submissions, notifications, postings and permits have been provided and are satisfactory to the Owner or its representative.
- d. All equipment for abatement, clean-up and disposal is on hand.
- e. All current worker training documents are present.
- f. The Contractor has installed all required clear transparent viewing windows made of plastic or equivalent, in the containment so that activities can be visually monitored by the Owner's CAC from outside the containment. This window shall measure approximately 1' wide by 2' high. It shall be installed at a location approved by the Owner's CAC.
- g. All negative air units and vacuums have received and passed onsite DOP testing.
- h. Contractor has at least one competent person at each site in which work is taking place.
- i. All necessary documents and information have been posted or are on the work site.  
See Section 2.

#### **Part 14.2 - Power Outage Procedures**

The following procedures shall be followed in the event of a power outage (no matter the source of the outage):

1. Immediately stop abatement activities.
2. Wet all debris and/or friable materials within the containment.

- 3. Depart containment area as soon as reasonable. Shower out or use Hudson type water sprayers to decontaminate worker if shower is inoperable due to power outage.
- 4. Seal containment area including:
  - A. Decontamination units
  - B. Makeup air ports
  - C. Bag out chambers

If a generator is required by the project conditions, made necessary due to extended power outages, or chosen to be used by the abatement contractor the following issues must be addressed:

- 1. Generator must not violate any local noise ordinances nor disturb adjacent building occupants.
- 2. Generator exhaust must not be allowed to contaminate the makeup air being pulled into the containment. It must, also, not be allowed to mix with HVAC air supplied to adjacent occupied buildings.

**Part 14.3 - Work Schedule**

Contractor shall schedule work as required to meet the needs of the project. During progress of work, it shall be the Contractor's responsibility to inform the Owner's CAC 48 hours or earlier of any and all work shifts to be performed. If at least 48 hours notice is not given, the proposed work shift may be canceled by the Owner's CAC.

Contractor shall be responsible for informing the Owner's CAC in writing at least 48 hours or earlier prior to the proposed addition of any off hours work, work expected to include more than one shift per day, or extend beyond 10 hours in a shift. If 48 hours notice is not given, work shift may be canceled by the Owner's CAC. The Owner's CAC reserves the right to deny any changes in the work schedule.

If the Contractor wishes to work on a Federal or State holiday, more than five days a week, or more than 9 hours a day, Contractor becomes responsible for cost of project management fees to cover extended hours. If the Contractor fails to appear on-site without notifying Owner's CAC at least 24 hours in advance of a scheduled work shift, the Contractor becomes responsible for all Owner's CAC travel fees, on-site time fees, and other associated project management fees for that day.

At no time shall a work shift extend beyond 12 hours in a day.

**SECTION 15. REMOVAL PROCEDURES**

Wet all asbestos-containing material with an amended water solution using equipment capable of providing a fine spray mist, in order to reduce airborne-fiber concentrations when the material is disturbed. Saturate the material to the substrate; however, do not allow excessive water to accumulate in the work area. Keep all removed material wet enough to prevent fiber release until it can be containerized for disposal. Maintain high humidity in the work area by misting or spraying to assist in fiber settling and reduce airborne concentrations. Wetting procedures are not equally effective on all types of asbestos-containing materials but shall be used in all cases.

Saturated asbestos-containing material shall be removed in manageable sections. Removed material should be containerized immediately. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up. Gross debris shall be cleaned up and bagged prior to end of each shift.

Material removed from building structures or components shall not be dropped or thrown to the floor. Material should be removed as intact sections or components whenever possible and carefully lowered to the floor.

Waste containers shall be sealed when full. Double bagging of waste material into 6 mil plastic is required. Bags shall not be overfilled. They should be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in gooseneck fashion. Do not seal bags with wire or cord.

Asbestos-containing waste with sharp-edged components (e.g., nails, screws, metal lath, tin sheeting) will tear the polyethylene bags and sheeting and shall be placed into drums or burlap bags and then into leak tight containers for disposal.

After completion of all stripping work, surfaces from which asbestos-containing materials have been removed shall be wet-brushed and sponged or cleaned by some equivalent method to remove all visible residue.

After the work area has been rendered free of visible residues and verified clean by the CAC, a thin coat of a satisfactory encapsulating agent shall be applied to lock-down non-visible fibers on all surfaces in the work area including structural members, building components and plastic sheeting on walls, floors and covering non-removable items.

#### **SECTION 16. WASTE CONTAINER PASS-OUT PROCEDURES**

Asbestos-contaminated waste that has been containerized shall be transported out of the work area through the waste transfer airlock or through an approved pass-out arrangement.

Waste pass-out procedures shall utilize two teams of workers, an "inside" team and an "outside" team. The inside team, wearing appropriate protective clothing and respirators for inside the work area, shall clean the outside, including bottoms, of properly labeled containers (bags, drums, or wrapped components) using HEPA vacuums and wet-wiping techniques and transport them into the waste container pass-out airlock. Provisions for spray cleaning exterior of bags, equipment, and removable items shall be present in the waste pass-out. Waste water from this operation shall be collected and filtered as required through a 5.0 micron filter.

The three-chamber system is utilized in the following manner. Workers inside the work area place the waste in the leak tight waste container, which is usually a 6 mil bag. They then rinse the bag and seal it. They hand it to a worker in the dirty chamber room who inspects the bag and, if it is clean, places it in the second leak tight waste container. The second leak tight waste container is either another bag or a lined rigid-wall container such as a barrel or box. The worker then seals the second container and may attach the proper labeling. The worker places the container in the middle chamber (shower containment). The worker in the clean chamber then reaches in and lifts the container into the clean chamber. The worker inspects it and if not already labeled, attaches the proper labels. The worker then passes the container to the outside worker who transports the container either to the waste transport vehicle or to a holding area. At no time shall z-flaps of transfer system chambers be taped, held or otherwise blocked open. The Contractor must not allow more than one poly airlock doorway to be open at any one time. This prevents a tunnel system and a breakdown in the isolation of the work area. Negative pressure must be maintained during all waste load-out activities.

The contract documents or the Owner's CAC may in allow a one or two chamber system for waste pass out to be used for some projects, as long as the Owner's CAC agrees to the work practice. As with a three-chamber system, in a one or two chamber system, the Contractor may never allow more than one poly air flap doorway to be open at any one time. For example, a one chamber system would function in the following manner. Workers in the work area rinse and seal the initial waste container. They hand the initial container to a worker in the load-out chamber. That worker verifies that the container is clean and then places it into the second container which will be either another bag or lined ridged-wall container depending on the specifications. The load-out worker then seals the container and applies the appropriate labels. The sealed, labeled container is then passed to the outside workers who transport it to the waste transport container or holding area.

The exit from this airlock shall be secured to prevent unauthorized entry.

**SECTION 17. CLEAN-UP PROCEDURE**

**Part 17.1 - Clean-up Procedure**

Remove and containerize all visible accumulations of asbestos-containing material and asbestos-contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. DO NOT use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting.

Wet-clean all surfaces in the work area using rags, mops and sponges as appropriate. Note: Some HEPA vacuums might not be wet-dry vacuums. To pick up excess water and gross wet debris, a wet-dry shop vacuum with HEPA filter may be used.

Airless sprayers and water hoses shall not be used in a “power washing” fashion on any surfaces unless approval is provided by the CAC.

The Contractor shall remove each cleaned layer of polyethylene sheeting from walls and floors. Windows, doors, HVAC system vents and all other critical barriers shall remain sealed. The pressure differential units shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.

Remove all containerized waste from the work area. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

Contractor shall clean work area and conduct a pre-clearance visual. Once pre-visual has been passed by the Contractor, the containment shall allow time for the airborne dust to settle within containment for 24 hours, then return and re-clean by HEPA-vacuuuming and/or wet-cleaning all objects and surfaces in the work area again. At this point Owner’s CAC will conduct the final visual. If the final visual inspection fails, the Contractor must re-clean area the work area until a final visual inspection is found acceptable to the CAC. Once the final visual inspection is passed by the CAC, Contractor will be allowed to encapsulate the containment area, unless encapsulation of containment has been disallowed in the scope of work or material specific specification.

The Contractor may request a reduction in the 24 hour waiting period, if personal samples collected during the abatement work and detail clean-up work have shown fiber levels below the PEL. Reduction of waiting period must be made in writing, accompanied by personal sample results from this project. The Contractor must acknowledge that reduction in waiting period may result in failed clearance air samples and that retaking and re-analyzing these air samples will be at the Contractor’s expense. Any reduction in waiting time will be at the discretion of the Owner’s CAC and client.

**Part 17.2 - Visual Clearance Criteria**

The **Contractor** shall perform a pre-final visual inspection of the regulated work area and adjacent surfaces prior to requesting that the Owner’s representative conduct a final visual inspection. The pre-final visual performed by the Contractor shall verify that all materials have been completely removed from the work area, and that the work area meets the requirements specified in Section 17.

In addition, the level of cleanliness in all work areas where asbestos has been removed shall meet the final clearance criteria established in the ASTM E1368-90 Standard Practice for Visual Inspection of Asbestos Abatement Projects.

Upon completion of the pre-final visual inspection by the Contractor a final visual of the containment area will be performed by the Owner’s representative. The CAC will determine the clearance criteria for the project. At a minimum, no three dimensional debris shall be left within the work area; all poly shall be wet wiped so that no visible dust or debris is left; the decontamination chambers shall be clean of all debris; the waste



transfer area shall be clean of all debris; all equipment and supplies shall be clean of all debris. The Contractor shall not be released to encapsulate the containment until receiving acceptance by the CAC stating the removal area and the containment have met the criteria of the CAC for completeness of removal and cleanliness of the containment barriers and surfaces.

The Owner's CAC will conduct the final visual inspection of the work area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and the 24 hour settling period/cleaning cycle will be repeated.

Additional cleaning cycles shall be provided by the Contractor, as necessary, at no cost to the Owner until the specified clean criteria have been met.

**Owner's CAC has final say on whether or not an area meets these requirements.**

Following the satisfactory completion of clearance-air monitoring, remaining barriers may be removed and properly discarded as non-asbestos containing waste. If contamination exists behind these critical barriers, additional cleaning will be required.

The Owner, Contractor and Owner's CAC shall jointly review the work area and make a damage assessment, after clearance air samples have passed and containment has been torn down.

**SECTION 18. CLEARANCE AIR MONITORING**

When required, clearance air sampling shall be performed following the requirements specified in Section 18 after encapsulation of the containment has taken place and a sufficient amount of time has passed to allow the encapsulant to dry. The Owner's CAC shall determine the method of analysis to be used based on the amount and type of material removed within a containment. If at a K through 12 site and the quantity of Asbestos-Containing Material (ACM) exceeds 160 square feet or 260 linear feet, analysis of air samples must be by transmission electron microscopy (TEM) per US EPA AHERA regulations.

Clearance-air monitoring shall proceed 24 hours after lock-down or when the area is dry, whichever is later.

Contractor may request a reduction in the 24 hour waiting period, if personal samples collected during the abatement work and detail clean-up work have shown fiber levels below the PEL. Reduction of waiting period must be made by the Contractor accompanied by personal sample results from this project. The Contractor must acknowledge that reduction in waiting period may result in failed, or overloaded (with encapsulant) clearance air samples and that retaking and re-analyzing these air samples will be at the Contractor's expense. Reduction in waiting time will be at the discretion of the Owner's CAC and the Owner.

Air samples will be taken using the "aggressive" air sampling techniques described in the AHERA regulations unless noted differently in the scope of work for non-AHERA sites. In the case aggressive samples cannot be collected (e.g. in a dirt floor area) this will be noted in the Owner's CAC's notes.

If PCM analysis is used for clearance air samples, all clearance samples at all locations shall indicate a fiber concentration of less than or equal to 0.01 f/cc for release of the work area.

If TEM analysis is to be used for clearance air samples, then the clearance criteria shall be the same as AHERA, unless otherwise specified in the scope of work.

Areas exceeding these levels shall be re-cleaned and, if appropriate, re-encapsulated at no additional cost to the owner. All areas where clearance air samples fail will be re-tested.

The Contractor shall be responsible for all subsequent air sampling costs if air samples fail to meet clearance criteria levels. This cost includes four hours of time for Owner's CAC personnel to collect the air samples

and the cost of laboratory analysis.

**SECTION 19. MONITORING**

Owner reserves the right to perform air and performance monitoring at any time.

Contractor shall provide personal air monitoring in accordance with Cal/OSHA regulations. Results shall be made available to the Owner's CAC within 72 hours of collection. Hard copies or electronic copies of these results shall be supplied to the Owner's CAC within 7 days of collection. Failure to supply these sample results in specified time may cause work to be stopped until all delinquent results have been submitted. Loss of Contractor work time because of non compliance with the provisions of this paragraph will not extend the date for work completion.

Owner's CAC may take air samples prior to, during, and after the project. Work shall not be considered complete until all air sampling has been completed and satisfactory levels have been obtained. Satisfactory levels shall be those established by AHERA, unless more stringent requirements have been identified in any other section of this Specification.

In areas where soil contamination may be present, soil samples must meet specified criteria in any other section of this specification prior to clearance air samples collection.

Owner, or Owner's CAC, shall be authorized to issue a STOP WORK order whenever the Contractor's work or protective measures are not in accord with published regulations or contract specifications.

**SECTION 20. DISPOSAL PROCEDURES**

**Part 20.1 - Disposal Procedures**

Disposal bags shall be of 6 mil poly, pre-printed with labels as required by DOT, Cal/OSHA and the Department of Toxic Substance Control (DTSC) regulations.

Disposal drums shall be metal or fiber board with locking ring tops to be used only if required and/or allowed by selected dump site.

Stick-on labels as per OSHA and DTSC requirements for disposal containers shall be provided. All containers shall be labeled in accordance with DOT, Cal/OSHA and the DTSC regulations that require a "Caution" label and a "Hazardous Waste" label with the generator's name, address, and Manifest Document number.

As the work progresses, to prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos-containing waste shall be removed and transported to the prearranged disposal location.

Disposal shall be at permitted waste facilities for the type of waste. Transport vehicles shall be marked with the sign prescribed by OSHA during loading and unloading to warn people of the presence of asbestos.

All dump receipts, trip tickets, waste manifests, Waste Shipment Record (WSR) and other documentation of disposal shall be delivered to the Owner, for its records. The manifest shall be signed by the Owner, the waste transporter, and the Disposal Site Operator as the responsibility for the material changes hands. If a second waste transporter is employed, his name, address, telephone number and signature should also appear on the form. The WSR, if used, shall be signed by the Owner or its agent and the disposal site operator.

All manifests shall have asbestos waste identified as: "RQ, Asbestos, 9 NA2212, III". This requirement may be changed as new regulations are issued. See "Waste Disposal" requirements at end of "General

Requirements".

All manifests shall be accompanied by a "Notice and Certification". A signed copy of this must be provided to the Owner or its agent.

**Part 20.2 - Transportation to the Landfill**

Once drums, bags and wrapped components have been removed from the work area, they shall be loaded into a fully enclosed truck or waste container, which has been lined with 6 mil poly sheeting on the walls and floor. The exception to a fully enclosed waste truck is for roofing projects and when waste loads are generated and placed into open top lined waste trucks that will be "burrito wrapped".

When moving containers, utilize hand trucks, carts and proper lifting techniques to avoid back injuries. Trucks with lift gates are helpful for raising drums during truck loading.

Any debris or residue observed on containers or surfaces outside of the work area resulting from clean-up or disposal activities shall be immediately cleaned up using HEPA filtered vacuum equipment and/or wet methods as appropriate.

No waste containers shall be on site which contain other hazardous waste, or hazardous waste from any other source or job site. Waste from multiple sites of the Owner within the same waste container is acceptable; however, it must be manifested separately.

If Contractor is storing waste from various sites of one owner, all transportation vehicles shall be covered by the same regulations as the waste container or truck being used to haul the waste to the dump. If equipment or supplies are to be left in vehicles during hauling of waste to waste container or truck, waste and equipment/supplies must be separated by a solid (wood or metal) barrier which has been sealed as a critical barrier. A poly wall barrier is not sufficient.

Waste container, truck, or storage bin must be locked at all times except when being filled.

It is the Contractor's responsibility to see that all waste containers, trucks, and storage bins arrive on site completely free from debris.

The contractor shall provide a weight receipt that identifies the net weight of the material being discarded.

**Part 20.3 - Disposal at the Landfill**

Upon reaching the landfill, trucks are to approach the dump location as closely as possible for unloading of the asbestos-containing waste.

Bags, drums and components shall be inspected as they are off-loaded at the disposal site. Material in damaged containers shall be re-packed in empty drums or bags as necessary. Local requirements may not allow the disposal of asbestos waste in drums. Check with appropriate agency and institute appropriate alternative procedures.

Waste containers shall be placed on the ground at the disposal site, not pushed or thrown out of the trucks.

Personnel off-loading containers at the disposal site shall wear protective equipment consisting of disposable head, body and foot protection and, at a minimum, half-face, air-purifying, dual cartridge respirators equipped with high-efficiency filters.

Following the removal of all containerized waste, the truck cargo area shall be decontaminated using HEPA vacuums and/or wet methods to meet the no visible residue criteria. Poly sheeting shall be removed and discarded, along with contaminated cleaning materials and protective clothing, in bags or drums at the

disposal site.

**SECTION 21. PATENTS AND PREVAILING WAGES**

**Part 21.1 - Patents**

Contractor shall pay all royalties and license fees required for the performance of the work. Contractor shall defend suits or claims resulting from Contractor's or any Sub-contractor's infringement of patent rights and shall indemnify Owner and Owner's representative from losses on account thereof.

**Part 21.2 - Prevailing Wage Requirements**

The asbestos abatement contractor is fully and totally responsible at all times for compliance with payment of prevailing wage rates pursuant to provisions of the California Labor Code, for compliance with Division 2, Part 7, Chapter 1, California Labor Code, including but not limited to Section 1776; and for compliance with California Labor Code, Section 1777.5 for all apprentice able occupations.

**SECTION 22. PERMITS AND FEES**

If any permits are required to be issued for any of the Work to be performed by Contractor, Sub-contractor(s) or Sub-subcontractor(s) as part of the Project, it shall be the sole responsibility of the Contractor to expeditiously obtain all such permits and any costs incurred by the Contractor in obtaining such Permits shall be included within the Contract Price.

**SECTION 23. SPECIFIC PROCEDURES AND REQUIREMENTS**

NOTE: All Specific Procedures and Requirements listed in Section 23 shall be reviewed by the Contractor along with the Scope of Work issued for the project. If any perceived conflicts are present between the Scope of Work and these specifications or within the General Requirements specification itself, the Contractor shall ask for a written interpretation from the Owner's CAC prior to submission of his bid. If conflicts in the "Scope of Work" and this specification or with the General Requirements specification itself are discovered after the start of abatement, the more stringent specification and/or requirements will be enforced. The Owner's CAC shall make the determination as to what which requirements and/or specifications are more stringent.

**Part 23.1 - General Repair of Damaged Thermal System Insulation (TSI)**

Where TSI has been damaged, and it is feasible to repair the small nicks, cuts, and exposed ends, the following procedures shall be performed:

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. Place 4-6 mil poly sheeting directly under the area to be worked to collect any fallen debris or repair compound.
3. Half-face respirators and disposable coveralls shall be used during this work.
4. The area shall be restricted to those personnel involved in the work, so posting of the accesses is required. In some cases, poly shall be used to cover the access points.
5. A HEPA vacuum must be in the immediate area to pre-clean any debris observed surrounding the

damaged section, or in the event of a mishap.

6. If work is performed indoors, the ventilation system shall be off in the areas worked in to prevent fiber distribution. The ventilation supply, return and exhaust ducts shall be sealed with 6 mil plastic sheeting and duct tape.
7. It may be necessary to remove small sections of other insulation material, such as fiberglass, if debris from the damaged pipe covering has contaminated it.
8. In some cases HEPA vacuuming the damaged section will collect all loose, hanging, friable insulation material prior to any further repair work.
9. Very small cracks, holes, nicks, and cuts can be repaired with only a joint compound or with a single layer of wettable cloth and appropriate bridging encapsulant. Larger sections of damaged pipe covering, particularly where pipe hangers or metal channel have damaged the insulation, will require at least two layers of wettable cloth such as HardCast by Carlisle Industries.
10. Where the pipe covering cannot be removed completely from penetrations in the walls, floors, or ceilings, the pipe covering shall be removed at least 1" into the opening and sealed with a bridging encapsulant to grade. The Contractor may choose to fill large gaps with fiberglass insulation, prior to sealing with the encapsulant.
11. All of the Contractor's materials, including poly sheeting, tape, joint compound, etc. shall be removed at the completion of the work performed.

**Part 23.2 - Glove Bag Technique Requirements**

Where glove bag technique is specified for removal of Thermal System Insulation (TSI), or in those areas where the Contractor opts to use glove bags, all of the following conditions must be met:

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. The Contractor shall follow the procedures recommended by the manufacturer of the glove bags, and the specifications required by Federal OSHA and Cal/OSHA regulations.
3. All critical openings shall be sealed prior to set up of the containment.
4. At least one layer of 6 mil poly must be used to fully enclose/contain the abatement area.
5. Stationary objects in the immediate area of the room which cannot be removed from the work area must be covered with at least one layer of 4 mil poly sheeting after being pre-cleaned.
6. A minimum three stage decontamination unit with a shower shall be contiguous with the containment for areas requiring removal of more than 6 linear feet of TSI.
7. Negative pressure shall be established and a recording manometer shall be attached to the containment per Section 13.
8. A HEPA filtered vacuum shall be in the immediate area for use in conjunction with the bags or in case of a spill.
9. Glove bags may not be used on surfaces where temperatures exceed 150 degrees Fahrenheit.
10. Glove bags may be used only once, and may not be moved or slid for removal of a second section

of TSI.

11. At least two persons shall perform Class I glove bag removal as defined by Federal and Cal/OSHA.
12. Before beginning the operation, loose and friable material adjacent to the glove bag operation shall be wrapped and sealed in two layers of 6 mil poly sheeting or otherwise rendered intact.
13. The Contractor shall apply a sufficient volume of amended water to all pipe covering scheduled for removal while it is enclosed in the glove bag.
14. Prior to placement in the disposal bag, glove bags shall be collapsed by removing air within them using a HEPA filtered vacuum.
15. Upon detachment, the glove bag must be immediately placed into at least two 6 mil thick disposal bags. The disposal bags must be sealed using the "gooseneck" sealing technique.
16. Where pipes enter walls, floors, or ceilings which are not within the scope of the project, the pipe covering shall be removed at least 1" into the structure and the pipe covering end must be sealed with bridging encapsulant and/or wettable cloth.
17. If the Contractor chooses to use a Negative Pressure Glove Bag System, Negative Pressure Glove Box System, or Water Spray Process System in lieu of the traditional Glove Bag System, the Contractor shall submit to Owner's CAC detailed written procedures on those systems which will be used. In addition, air sampling data, generated by the Contractor, must be provided to Owner's CAC. Owner's CAC must provide prior approval to alternate techniques and approaches to those specifications detailed here.
18. The Contractor is responsible for salvage and decontamination of all pipe system supports, hangers, brackets, saddles, etc. These items shall be inventoried by the Contractor, and verified by the Owner's CAC before and after abatement. The Contractor will be responsible for replacement of any items lost or damaged.
19. The Contractor shall be responsible for ensuring the piping system remains adequately supported at all times. This may be achieved by readjusting existing hanger brackets as insulation is removed, or by other approved methods, such as inserting wood blocks to replace the thickness of the removed insulation.

### **Part 23.3 - Mini-Cube Enclosure Requirements**

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. For the purposes of these specifications, "mini-cube enclosure", "enclosure", "mini-enclosure", and "mini-cube" are all used interchangeably and mean the same. The mini-cube enclosure is required to be constructed whenever small sections of walls, ceilings, or pipe insulation are to be removed for electrical, plumbing, mechanical, etc., work. The purpose is to create an enclosed and controlled work environment while removing asbestos or accessing an attic space which is contaminated.
3. Enclosure walls and floors must be constructed of at least one layer of fire-rated 6 mil poly sheeting. No visible holes, cracks, penetrations, etc. shall be within this enclosure. The upright frame shall be adjustable in order to butt the top of the enclosure to the wall or ceiling area. A single drop layer of 6 mil poly sheeting shall be put down and removed daily at the end of the work shift.
4. Since the top of the enclosure must be open in the chamber where ceiling access will take place, special care must be taken prior to moving the enclosure. If the mini-enclosure is designed to be

portable, the enclosure must be sealed at the top prior to being moved to the next location. This may be achieved by temporarily sealing the top with poly and tape from the inside.

5. For access to an attic space, position the enclosure at the location to be worked. The enclosure must be butted up to the ceiling surface to form a semi-seal between the top of the enclosure and the ceiling. The enclosure can then be completely sealed to the ceiling, using tape. After a seal has been established, access into the ceiling can then proceed.
6. A HEPA vacuum shall be used to establish "negative pressure" or airflow into the enclosure. This shall be verified by using ventilation smoke tubes.
7. The following equipment and materials, at a minimum, must be present inside the mini-enclosure "dirty" chamber:
  - 6 mil poly bag for waste.
  - Flashlights or drop light as appropriate.
  - Daily change of 6 mil poly sheeting drop layer.
  - Other tools needed to perform task.
  - Clean potable water in a Hudson-like sprayer.
  - HEPA Filtered Vacuum
8. The outside of the poly-flapped entry to the mini-cube must be posted with the CAL/OSHA required warning signs.
9. Clean disposable coveralls must be worn entering the mini-enclosure, and must be removed prior to leaving the mini-enclosure. Depending upon the work being performed, the Contractor may choose to "double suit" in disposable coveralls.
10. For work involving removal of greater than 25 linear feet of TSI, or greater than 10 square feet of asbestos containing surfacing material, regardless of method to be used, a shower must be attached to the mini-cube enclosure and be contiguous with the work environment, and comply with all other requirements in related sections of this Specification.
11. If there is removal of greater than 3 linear feet of TSI, or greater than 3 square feet of surfacing material, regardless of the method used, the enclosure must remain in place until a final visual is passed. Clearance air samples may be required and if so will be collected by the Owner's CAC. Where work involves less than these quantities, only a final visual inspection by Owner's CAC will be required prior to removal of the mini-enclosure.

**Part 23.4 - Roofing Abatement Requirements**

**General Requirements**

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. The work shall be coordinated and scheduled when there are favorable weather conditions, such as, performing the abatement work when the forecast is for "clear skies" and no rain for three or more consecutive days. The Contractor shall remove only that amount of roofing material which can be re-

roofed or covered, and secured from the weather.

Work may be halted at the discretion of the Owner's CAC if wind conditions occur which can or does cause removed roofing materials to be blown off the roof area, or beyond the designated removal area perimeter. All roofing work shall be coordinated to allow other trades to work at the same time as long as their work is located in areas where contamination cannot occur. No cutting, sanding, grinding, or removal of any type will take place until all preparations for removal have been completed and inspected by the Owner's CAC. This section may be amended in other sections of this Specification for this project.

The words "clear skies" are used as a means of indicating favorable weather conditions. These two words do not mean, nor are they intended to require skies be clear and free of clouds, fog, or other meteorological conditions which are not expected or forecast to produce measurable rain. The follow up requirement of no rain for three or more consecutive days is to help clarify the favorable weather condition requirement. The Contractor should not be over optimistic and create more open roof areas than can be re-roofed, secured, or properly protected from weather in case the forecast changes unexpectedly or without warning.

3. All work hours at the site shall be determined by the Owner or as defined in other sections of this Specification.
4. All work shall be coordinated with the other trades involved on this project, with central coordination being primary between the abatement Contractor and the General Contractor for the project. However, Owner's CAC must be notified of projects in advance as stated in other sections of this Specification.
5. The Contractor shall provide all necessary equipment, tools, materials, lighting, labor, etc. to perform the work. Sufficient lighting shall be provided to illuminate the entire removal and transit areas for removal of roofing material, and for the final visual inspection by the Owner's CAC if the work is to be performed at night.
6. All HEPA equipment to be used on the project must be delivered to the site empty of all debris, clean, free of dust, and in full operating condition. HEPA equipment to be used inside any building must have been DOP tested within the last 90 days. This DOP certification must be verified by Owner's CAC prior to its use.
7. The Contractor shall provide worker safety according to all OSHA regulations (Title 8), including use of tie-offs, harnesses, and lanyards. Particular attention shall be given to the placement and securing of accesses (ladders, etc.) to the roof.
8. All ladders used shall conform to Cal/OSHA requirements. The ladders shall extend at least three feet above the roof line, and shall be tied off to the building to prevent them from sliding.

**Contractor Responsibilities**

1. The Contractor will be responsible for all clean-up and costs associated with the decontamination of occupied spaces in the event of contamination of an occupied space.
2. The Contractor is responsible for any contamination of the attic space above the existing ceilings inside the buildings caused by their work, except as noted specifically in Section 24, Asbestos Specification/Procedures.
3. The Contractor is responsible for removal of all roofing layers and associated materials such as roofing nails, insulation, fiberboard, etc. down to the wood or metal substrate regardless of asbestos content, unless otherwise noted in Section 24, Asbestos Specification/ Procedures. When it is



unknown how many layers of roofing materials exist, it must be assumed that there are multiple roofing layers present. The Contractor may, upon request and approval by the Owner, collect core samples of any roof to be removed for the purpose of determining its depth and structure. If coring is conducted, it is the responsibility of the Contractor to repair to industry standards using non-asbestos materials the areas affected.

4. The Contractor is responsible for removal and replacement of wood block or metal supports which may be present under conduit, gas lines, piping, HVAC units, ducts, etc. in order to perform the work. The Contractor is also responsible for temporarily installing wood blocks for any existing roof structures during the roofing removal, when it is necessary to remove existing support members to accomplish the work.
5. The Contractor is responsible for damage to all equipment and existing cables which are present on the roof. The Contractor is responsible for damage to electrical wiring, telephone lines, antenna wires, and other conduits which are present. An inspection for pre-existing conditions is the responsibility of the Contractor, but may also be conducted by Owner's CAC.
6. The Contractor is responsible for obtaining all necessary permits to perform this work, including any local permits for work in the evening/night hours.

**Owner Responsibilities**

1. The Owner is responsible for closing all windows in the building where the asbestos roofing material will be removed. This must be done prior to the asbestos abatement contractor arriving onsite for the work shift, in order to prevent delays.
2. The Owner shall also be responsible for cutting or trimming back all trees, limbs and other vegetation which may impact the removal of the existing roofing materials.
3. It is assumed that the buildings associated with this project have roof decking which may include any number of construction methods which allow for roofing debris to sift into joist spaces, or attics located beneath areas where roofing may have previously been removed. Therefore, it must be assumed that all inaccessible and accessible attic spaces, joist spaces, and even flutes of metal decks involved with this project will become, or have already been contaminated with asbestos, and shall be noted.

**General Roof Removal Instructions and Requirements**

1. Removal of non-friable asbestos-containing roofing is designated as Class II work. Half-face respirators and disposable coveralls shall be used at a minimum by all workers, at all times, when within the regulated area.
2. No personnel will be allowed into the regulated area during actual removal work without proper respiratory and personal protective equipment. Work boots with hard soles are required to be worn by all abatement personnel. No athletic, street, or dress shoes are to be worn during work activities.
3. All roofing material shall be removed in an intact state to the extent feasible.
4. All roofing is to be removed wet by an amended water solution or encapsulant as necessary.
5. The abated roof area shall be HEPA vacuumed after roofing materials have been removed. Particular attention shall be directed at the flute channels of metal decks.

Additional Requirements for Removal of Nicolite (Nicolet) Roofing Felts

1. Set up of perimeter barriers shall be extended to 30 feet from roof edge at ground level. Contractor shall be required to use barrier tape stamped with, "DANGER ASBESTOS HAZARD" in black letters on a solid red background or equivalent.
2. Pre-wetting of materials utilizing amended water must attain complete and thorough penetration of the felts prior to their removal, and additional application of amended water shall be performed as necessary throughout the removal and bagging process.

**Pre-Abatement Preparation Requirements**

1. The Contractor shall seal all air intakes associated with the HVAC units which are on or near the roof under abatement, and at adjacent HVAC units, particularly downwind from roofing removal activity. In addition, all louvers, window mounted fan systems, attic openings, etc., shall be sealed as critical barriers. The Contractor is responsible for sealing all HVAC openings as critical barriers using one layer of 6 mil poly. These critical barriers shall be installed at the beginning of each shift, and removed at the end of each shift prior to reuse by the Owner. If the building will not be reoccupied daily, the barriers may stay in place.

The perimeter of the roof where removal is to be conducted, shall be posted with barrier tape at a distance of at least 20 feet from the edge of the removal area. This barrier tape will provide a buffer zone, and assist in the restriction of non-abatement personnel.

Poly sheeting shall be placed on the ground directly below the work area or on the adjacent roof surfaces at least 10 feet. The Contractor shall secure the poly to the ground using tape, weights, or other means to secure the poly from being picked up by wind or becoming a trip hazard. The Contractor shall secure the poly to the adjacent building surfaces with tape, etc.

**Waste containers and Waste container Preparations**

1. The Contractor is responsible for inspecting all waste containers delivered to the job site for load worthiness. The Owner's CAC reserves the right to refuse any waste container without any additional cost to the client, which upon examination, and in the opinion of the site representative, has a high probability of failure of doors, skids, walls, floors, or which contains other debris.
2. The Contractor shall be required to place footing materials of sufficient thickness, strength, and size under the casters, footings, and/or runners of waste container(s) to prevent damage of property surfaces. The Contractor is responsible for all damages to Owner's property caused by the delivery, placement, or removal of a waste container. Damaged property shall be repaired to equal or better condition than was present prior to the activity causing the damage. This section may be amended in Section 24, Asbestos Specification/Procedures for this project.
3. Unless the roofing material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane, or hoist. All waste shall be sufficiently wetted with amended water to prevent fiber release. If fiber release cannot be prevented, then the chute and bin must be within a negative pressure enclosure. In no case shall roofing materials be dropped or thrown into bins or waste containers from the roof.

**Posting and Label Requirements for:**

**Regulated Area Entry Points and Waste container Perimeters**

Access to regulated areas shall be posted as outlined by Cal/OSHA Title 8, 1529 (k)(7)(B) 1 and 2 with warning signs. Perimeters of waste container(s) shall also be posted as outlined by Cal/OSHA

Title 8, 1529 (k)(7)(B) 1 and 2 with barrier tape bearing the following information:

DANGER  
ASBESTOS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
AUTHORIZED PERSONNEL ONLY  
WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

These postings are required to warn non-abatement personnel of the restricted access, and potential hazard which exists in the vicinity of the regulated areas and waste container(s).

**Building Perimeter at Ground Level**

Building perimeters shall be posted with barrier tape bearing one of the following descriptions:

- CAUTION** in black letters on a solid yellow background.
- DANGER** in black letters on a solid red background.
- DANGER ASBESTOS HAZARD** in black letters on a solid red background.

**Waste Material Containers**

Waste material containers, including the "burrito wrapped" material, shall have warning labels affixed in accordance with Cal/OSHA Title 8, 1529 (k)(8)(A-D).

DANGER  
CONTAINS ASBESTOS FIBERS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
DO NOT BREATHE DUST  
AVOID CREATING DUST

**Waste Disposal and Documentation Requirements**

1. Roofing waste may be disposed as non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos roofing material. If the asbestos roofing material is currently friable, or becomes friable during its removal, it shall be disposed of in a landfill permitted to accept friable asbestos waste.

It is acceptable to dispose of bagged or sealed roofing waste into open topped waste containers lined with a single layer of 10 mil poly sheeting. The Contractor shall completely enclose all roofing waste material commonly known as "burrito wrap" in the waste container using 10 mil poly sheeting. Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such a manner as to preclude the dispersion of dust. In addition to the 10 mil poly sheeting, the top of the waste container shall be completely enclosed with a tarp which is secured to the vehicle for transport or storage on-site if left overnight. The type of material for the tarp shall meet all requirements for transport of hazardous materials.

2. The Contractor is required to provide to Owner's CAC a copy of the "trip tickets" indicating the actual weight of waste material.

**Protection of Accessible Attic Areas**

Any plumbers plenums which may be located below areas where roof removal will take place and the roof deck is not constructed of plywood or solid sheet metal, shall be protected with poly barriers prior to work

being performed. Any and all debris which may get into a plumbers plenum will be the responsibility of the Contractor and must be cleaned up by the abatement contractor. A final visual inspection by Owner's CAC will be required prior to allowing the abatement contractor to move to the next designated removal location.

Removal of interior ceiling finishes to collect roofing debris is also permissible on this demolition project.

**Part 23.5 - Vinyl Floor Tile (VFT) & Associated Adhesive Abatement Requirements**

**General Requirements**

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

For the purposes of this project any direction to remove asbestos-containing or assumed asbestos-containing VFT shall include the removal of the base cove, as well as, the adhesive/mastic used to secure the VFT and/base cove regardless of its asbestos content. Any mastic which has not been tested for asbestos content must be assumed to contain asbestos and removed by the abatement contractor prior to the performance of a final visual by the Owner's CAC, and final air testing of the containment.

Removal of asbestos-containing VFT shall require a negative pressure enclosure/containment be constructed prior to removal, including installation of critical barriers, a splash guard of plastic at the lower 3' of wall from floor level, a sufficient number of DOP tested negative air units to attain a level of at least -0.030" of negative air pressure within the containment, a manometer, and at a minimum, a three-stage decontamination unit with an operational shower and water filtration system. Smaller areas of floor tile and mastic removal may only required a single stage decontamination area without the shower and will be described in the scope of work.

Whenever and wherever possible, the Contractor shall enclose multiple rooms within a building or wing into a single containment. Where rooms are joined by a common interior hallway or have a common exterior walkway, multiple spaces shall be joined together creating one containment using poly enclosures. Where multiple rooms in a building do not have a common interior hallway, multiple rooms shall be joined using a common work chamber built by the Contractor. The common work chamber shall be constructed of wood studs and plywood sheeting for security purposes, and shall be part of the decontamination chamber. Decontamination units and joined "common areas" outside of a building shall have lockable doors or gates created with temporary fencing for security during off-hours.

Bead blasting of materials will only be allowed with approval of Owner. Contractor must declare use of bead blasting to Owner/Owner's Representative prior to use of this method, since this is a mechanical method. If a solvent is used, the negative air unit exhaust shall be directed down wind of make-up air vents a sufficient distance to preclude the re-entrainment of vapors back into the building. Any solvents used for removing adhesive/mastic shall be non-toxic, low odor, non-flammable, and compatible with the new flooring adhesive/mastic.

A safety data sheet for the solvent(s) proposed for use shall be provided in the pre-construction submittal package, all solvent(s) must be approved by the Owner's CAC prior to their use.

Except as amended here and in the "Scope of Work" Section, all other Sections of these specifications shall be followed.

**Contractor Responsibilities**

1. The Contractor shall provide all necessary notifications, equipment, tools, materials, lighting, labor, etc. to perform the work. Notification as appropriate to OSHA, EPA, or the delegated Air Quality Management District is the responsibility of the Contractor.
2. All HEPA equipment to be used on the project must be delivered to the site empty of any debris,

clean, free of dust, and in full operating condition. HEPA equipment shall be DOP tested at the beginning of the set-up phase and prior to installation into the containment or use on the project. Any equipment removed from the site for more than 10 working days must be DOP tested again prior to re-use on the project.

3. DOP certification testing shall be observed and witnessed by an Owner's CAC. Copies of DOP test results and certification must be submitted to Owner's CAC within 24 hours of the testing being performed.
4. All poly sheeting to be used for the construction of full enclosures/containments must be fire retardant. SDS information reflecting this requirement must be submitted prior to use.
5. The Contractor shall be responsible for all clean-up and costs associated with the decontamination of occupied spaces adjacent to any containment where removal of asbestos-containing material is conducted. The Contractor shall also be responsible for damage to building finishes and costs associated with removal of tape glue, staining of wall finishes, or destruction of wall surface integrity. It is the responsibility of the Contractor to identify with the General Contractor all aspects of the project requirements pertaining to these types of damages.

#### **General VFT & Adhesive/Mastic Removal Instructions and Requirements**

1. For the purposes of this project, removal of VFT and associated adhesive/mastic by any method shall be performed by personnel who are properly trained and accredited to perform Class II work.
2. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum, this shall include half-face negative pressure respirators, full body coveralls, rubber boots, and gloves. During removal of adhesive/mastic with solvent or other organic based liquid, combination respiratory cartridges (organic vapor/HEPA) shall be worn, by workers to protect against asbestos and the solvent. Rubber gloves shall also be worn to protect workers skin from the solvent material. No street clothes or shoes shall be worn inside containment during the removal process.
3. All doors, windows, and penetrations into the room(s) shall be sealed with poly sheeting. All ventilation systems shall be locked-out and sealed with critical barriers of either poly sheeting or plywood sheeting. No spray glue may be used on any Owner property or building surface.
4. The splash guard shall be a minimum of 3 feet in height from the base of the wall upward.
5. Based on the size of the enclosure/containment, a three stage decontamination unit shall be put into place and be fully operable.
6. Sufficient negative air units shall be installed which will provide a minimum of four air changes per hour and -0.030" air pressure differential. A manometer with an recording chart shall be installed and operational. The manometer chart shall reflect the location, times, and dates of all measurements recorded. Once these requirements have been met and the negative pressure has been established, the Contractor shall request a pre-start visual inspection from Owner's CAC.
7. When the Contractor has passed the pre-start visual inspection, removal of base cove/boards may be conducted. Base cove adhesive shall be removed completely on hard surfaced walls where damage to the substrate will not occur, or only to a point of smoothing out high spots on walls which will become damaged due to the work to be performed. Full removal is not expected unless the Contractor is notified in writing on these types of soft substrate surfaces and if required in the scope of work.
8. Sufficiently wet VFT with amended water prior to and during the removal phase of work, and place

into waste containers for disposal. Acceptable methods of containing VFT waste materials include placing VFT into clear properly labeled 6 mil poly bag and deposit this bag into a lined fiberboard drum. The drum shall be sealed when filled and placed into a waste container for disposal.

9. Method of removal pertaining to asbestos-containing adhesive/mastic shall be at the discretion of the Contractor, except methods which are noted in this Exhibit that are prohibited. Hand scraping, solvents, and wet buffing with solvents are acceptable methods. If the Contractor chooses to use solvents, exhaust of negative air units shall be directed downwind as much as possible, or a sufficient length of exhaust hose will be required to prevent re-entrainment of the vapors.
10. To minimize damage to the existing paint above the base cove, the contractor shall use a utility knife to cut score the paint at the intersection of the base cove. This will allow removal of the base cove with minimal damage to the paint layer.
11. Any solvents used for removing adhesive/mastic shall be non-toxic, low odor, and non-flammable. A SDS for the solvent shall be provided and subject to approval by the Owner's CAC prior to use.
12. Upon completing the removal of all floor tiles and adhesive/mastic, the Contractor shall remove the splash guard from the containment walls, and conduct wet wiping on all surfaces within the containment/enclosure.
13. If a solvent was used to remove any VFT adhesive/mastic, the Contractor shall wash the floors thoroughly using a solution of trisodium phosphate (TSP), or equivalent, and water. Sufficient water shall be used for final rinsing of the floor for a clean finish.
14. It is the sole responsibility of the Contractor to reduce concentrations of any solvents used to a level which will allow new adhesive/mastic to be applied, if new flooring is to be installed. Owner's CAC will not test the floor for PH levels, and will not attest that the solvents used have been reduced in any way.
15. Solvent removal may only be performed on substrate that will be demolished. District requires the use of media blasting or abrasive grinding with HEPA vacuum attachment on any concrete substrate that will remain to accept new flooring.

### **Final Visual Inspection**

1. Upon the completion of all activities listed above, the asbestos contractor shall provide their own visual inspection prior to Owner's CAC, and shall be present during the inspection by Owner's CAC to remove/clean additional surfaces as needed, prior to encapsulation.
2. The final visual inspection will include an evaluation of all surfaces within the containment area, with emphasis placed on the completeness of materials removed from the floor area. Any three dimensional debris identified by the Owner's CAC, which can be seen using a flashlight placed on the floor and directed across the floor, shall be removed as directed with the use of a HEPA vacuum and other tools as necessary to remove the material. The Contractor shall thoroughly clean all equipment inside the containment, including all parts of the negative air units, and new pre-filters shall be installed into all negative air units.

### **Disposal Requirements**

1. Asbestos containing floor tile and mastic waste may be disposed as a non-friable non-hazardous waste stream if they are removed by manual methods. If the materials are removed by mechanical means, the waste stream shall be disposed as friable hazardous asbestos waste and will require a Uniform Hazardous Waste Manifest. Package all solvent/mastic waste created during the project in sufficient absorbent to eliminate all free liquids, and place in a D.O.T. 7A Type A approved steel drum (49 CFR 178.350). Label the drum as required, and transport to an approved Class 1 landfill with a

separate Uniform Hazardous Waste Manifest and Waste Profile Documentation.

2. The Contractor SHALL NOT sign any Hazardous Waste Manifests for the Owner. It shall be the responsibility of the Contractor to notify the Owner's CAC and coordinate having any manifest properly signed by a Owner representative.

**Part 23.6 - Carpet Removal over Vinyl Floor Tile (VFT)/Tile Adhesive Requirements**

**General Requirements**

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

The following requirements are for use when the only removal to be performed is of carpet applied over existing VFT or bare VFT mastic. If the intended removal includes the underlying materials and/or any associated base cove refer to and follow the requirements as set forth in Part 23.5 Vinyl Floor Tile (VFT) and Associated Adhesive Abatement Requirements.

For the purposes of this project any direction to remove carpet from over known or assumed asbestos containing VFT or bare VFT mastic where the carpet is found to be directly adhered to those surfaces by carpet glues or carpet mastic the following requirements shall apply. These requirements shall be enforced regardless of the amount of floor tile/mastic expected to be impacted by the removal process.

1. The Contractor shall provide all necessary notifications, equipment, tools, materials, lighting, labor, etc. to perform the work. Notification as appropriate to OSHA, EPA, or the delegated Air Quality Management District is the responsibility of the Contractor.
2. All HEPA equipment to be used on the project must be delivered to the site empty of any debris, clean, free of dust, and in full operating condition. HEPA equipment shall be DOP tested at the beginning of the set-up phase and prior to installation into the containment or use on the project. Any equipment removed from the site for more than 10 working days must be DOP tested again prior to re-use on the project.
3. DOP certification testing shall be observed and witnessed by an Owner's CAC. Copies of DOP test results and certification must be submitted to Owner's CAC within 24 hours of the testing being performed.
4. All poly sheeting to be used for the construction of enclosures/containments must be a fire rated material. SDS information reflecting this requirement must be submitted prior to use.
5. The Contractor shall be responsible for all clean-up and costs associated with the decontamination of occupied spaces adjacent to any containment where removal of ACM is conducted. The Contractor shall also be responsible for damage to building finishes and costs associated with removal of tape glue, staining of wall finishes, or destruction of wall surface integrity, unless the building is to be demolished. It is the responsibility of the Contractor to identify with the General Contractor all aspects of the project requirements pertaining to these types of damages.
6. Whenever vinyl floor tiles are to be removed, the base cove shall also be removed as part of the project. When the Contractor has passed the pre-start visual inspection, removal of base cove/boards may be conducted. Base cove adhesive shall be removed completely on hard surfaced walls where damage to the substrate will not occur, or only to a point of smoothing out high spots on walls which will become damaged due to the work to be performed. Full removal is not expected unless the Contractor is notified in writing on these types of soft substrate surfaces.
7. To minimize damage to the existing paint above the base cove, the contractor shall use a utility knife

to cut score the paint at the intersection of the base cove. This will allow removal of the base cove with minimal damage to the paint layer.

**General Carpet Removal Instructions and Requirements**

1. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum this shall include half-face negative pressure respirators with P-100 (HEPA) cartridges and full body coveralls.
2. All ventilation systems shall be locked-out and sealed with critical barriers of poly sheeting. Other penetrations such as doors, vents, etc. must also be sealed with either tape or poly sheeting as appropriate to secure the work area. A single stage cubicle unit of appropriate size for the work to be performed shall be placed on the entrance to the room. At a minimum this unit must be 3' X 3' X 6' in height. No spray glue may be used on any Owner property or building surface, unless the building is being demolished.
3. A remote clean-up and decontamination unit shall be put into place in a location considered to be central to the work being performed. This decontamination unit shall be equipped with a full shower unit, overflow pan, filtration unit, soap, warm and cold water, towels, etc. as required in other sections of this specifications. Decontamination procedures will be based on the actual amount of asbestos-containing materials impacted during the carpet removal. As a guide, if more than 100 square feet of VFT are impacted during carpet removal, the personnel performing the work shall shower at the end of each work period. If less than 100 square feet of VFT or VFT mastic are impacted during the process modified worker decontamination practices may be used.
4. A sufficient number of negative air units shall be installed which will provide a negative air pressure of at least -0.030" wp measured with a manometer.
5. When the Contractor has passed the pre-start visual inspection, removal of carpet may be conducted.
6. VFT adhered to the surface of the existing substrate will be removed from the carpet utilizing hand methods and hand tools as needed. These tiles shall be placed into waste containers for disposal. If all VFT has been removed from the carpet the carpet may be disposed as regular waste with no restrictions.
7. Any carpet removed from bare VFT mastic and the asbestos containing mastic remains adhered to the carpet will require the carpet be wrapped in two layers of polyethylene sheeting, properly labeled to meet Cal/OSHA requirements, and disposed as a non-hazardous asbestos containing waste in an appropriate landfill permitted to accept such asbestos waste.

**Part 23.7 - Boiler Unit Removal Requirements**

Not Applicable

**Part 23.8 - Sheetrock and Joint Compound Abatement Requirements**

**General Requirements**

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

Removal of sheetrock and joint compound wall and ceiling system materials known to contain <1% asbestos as a composite material verified by the 400 Point Count method shall include the removal of all nails, screws, or other fastening units which have visible sheetrock and/or joint compound remaining, as well as, all dust, debris, and waste generated by the removal work.



Removal shall require a full enclosure/containment under negative pressure following all of the requirements in these specifications including a three stage worker decontamination unit.

Removal of less than 100 square feet of asbestos containing sheetrock and joint compound wall and/or ceiling system materials shall require a negative pressure enclosure, however, the use of a one stage decontamination unit without a shower will be permitted. All other containment requirements apply.

**General Sheetrock and Joint Compound Wall and Ceiling Systems Removal Instructions and Requirements**

1. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum this shall include half-face negative pressure respirators, full body coveralls, rubber boots, and gloves. No street clothes or shoes shall be worn inside containment during the removal process.
2. All doors, windows, and penetrations into the room(s) shall be sealed with poly sheeting. All ventilation systems shall be locked-out and sealed with critical barriers of either poly sheeting or plywood sheeting.
3. Full enclosure of the walls and ceiling with poly sheeting (as applicable) will be required, no matter what method of removal is used. Support of ceiling poly will be at the discretion of the Contractor. Ceiling may be constructed of one layer of 4 mil poly sheeting. Walls shall be constructed of one layer of 4 mil poly.
4. Based on the size of the enclosure/containment, a three stage decontamination unit shall be put into place and be fully operable.
5. A sufficient number of negative air units shall be installed which will provide a negative air pressure of at least -0.030" wp measured with a manometer.
6. Sufficiently wet sheetrock and joint compound wall and ceiling systems to be removed with amended water prior to and during the removal phase of work, and place into waste containers for disposal.
7. Upon completing the removal of all sheetrock and joint compound wall and ceiling systems, the Contractor shall conduct wet wiping on all remaining surfaces within the containment/enclosure.

**Disposal Requirements**

1. All sheetrock and joint compound wall and ceiling system waste that has been tested and found to contain <1% asbestos by the 400 Point Count method may be disposed as non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos containing material.
2. Waste material containers, including "burrito wrapped" material, shall have warning labels affixed. Contractor may either use the Cal/OSHA Title 8, 1529 (k)(8)(A-D) warning:

DANGER  
CONTAINS ASBESTOS FIBERS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
DO NOT BREATHE DUST  
AVOID CREATING DUST

3. All non-hazardous asbestos containing waste shall be tracked utilizing some form of system which at a minimum includes: date, document number, generator name and mailing address, description of the waste, waste generating site address, contractor company name and address, special handling

instructions, transporter company name, as well as name and address of facility accepting the waste

4. Any drywall systems with skim coat or texture coat that contains >1% asbestos shall be handled, packaged and disposed as a friable hazardous asbestos waste..

**Part 23.9 - Impact to and Removal of Transite Pipe, Shingle, or Sheeting Materials**

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

Where transite pipe, shingles, or sheeting is to be impacted or removed the following procedures shall be performed:

1. All requirements of Cal/OSHA Section 1529 and US EPA AHERA regulations apply, and shall be followed, as well as, other applicable Federal, State, and local regulations as they pertain to training, work practices, air monitoring, waste disposal, etc.
2. Personal air monitoring shall be performed in accordance with Cal/OSHA Section 1529
3. Establishment of a work area restricting access to those personnel involved in the work, and posting of the work area is required.
4. An appropriately sized drop cloth of 6-10 mil poly sheeting sufficient in size to contain any debris generated during the removal shall be placed directly under the area to be worked to collect any fallen debris generated during the work.
5. Half-face and disposable coveralls shall be used during this work.
6. A HEPA vacuum must be in the immediate area ready for use.
7. Where the pipe must be cut the contractor may use any method applicable to performing the work. Any use of hand or mechanical saws, or other method which will produce dust and will require the use of the HEPA vacuum and engineering controls which will collect any and all dust generated during the sawing process.
8. The Contractor shall apply a sufficient amount of amended water to all pipe surfaces to be impacted during the work to keep them adequately wet.
9. All of the Contractor's materials, including poly sheeting, tools, etc. shall be properly decontaminated of visible dust and pipe debris utilizing wet cleaning methods and HEPA vacuuming prior to being removed at the completion of the work performed. Disposable materials must be properly disposed.
10. Intact transite waste generated may be disposed as non-friable non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos material. If the transite material is currently friable, or becomes friable during its removal, it shall be disposed of in a landfill permitted to accept friable hazardous asbestos waste.

It is acceptable to dispose of non-friable transite waste after placing it into two 6 mil thick polyethylene bags properly sealed and marked to meet current OSHA requirements.

11. The Contractor is required to provide to Owner's Agent a copy of the "trip ticket" indicating the actual weight of waste material and the landfill accepting the waste.

**Part 23.10- Demolition with Selected Asbestos Containing Materials Left in Place**

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

Under some circumstances, asbestos-containing materials may remain in or on a building during the building's demolition. This section describes the work practices and requirements for the demolition of a building with asbestos-containing materials remaining in place in or on the structure.

All friable, Category II non-friable materials, and all Category I non-friable materials that are expected to become friable during the demolition must be removed prior to the start of the demolition process. For example, surfacing materials, thermal system insulation, vinyl sheet flooring and associated backings, vinyl floor tiles and asbestos cement products must be removed from a building prior to its demolition. Should there be any question as to whether or not a material may remain in or on the building during the demolition, the Contractor shall ask for an opinion in writing from the Owner's CAC. The determination of whether or not a material may remain in a building during the demolition is left solely to the determination of the Owner's CAC.

The only asbestos-containing materials that may remain in or on a building during the building demolition include non-friable materials that the local Air Quality Management District or US EPA has determined may remain in or on the building during the demolition. Approval of this method is determined by the US EPA with the California Air Resources Board having jurisdiction. In general, this will be limited to Category I non-friable materials such as roofing, cove base mastic, paint, and other adhesives. Drywall systems that have a 400 Point Count testing to demonstrate material is ,1% are also materials the EPA allows to be left in place. In order to be considered for being left in or on the building during demolition, there must be a reasonable assumption that these materials will remain non-friable during the demolition.

The black floor mastic containing greater than 1% asbestos on the concrete may be left in place and demolished with the rest of the building as a non-hazardous asbestos waste, as long as, the materials do not become friable. The US EPA NESHAP has determined if this type of flooring mastic becomes friable during the course of the demolition, then it would be considered RACM. Removal of the concrete sections of floor containing the floor mastic using an excavator would not be considered a mechanical action that renders the floor mastic friable. Running over the concrete floor covered with the mastic using an excavator or other heavy equipment with metal tracks will render the concrete and mastic friable and shall not be allowed. The contractor can use an excavator or other heavy equipment with rubber tires on the concrete and is generally not considered to render the mastic friable. If a contractor uses a heavy equipment with metal track on this project, it will not be allowed to go onto the concrete floor that has black mastic, whether the concrete is covered with carpeting, linoleum, vinyl flooring, or other materials. All work will stop at the direction of the CAC if the contractor uses mechanical means that renders the asbestos containing materials left in place friable.

Should the building and materials meet the criteria listed above, the building may be demolished without the prior removal of those materials. However, if previously unidentified materials are discovered during the demolition process, the Contractor must stop demolition and notify the Owner's CAC of the existence of the new material. Under no circumstances may the Contractor continue to disturb the new material until the new material has been properly investigated and the Contractor given permission to proceed by the Owner's CAC.

The demolition of any building on this project with ACM, ACBM, or ACCM remaining in place must be conducted by a California licensed asbestos contractor with current and valid registration with the California Division of Occupational Safety and Health Asbestos Contractors' Registration Unit.

The Federal Occupational Safety and Health Administration (OSHA) has defined the demolition of buildings that contain Class II materials (non-friable materials) to be Class II work. Therefore the training, work practices, and procedures of Class II work must be followed. The following requirements summarize the requirements for Class II work as listed in the Asbestos Standard for the Construction Industry (Title 8 CCR 1529) for work such as demolition where specific controls have not been listed in the standard.

The supervisor must meet the training requirements for a “competent” person for Class II work as listed in Title 8 CCR 1529 (o)(4)(A). In summary, the supervisor must be an accredited supervisor as set for in the EPA’s Model Accreditation Program (40 CFR Part 763, Subpart E). A Competent Person must be present during the course of the asbestos related work. An AHERA accredited asbestos Contractor/Supervisor meets the training and definition of a Competent Person.

The workers must at a minimum meet the training requirements as listed in Title 8 CCR 1529 (8)(k)(9)(D). In summary, they must have a minimum of eight hours of training that includes the subjects listed in Title 8 CCR 1529 (k)(9)(H).

The following procedures must be followed:

1. The work shall be performed using wet methods. At a minimum, one worker must direct a water spray onto the portion of the building being demolished. The amount of water utilized must be adequate to prevent any release of visible dust into the air. The Contractor is responsible for controlling and channeling the flow of the waste water in a manner that meets local ordinances and regulatory agency requirements. The debris generated during the demolition process must be visually wet at all times prior to and while it is being containerized.
2. Effort should be made to remove the sections of asbestos-containing materials in as intact a condition as possible.
3. Debris must be containerized as described below. Debris must be containerized or kept wet during any work breaks. No loose debris may be left on the site overnight. Any building partially impacted by the work which will not be totally demolished by the end of the day must be completely wetted prior to the end of the shift.
4. Debris must be placed in a container that can be closed or sealed with poly sheeting. The container must have the inside lined with a minimum of two layers of reinforced ten millimeter thick poly sheeting with enough sheeting remaining on all sides to allow for burrito wrapping of the load. The two layers of poly sheeting must be independently closed and sealed with tape and spray glues. This wrapped material must then be labeled with the sign described in Title 8 CCR 1529 (k)(8) DANGER, CONTAINS ASBESTOS FIBERS, AVOID CREATING DUST, CANCER AND LUNG DISEASE HAZARD
5. Nonhazardous waste data forms for each container must be supplied to the Owner’s CAC no later than the end of each day.
6. Contractor shall provide personal air monitoring for Class II as described in Title 8 CCR 1529 (f)(3)(A).
7. The Contractor shall develop a regulated area that keeps unauthorized persons out of the work area.
8. All personnel in the regulated area must wear, at a minimum, disposable clothing and a half-face respirator with P-100 (HEPA) cartridges.
9. Regardless of any exposure monitoring, the Contractor will require all workers to wear at a minimum protective suits and half-face negative pressure respirators. This requirement does not relieve the Contractor of performing personal monitoring of its workers.

**Part 23.11 - Contaminated Attic Space Procedures**

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

The Owner considers existing attic spaces to be contaminated with asbestos containing roofing debris unless otherwise determined or reported. The Owner has restricted access to all attic spaces to properly trained and protected personnel. Excluded from this restriction is opening a ceiling access hatch and entering the attic space with the upper body. Physical access into an attic space which includes a person placing their entire body in the attic space with intent to access other areas of the attic space is prohibited by unprotected and untrained personnel. No entry into these spaces shall be made regardless of duration of time or intent without compliance with the requirements outlined in these specifications.

Activities expected to take place in contaminated attic spaces most closely resemble the definition of "Class IV" work which is defined by Cal/OSHA in CCR; Title 8, Section 1529, as maintenance and custodial activities during which employees contact but do not disturb asbestos containing material (ACM) or presumed asbestos containing material (PACM).

To comply with the various regulations pertaining to this type of work in contaminated attic spaces, the following procedures are to be followed by individuals entering these areas.

1. Personnel assigned to enter contaminated attic spaces shall receive a minimum of two hours of asbestos awareness training pursuant to Title 8 1529.
2. Personnel assigned to wear respirators must be included in a respirator protection program as outlined in California General Industry Safety Order 8 CCR 1544. If the person must enter the attic space it will require use of at least a half-face negative pressure respirator with HEPA filters and disposable coveralls.
3. Prior to entry of a contaminated attic space each employee must pass a medical evaluation to ensure their fitness to wear a respirator.
4. A certified asbestos competent person must select the appropriate type of respirator(s) for the airborne asbestos levels anticipated to be encountered during such work.
5. Each employee assigned a respirator must successfully pass a qualitative or quantitative fit test prior to entry of a contaminated space.
6. A six (6) mil poly drop sheet must be placed at the entry to the space (approximately 6' X 6' in size) prior to entry.
7. Clean, potable water must be made available at the entry/exit for use to wash hands, faces, and equipment upon exiting from the space.
8. Employees entering contaminated attic spaces shall don two (2) sets of whole body coveralls, including head and foot covering. Appropriate type gloves for the work to be conducted must also be worn.
9. Disposal bags (6 mil poly), with the appropriate labeling, shall be made available at the entry/exit for disposal of contaminated protective clothing. One bag to be placed inside the space at the exit point and one shall be placed outside the space at the exit point.
10. Personnel working in contaminated attic spaces shall be instructed not to touch or disturb any suspect asbestos debris or materials encountered. If the extent of contamination is such that the employees can not perform their work without disturbing the material or debris, they shall exit the space until such time a certified asbestos abatement contractor has removed the material or debris and thoroughly encapsulated the area.
11. All tools or other equipment used in the course of the work shall be wiped down with clean, damp rags, prior to being removed from the space.

12. Prior to exiting the contaminated attic space, personnel shall remove their outer set of coveralls immediately adjacent to the exit point, leaving their respirator in place and dispose of the used coveralls in the waste bag.
13. Upon exiting the contaminated attic space, personnel shall remove the inner (or remaining) set of coveralls and place these in the waste bag provided for this purpose.
14. Personnel shall wash their hands prior to carefully removing their respirator and disposing of the filters in the waste bag provided.
15. Personnel shall at this time wash their faces and complete the decontamination of their respirators.

**Part 23.12 - Non-Friable, Non-Hazardous, Glazing Abatement Requirements**

**General Requirements**

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. Removal of non-friable, non-hazardous, asbestos-containing glazing materials shall be coordinated and scheduled to be performed when there are favorable weather conditions, such as, low winds and no rain. If possible the work should be conducted when the interior space adjacent to the removal area is unoccupied.
3. Work should be halted if wind conditions occur which can or does cause removed glazing materials to be blown off the perimeter poly sheeting, or beyond the designated removal area perimeter.
4. No cutting, sanding, grinding, or removal by any other method which will result in the glazing being crumbled, crushed, or turned in to powder is to be used without review and approval by the Owner and the Owner's Representative.

**General Glazing Removal Instructions and Requirements**

1. Removal of non-friable, asbestos-containing, glazing materials, is designated as Class II work. Half-face, negative pressure respirators and disposable coveralls shall be used at a minimum by all workers, at all times, when within the regulated area.
2. All glazing materials shall be removed in an intact state to the extent feasible utilizing hand tools such as a hammer and chisel, or other implement or tool suitable for this type of work. At no time may power tools be used while following these removal requirements.
3. All glazing materials are to be pre-wet with an amended water solution or liquid encapsulant prior to removal, and as needed during removal.
4. All associated surfaces where removal of glazing has taken place shall be wet wiped and HEPA vacuumed prior to removal of the regulated area or any interior poly sheeting/critical barrier. Particular attention shall be directed at assuring all loose debris has been cleaned from the removal surfaces.
5. Upon completion of all activities worker shall clean exposed skin with hot soap and water, and check clothing for any glazing chips. Remove chips by hand or utilize a HEPA filter equipped vacuum.

**Pre-Abatement Preparation Requirements**

1. The worker may either seal the interior window surface with poly sheeting to create a critical barrier,

or place one layer of 6 mill poly sheeting on the floor beneath the window incase a window pane is broken during removal. These critical barriers or floor coverings shall be installed prior to the initiation of the removal work, and removed upon completion of the removal work as appropriate.

- 2. If the interior space must remain occupied a critical barrier must be installed on the interior surface of the window or opening where removal must occur. This may be waived and a layer of sheeting may be placed on the floor or adjacent surfaces if the interior space is going to remain unoccupied during the entire removal operation.
- 3. The perimeter of the work area where glazing removal is to be conducted, shall be posted with barrier tape at a distance of at least 20 feet from the edge of the removal area. This barrier tape will provide a buffer zone, and assist in the restriction of non-removal personnel.
- 4. Poly sheeting shall be placed on the ground directly below the work area or on adjacent surfaces for a distance sufficient to contain all debris which may be generated during the work. The poly sheeting should be secured to the ground using tape, weights, or other means to assure the poly will remain in place and not be picked up by wind or become a trip hazard.

**Posting and Label Requirements for:**

**Regulated Area**

Access to regulated areas shall be posted as outlined by Cal/OSHA Title 8, 1529 (k)(7)(B) 1 and 2 with warning signs and barrier tape bearing the following information:

**DANGER**  
**ASBESTOS**  
**CANCER AND LUNG DISEASE HAZARD**  
**AUTHORIZED PERSONNEL ONLY**  
**RESPIRATORS AND PROTECTIVE CLOTHING ARE**  
**REQUIRED IN THIS AREA**

These postings are required to warn non-abatement personnel of the restricted access, and potential hazard which exists in the vicinity of the regulated area.

**Work Area Perimeter**

Work area perimeters shall be posted with barrier tape bearing one of the following descriptions:

- CAUTION** in black letters on a solid yellow background.
- DANGER** in black letters on a solid red background.
- DANGER ASBESTOS HAZARD** in black letters on a solid red background.

**Waste Material Containers**

Waste material containers, shall have warning labels affixed in accordance with Cal/OSHA Title 8, 1529 (k)(8)(A-D).

**DANGER**  
**CONTAINS ASBESTOS FIBERS**  
**MAY CAUSE CANCER**  
**CAUSES DAMAGE TO LUNGS**  
**DO NOT BREATHE DUST**  
**AVOID CREATING DUST**

**Waste Disposal**

1. Glazing waste may be disposed as non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos-containing material as long as the removal work was performed by hand utilizing hand tools, and the materials were not crushed, pulverized, or turned into powder during the removal process. If this does occur the waste must be reclassified as friable. If the asbestos-containing glazing material is currently friable, or becomes friable during its removal, it shall be disposed of in a landfill permitted to accept friable hazardous asbestos waste.

**Part 23.13 - Subfloor Crawl Space Dirt Removal Requirements**

Not Applicable

**Part 23.14 - Subfloor Enclosure Requirements**

Not Applicable

**Part 23.15 - Installation of "Rat Slab" in Subfloor Crawl Space Requirements**

Not Applicable

**Part 23.16 - Stucco/Texture Removal and Containment Requirements**

**General Requirements**

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

Stucco/texture surfacing materials regardless of asbestos content from exterior building components shall be removed by either by hand or by other mechanical methods within a negative pressure enclosure with a manometer and following all requirements in these specifications including a three stage worker decontamination unit.

1. Removal of stucco/texture regardless of asbestos content over a surface area greater than 25 square feet will require the construction and use of a three stage decontamination unit. This decontamination unit must be directly attached to the entrance of the containment and fully operable with working shower and hot water heater, as well as properly stocked with towels, soap, and shampoo.
2. Sufficient negative air units shall be installed which will provide a minimum of 4 air changes per hour and -0.030" air pressure differential measured with an attached manometer.
3. Upon completing removal of all stucco/texture, the Contractor shall conduct wet wiping of all remaining wall surfaces, poly barriers, scaffolding, etc. to remove settled dust from those surfaces.

**Final Lockdown-Encapsulation**

1. Lock down-encapsulation of the containment shall be performed using one of two methods based on the needs of the project.
  - A. **Hand Wipe Method:** The needs of the project may require the remaining building component surfaces have no new film materials applied to them. If this is required the asbestos abatement contractor shall use clean wet cloths/towels to wipe existing surface dust off of remaining building components. These cloths/towels will be wetted with clean water and no chemicals or treatments will be added. All poly sheeting scaffolding and other components used to create the containment will be hand wiped with wetted cloths/towels which are treated



with lock down-encapsulation chemicals to remove possible surface dust and lock down-encapsulate the surfaces of these items. This method can be used prior to the final visual to complete the final cleaning process.

- B. **Air-less Spray Method**: The asbestos contractor shall lock down-encapsulate the entire containment area upon completion of the final visual inspection by the Owner's CAC, and acceptance of the work as complete.

### **Disposal Requirements**

1. All waste containing less than 1% asbestos shall be properly disposed as a non-hazardous asbestos containing waste at an appropriate landfill. All waste containing greater than 1% asbestos shall be properly disposed as hazardous asbestos waste, in a landfill permitted to accept friable, hazardous ACM.
2. All waste containers shall have labeling in accordance with OSHA, DOT, EPA and DTSC requirements. All "Hazardous Waste" shall also include a Waste manifest with the generator's name, address, and Manifest Document number.

### **Part 23.17 - Fireproofing Abatement Requirements**

#### **General Requirements**

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

All fireproofing material regardless of amount shall be removed in a negative pressure enclosure/containment. The enclosure shall include critical barriers, two layers of plastic on walls if the walls are not being removed, a sufficient number of DOP tested negative air units to attain a level of at least -0.030" of negative air pressure within the containment, a digital recording manometer with a minimum of displaying three digits after the zero (0.000). At a minimum, a three-stage decontamination unit with an operational shower and water filtration system.

1. Removal of fireproofing by multiple methods and techniques shall be performed by personnel who are trained and accredited to perform Class I work.
2. Water blasting of fireproofing is not allowed.
3. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum this shall include full-face powered air purifying respirators, and full body coveralls.
4. All doors, windows, and penetrations into the room(s) shall be sealed with poly sheeting. All ventilation systems shall be locked-out and sealed with critical barriers of either poly sheeting or plywood sheeting.
5. Full enclosure of the walls and ceiling with poly sheeting (as applicable) will be required, no matter what method of removal is used. Support of ceiling poly will be at the discretion of the Contractor. Ceiling may be constructed of one layer of 4 mil poly sheeting. Walls shall be constructed of two layers of 4 mil poly.
6. A three stage decontamination unit is required and shall be comprised of zippered doors between the chambers. Flapped doors will not be acceptable. The decontamination unit shall be cleaned daily of all debris, bags, tape, towels, etc. and shall remain clean during the day..

7. Since all asbestos workers will be required to shower upon leaving the work area, all workers shall wear a bathing suit under the full body coverall. The shower shall have hot and cold water, shampoo, soap and clean dry towels for drying. **No street clothes or shoes shall be worn inside containment by the asbestos contractor employees during the removal process.** The contractor cannot wear leather work boots in the shower, so steel toed rubber boots are required to be worn. Rubber boots shall be left in the equipment room before entering the shower and they can be washed at the end of the work day and placed inside of asbestos waste bag, taped closed and removed.
8. Sufficient negative air units shall be installed which will provide a minimum of 4 air changes per hour and a minimum of -0.030" air pressure differential, while the zippered doors are opened for bag-out of waste. A digital manometer recording shall be made of all days when in use. The manometer tapes shall reflect the location, times, and dates of all measurements recorded.
9. When the Contractor has passed the pre-start visual inspection by the asbestos consultant, removal of fireproofing may be conducted.
10. Sufficiently wet fireproofing to be removed with amended water prior to and during the removal phase of work, and place into waste containers for disposal.
11. No fireproofing shall be allowed to remain on the floor of the containment at the end of each work shift. All fireproofing removed on a shift shall be placed in waste containers. During asbestos removal, all floors of the containment shall remain wet by frequent wetting with amended water. At no time shall the floor of the containment be dry.
12. The contractor shall clean all surfaces of the substrate using whatever tools to effectively clean and remove the material. On metal fluted decks where fireproofing material is removed, all fluted openings shall be cleaned of debris using small tools rags, brushes, etc. as necessary to reach the remove the material. Upon completing the removal of all fireproofing, the Contractor shall conduct wet wiping on all remaining surfaces within the containment/enclosure. Use of an airless spray to detail clean the fluted openings is an acceptable cleaning technique.

### **Disposal Requirements**

1. All fireproofing waste shall be disposed as friable hazardous asbestos waste at a landfill permitted to accept friable, hazardous asbestos containing material.

## **SECTION 24. ASBESTOS SPECIFICATIONS/PROCEDURES**

### **Part 24.1 - Contacts**

Blake Howes, Entek Consulting Group, Inc. 916-632-6800

### **Part 24.2 - Removal Locations**

Refer to architectural drawings for this site identifying the buildings and work included in the project and scope of work outline. The General Contractor and his Sub-contractor are responsible for estimating the amount of asbestos-containing materials to be disturbed or removed as revealed on the mandatory bid walk, and provided in the project specifications and architectural drawings. The drawings will also provide the Contractor with locations where work is to be performed to allow computation of the quantities of materials to be impacted or removed.

The asbestos contractor shall provide a complete copy of this specification to their onsite competent person for reference while conducts work on the project. A copy of these specifications shall remain onsite by the

asbestos contractor for the duration of the project.

**Part 24.3 - Materials to be Abated**

Refer to the architectural drawings and project specifications for designations and instructions pertaining to what materials are to be removed or impacted during this project. Directions pertaining to materials to be impacted or removed during this project are **NOT** included in this Exhibit. This exhibit includes work practices and procedures for those materials that are impacted by the planned renovation/demolition.

Areas of roofs, walls, floors, and/or ceilings may require penetrations be made during the project which may involve asbestos containing materials (ACM) depending upon the location of penetrations. Prior to impacting any building materials which are listed as “suspect” for containing asbestos by the US EPA the Contractor should refer to Section 25, Asbestos Results List for information pertaining to specific Asbestos Containing Materials (ACM) or products known to exist on the site. Materials suspected of containing asbestos but which have not been tested are “assumed” to contain asbestos.

A hazardous materials inspection was conducted by Entek Consulting Group, Inc. for Oak Ridge Elementary School, in preparation of this project. The contractor shall refer to the Hazardous Materials Survey report prepared on May 3, 2023, which includes all suspect building materials that were sampled and analyzed for asbestos and included an assessment for lead in paint and ceramic products. The report also includes discussion on Freon, PCB in ballasts, and fluorescent light tubes.

Materials commonly excluded from being suspected for containing asbestos include but are not limited to: unwrapped pink and yellow fiberglass insulating materials or products, foam insulation, wood, metal, plastic, or glass. All other types of building materials or coatings on the materials listed above are commonly listed as “suspect” and must be tested prior to impact by a Contractor.

Attic spaces at this site may already be contaminated with asbestos roofing debris from prior roofing replacement projects, but is unknown. If ceiling systems are removed and it is discovered that suspect roofing debris is present, the contractor shall stop work and bring it to the attention of the project manager to assess the potential for asbestos.

**Part 24.4 - Containment and Abatement Requirements**

The general guidelines in these specifications shall be followed by the asbestos abatement contractor for all work on this project. All requirements of Cal/OSHA Section 1529 and US EPA AHERA regulations apply, and shall be followed, as well as, other applicable regulations.

The Contractor shall follow all requirements set forth in Section 23, Specific Procedures and Requirements when disturbing or removing specific asbestos containing materials.

All asbestos related work shall be performed within negative pressure work enclosures for any class of asbestos work. The term “containment” or “enclosure” shall be construed to mean a containment which is constructed to enclose a work area (as defined in Section 2), and meet all applicable requirements set forth in Sections 2 through 22 of this Specification and all governing regulatory agency requirements. Each containment shall be tailored to meet the needs of the “work area” to be enclosed and include all requirements as set forth in the above related sections and government regulations applicable to asbestos related work.

Sufficient negative air units shall be installed which will provide a minimum of 4 air changes per hour and a minimum of -0.030" air pressure differential, while the zippered doors are opened for bag-out of waste. A digital manometer recording shall be made of all days when in use. The digital recording manometer shall have at a minimum the ability of displaying three digits after the zero (0.000). The manometer tapes shall reflect the correct location, times, and dates of all measurements recorded. Once these requirements have been met and the negative pressure has been established, the Contractor shall request a pre-start visual inspection from Owner’s asbestos consultant.

A three stage decontamination unit is required and shall be comprised of zippered doors between the chambers. Flapped doors will not be acceptable. The decontamination unit shall be cleaned daily of all debris, bags, tape, towels, etc. and shall remain clean during the day. The clean room of any three stage decontamination unit shall be at least 5' in width, 5' in length, and 7' in height. Multiple showers are required if the number of asbestos workers exceeds ten per Title 8 3366 Washing Facilities. When there are less than five employees, the same shower may be used by both sexes if the shower room can be locked from the inside.

**Part 24.5 - Contractor Assist Requirements**

The asbestos contractor shall provide "contractor assist" services for electrical, plumbing, mechanical, and other trades as necessary and agreed to with the General Contractor, for work to be conducted in spaces such as attics, wall cavities, and mechanical rooms where asbestos contamination is present, or where ACM are to be disturbed in order to perform the work.

Contractor assist work shall require the asbestos contractor to construct a mini-cube enclosure, create access to the contaminated area, and wet wipe or HEPA vacuum all dust and debris from the immediate work area as needed to create a "clean" environment for the trade workers to work. All procedures specified in Section 23 shall be followed.

**Part 24.6 - Worker Protection**

At a minimum half-face respirators with P-100 (HEPA) cartridges, disposable coveralls, and hard sole shoes shall be used during the removal and disposal of all asbestos containing material. Full-face powered air purifying respirators (PAPR) with P-100 cartridges are required for all Class I work. Workers wearing tennis shoes, sandals, or soft sole type shoes will not be allowed to work on roofs or inside containments regardless of the activity being performed. Worker protection for all other work areas shall be in compliance with Cal/OSHA requirements and shall follow the respirator selection as specified in Title 8 section 5144.

**Part 24.7 - Electrical and Water Hook-Ups**

The Owner shall provide access for electrical and water hook-ups. The Contractor shall install a temporary electrical spider box to an existing electrical panel using a licensed qualified electrical contractor. The Contractor is responsible for all hook-ups, electrical cords, water hoses, and hose bibs necessary for attachment.

**Part 24.8 - Visual and Air Clearance Criteria**

The Contractor shall perform a pre-final visual of the removal area and adjacent surfaces prior to requesting that Owner's asbestos consultant (CAC) conduct a final visual inspection. The pre-final visual performed by the Contractor shall verify that all materials have been completely removed from the work area, and that the work area meets the requirements specified in Section 17.

Upon completion of the pre-final visual inspection by the Contractor, a final visual of the containment area will be performed by Owner's asbestos consultant. The Contractor shall not be allowed to encapsulate the containment until receiving acceptance by Owner's asbestos consultant confirming the removal area and the containment have met the criteria of Owner's asbestos consultant for completeness of removal of asbestos materials and cleanliness of the containment barriers and surfaces.

Clearance air sampling will be performed following passing the visual inspection, encapsulation of the containment has taken place and a sufficient amount of time has passed to allow the encapsulant to dry. All clearance air samples will be analyzed by transmission electron microscopy (TEM), and performed by a NIST/NVLAP accredited laboratory. The clearance criteria for releasing the Contractor is the AHERA Standard, with the average of all air samples less than 70 asbestos structures per square millimeter. Aggressive air sampling will be used, which includes using a leaf blower in conjunction with fans to dislodge

any remaining dust within the containment.

**Part 24.9 - Owner's Responsibility**

Not Used

**Part 24.10 - Disposal Requirements**

Disposal of all friable hazardous asbestos containing waste must be tracked utilizing a current copy of a Uniform Hazardous Waste form. These forms are to be properly filled out by the Contractor and signed by an authorized Owner's representative. All non-friable non-hazardous asbestos waste shall be tracked using a Bill of Lading or equivalent and signed by an authorized Owner's representative. No individual or representative other than the Owner's designated representative is permitted to sign Uniform Hazardous Waste forms or bill of Lading or equivalent for the Owner.

It shall be the responsibility of the Contractor to notify Owner's CAC and coordinate having a hazardous waste manifest properly signed by a Owner representative.

**Part 24.11 - Work Periods**

Work periods shall be scheduled with Owner's CAC at least 48 hours prior to the start of any shift. If weekend work is to be conducted, shift times are to be established and approved by Owner's CAC. All shifts are to consist of 8 hours and will begin at the time specified and agreed to by Owner's CAC and the abatement contractor.

**PREPARED BY:**

Blake Howes  
Vice President  
Entek Consulting Group, Inc.  
CAC#13-5015  
May 3, 2023

**Part 24.12 - Pre-Construction Submittal List**

- 1. \_\_\_\_\_ Copy of State of California - Contractor's State License
- 2. \_\_\_\_\_ Copy of State of California CSLB Active License
- 3. \_\_\_\_\_ Copy of State of California CSLB Asbestos Certification
- 4. \_\_\_\_\_ Copy of Department of Industrial Relations; Division of Occupational Safety and Health; Certificate of Registration for Asbestos-related Work
- 5. \_\_\_\_\_ Copy of signed statement from company officer listing citations and pending proceedings against the Contractor, or if there have been no citations, a copy of the statement that no actions by regulatory agencies have occurred in the last three years signed by an officer of the company.
- 6. \_\_\_\_\_ General Liability Insurance Certificate
  - a) \_\_\_ Occurrence
  - b) \_\_\_ Asbestos/Lead Activities or Abatement Certificate
  - c) \_\_\_ Owner Named as Additional Insured
  - d) \_\_\_ Consultant Named as Additional Insured
- 7. \_\_\_\_\_ Auto Insurance
- 8. \_\_\_\_\_ Workers' Compensation Insurance
- 9. \_\_\_\_\_ Statement of Non-use of Sub-contractors or
  - a) \_\_\_ Name of Each Sub-contractor
  - b) \_\_\_ License Number for Each Sub-contractor
  - c) \_\_\_ General Liability Insurance Certificate for Each Sub-contractor
    - 1) \_\_\_ Minimum Coverage of \$1,000,000.00
    - 2) \_\_\_ Owner Named as Additional Insured
    - 3) \_\_\_ Consultant Named as Additional Insured
  - d) \_\_\_ Auto Insurance Certificate for Each Sub-contractor
  - e) \_\_\_ Workers' Compensation Insurance Certificate for Each Sub-contractor
    - 1) \_\_\_ Owner Named as Additional Insured
    - 2) \_\_\_ Consultant Named as Additional Insured
- 10. \_\_\_\_\_ Written Notification to CAL/OSHA
- 11. \_\_\_\_\_ Written Notification to SMAQMD, EPA NESHAP Region IX
- 12. \_\_\_\_\_ Copies of City Permits (e.g. Parking or Waste container) or Statement That no Permits are Required
- 13. \_\_\_\_\_ Statement That no Equipment Will be Rented for use With Asbestos or a Statement From Each Rental Company Acknowledging Their Equipment Will be Exposed to Asbestos

- 14. \_\_\_\_\_ Non-Emergency Telephone Numbers
  - a) \_\_\_ Local Police Department
  - b) \_\_\_ Sheriff Department
  - c) \_\_\_ Fire Department
  - d) \_\_\_ Emergency Medical Facility and Directions to That Facility From the Site
- 15. \_\_\_\_\_ Written Emergency Plans
- 16. \_\_\_\_\_ Written Work Plan
- 17. \_\_\_\_\_ Written Schedule
- 18. \_\_\_\_\_ Worker Documentation (Must Include at Least One Supervisor)
  - a) \_\_\_ Training Records for Asbestos - AHERA (Supervisor and Worker)\*
  - b) \_\_\_ Medical Examination Written Opinion Final Report for Each Employee\*
  - c) \_\_\_ Respiratory Fit Tests for Each Employee\*
- 19. \_\_\_\_\_ Equipment list, SDS for all materials to be used on the project, including but not limited to, spray glue, encapsulants, wetting agents, mastic remover, etc.
- 20. \_\_\_\_\_ Name of laboratory/person used for PCM analysis and copy of current NVLAP Certificate of Accreditation (if applicable), and most recent AIHA Proficiency Analytical Testing (PAT) Program results.
- 21. \_\_\_\_\_ Written Statement That OSHA Monitoring Will be Performed During the Project
- 22. \_\_\_\_\_ Manufacturers documentation of 5.0 micron filter capability required for waste water
- 23. \_\_\_\_\_ Name of Transporter
- 24. \_\_\_\_\_ Hazardous Waste Transporter Registration (if applicable) **Is required only if work to be conducted involves the removal and disposal of "hazardous" asbestos waste as determined either by definition or designated within the Asbestos Abatement Specifications/Procedures and associated attached Exhibits.**
- 25. \_\_\_\_\_ Waste Facility Documentation
  - a) \_\_\_ Name and Site Address
  - b) \_\_\_ EPA Identification Number (if applicable)
  - c) \_\_\_ Copy of Current Permit Authorizing Asbestos Waste Receipt and Disposal
- 26. \_\_\_\_\_ Signed Copy of Competent Person Form Acknowledging Reading and Understanding the Specifications (Last Page of Forms Sections of Document) This must be signed by the asbestos Contractor/Supervisor who will onsite, not in the contractor's office.

Note: Items 9, 12, 13, and 21 may be addressed in a single letter as applicable.

\* No Contractor's worker will be allowed to conduct asbestos related work, enter a containment, or regulated area prior to verification of AHERA, respirator, and medical documentation. This verification must either be onsite or faxed to Owner's CAC prior to entry.

**Part 24.13 - Interim Construction Submittals**

Upon request by the Owner or Owner's Representative, the Contractor shall provide copies of documentation identified to be pertinent to the project.

**Part 24.14 - Post Construction Submittal List**

Contractor shall provide the following post-construction submittals to Owner's Representative within thirty (30) days of the completion of asbestos abatement work.

1. \_\_\_\_\_ Copies of revised notifications to regulatory agencies.
2. \_\_\_\_\_ Information on all new workers not covered by the pre-construction submittals and not submitted during the project.
3. \_\_\_\_\_ A copy of worker exposure monitoring results collected in compliance with DOSH regulations (Title 8 CCR, Section 1529) including daily/representative/full-shift/breathing-zone air samples, and 30-minute excursion samples.
4. \_\_\_\_\_ A copy of the worker/visitor log showing the following for all persons entering the work area: date, name, social security number, entering, and leaving times, company or agency represented, and reason for entry. The Contractor's time records will not be accepted in lieu of a worker/visitor log.
5. \_\_\_\_\_ Copies of all accident reports submitted during the course of work. **If no accidents occur during the project this should be stated in writing by the Contractor.**
6. \_\_\_\_\_ Receipts from the landfill operator acknowledging the Contractor's delivery of wastes, including dates, container types and quantities, tare weights or material delivered, and all appropriate signatures.
7. \_\_\_\_\_ A complete record of the air filtration devices used certifying DOP testing (if performed) and a circular chart recording, indicating continuous operation and documenting differential air pressure.
8. \_\_\_\_\_ Copies of DOP Testing Performed on HEPA Equipment not Previously Submitted
9. \_\_\_\_\_ Manometer graphs identifying project name, date, and location.
10. \_\_\_\_\_ A copy of the asbestos waste record showing dates, times, manifest numbers, quantities of wastes, types of containers removed from the work area, the hauler, and the signature of the recorder.
11. \_\_\_\_\_ A Land Disposal Restrictions Notification and Certification
12. \_\_\_\_\_ Completed Uniform Hazardous Waste forms
13. \_\_\_\_\_ Other Documents as Requested



SECTION 25. ASBESTOS RESULTS LIST

Any material not specified on the following list which the Contractor encounters at this site must be considered as “suspect” and “assumed” to contain asbestos per US EPA. The only items excluded from this statement are; bare wood, glass, and metal.

Suspect Materials Found or Assumed TO Contain Asbestos Administration/MPR Building					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
01A-C	Black Carpet Mastic, Yellow Carpet Mastic	1-2% <b>CHRYSOTILE</b> (Black Mastic) NONE DETECTED (Yellow Mastic)	Beneath Carpet Throughout Administration Area & Offices	CAT-I	900 Sq.
02A-B	Blue/Gray Mottled 12" Vinyl Floor Tile, Yellow Mastic, Black Mastic	NONE DETECTED (Floor Tile) NONE DETECTED (Yellow Mastic) 1-2% <b>CHRYSOTILE</b> (Black Mastic)	Admin Area Storage Room	CAT-I	50 Sq.
04A-B	Blue/Gray Mottled 12" Vinyl Floor Tile, Yellow Mastic, Black Mastic	NONE DETECTED (Floor Tile) NONE DETECTED (Yellow Mastic) 1-2% <b>CHRYSOTILE</b> (Black Mastic)	Admin Area Entry	CAT-I	50 Sq.
13B	Red 6" Clay Floor Tile, Brown Grout & Mortar, Black Mastic	NONE DETECTED (Clay Tile) NONE DETECTED (Grout & Mortar) >1% <b>CHRYSOTILE</b> (Black Mastic)	Kitchen Area Addition	CAT-I	250 Sq.
Please note sample 13B was not confirmed to contain <1% asbestos via 400 point count analysis and must be assumed to contain >1% asbestos for removal and disposal purposes.					
24A-E 36A-C 49A-B 59A-B	Roofing Debris, Black Felt, Silver Paint	NONE DETECTED (Black Debris) 20-30% <b>CHRYSOTILE</b> (Black Felt) NONE DETECTED (Silver Paint)	Attic Spaces over Admin Area, Hallways, Kitchen	CAT-I	3,500 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 5-8					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM/PC	Location	NESHAP Classification	Total Estimated Quantity
26A-C	Green 9" Vinyl Floor Tile, Black Mastic	1-5% <b>CHRYSOTILE</b> (Floor Tile)	Rooms 5-7	CAT-I	2,700 Sq.
		1-5% <b>CHRYSOTILE</b> (Black Mastic)		CAT-I	2,700 Sq.
29A	Beige Streaked 9" Vinyl Floor Tile, Black Mastic	1-2% <b>CHRYSOTILE</b> (Floor Tile)	Room 8	CAT-I	900 Sq. Total Floor Tile
		1-5% <b>CHRYSOTILE</b> (Black Mastic)		CAT-I	
30A-B	Beige Streaked 12" Vinyl Floor Tile, Black Mastic	1-2% <b>CHRYSOTILE</b> (Floor Tile)	Room 8	CAT-I	900 Sq. Total Mastic
		1-2% <b>CHRYSOTILE</b> (Black Mastic)		CAT-I	
24A-E 36A-C 49A-B 59A-B	Roofing Debris, Black Felt, Silver Paint	NONE DETECTED (Black Debris) 20-30% <b>CHRYSOTILE</b> (Black Felt) NONE DETECTED (Silver Paint)	Attic Spaces over Rooms 5-8	CAT-I	3,600 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos East Restroom/Storage Building					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
39A-B	Light Brown Streaked 9" Vinyl Floor Tile, Yellow Mastic, Black Mastic	1-2% <b>CHRYSOTILE</b> (Floor Tile)	South Large Storage Room & Small Restroom	CAT-I	200 Sq.
		NONE DETECTED (Yellow Mastic) 1-2% <b>CHRYSOTILE</b> (Black Mastic)		CAT-I	200 Sq.
40A-B	Dark Brown Mottled 12" Vinyl Floor Tile, Yellow Mastic, Black Mastic	NONE DETECTED (Floor Tile) NONE DETECTED (Yellow Mastic) 1-5% <b>CHRYSOTILE</b> (Black Mastic)	North Large Storage Rooms	CAT-I	400 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos East Restroom/Storage Building					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
41A	Yellow Pebble Sheet Vinyl Flooring, Black Mastic, Yellow Mastic	<b>15-20% CHRYSOTILE</b> (Sheet Vinyl) <b>1-5% CHRYSOTILE</b> (Black Mastic) NONE DETECTED (Yellow Mastic)	Small Restroom at North Large Storage Room	RACM CAT-I	50 Sq. 50 Sq.
24A-E 36A-C 49A-B 59A-B	Roofing Debris, Black Felt, Silver Paint	NONE DETECTED (Black Debris) <b>20-30% CHRYSOTILE</b> (Black Felt) NONE DETECTED (Silver Paint)	Attic Space over All Rooms	CAT-I	1,000 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 31-34					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
51A-C 54A-B	Green 9" Vinyl Floor Tile, Black Mastic, Yellow Mastic	<b>1-5% CHRYSOTILE</b> (Floor Tile) <b>1-5% CHRYSOTILE</b> (Black Mastic) NONE DETECTED (Yellow Mastic)	Rooms 31-34 (Beneath Carpet & Sheet Vinyl in Room 34)	CAT-I CAT-I	3,600 Sq. 3,600 Sq.
24A-E 36A-C 49A-B 59A-B	Roofing Debris, Black Felt, Silver Paint	NONE DETECTED (Black Debris) <b>20-30% CHRYSOTILE</b> (Black Felt) NONE DETECTED (Silver Paint)	Attic Space over Rooms 31-34	CAT-I	3,600 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 1-4					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
68A	Gray Stone Pattern Sheet Vinyl, Yellow Mastic 1, White Sheet Vinyl, Yellow Mastic 2	NONE DETECTED (Gray Sheet Vinyl) NONE DETECTED (Yellow Mastic 1) <b>15-20% CHRYSOTILE</b> (White Sheet Vinyl) NONE DETECTED (Yellow Mastic 2)	Room 2, Child Restroom  (Sublayer of Visible Flooring)	RACM	40 Sq.
70A	Gray Vinyl Floor Tile (Bottom Layer), Yellow Mastic	<b>1-2% CHRYSOTILE</b> (Floor Tile) NONE DETECTED (Yellow Mastic)	Room 2 Restroom Vestibule (Sublayer of Visible Flooring)	CAT-I	100 Sq.
72A	Beige Vinyl Floor Tile (Bottom Layer), Black Mastic, Yellow Mastic	<b>1-2% CHRYSOTILE</b> (Floor Tile) NONE DETECTED (Yellow Mastic) NONE DETECTED (Black Mastic)	Room 2 Entry  (Sublayer of Visible Flooring)	CAT-I	100 Sq.
73A	Green 9" Vinyl Floor Tile, Black Mastic, Yellow Mastic	<b>1-5% CHRYSOTILE</b> (Floor Tile) <b>1-5% CHRYSOTILE</b> (Black Mastic) NONE DETECTED (Yellow Mastic)	Room 2 Restroom Area Storage	CAT-I  CAT-I	40 Sq.  40 Sq.
76A-B	Light Brown Streaked 9" Vinyl Floor Tile, Black Mastic, Yellow Mastic	<b>1-2% CHRYSOTILE</b> (Floor Tile) <b>1-5% CHRYSOTILE</b> (Black Mastic) NONE DETECTED (Yellow Mastic)	Room 4 Restroom Vestibule & Entry	CAT-I  CAT-I	200 Sq.  200 Sq.
77A	Gray Vinyl Floor Tile (Bottom Layer), Black Mastic Yellow Mastic	<b>1-2% CHRYSOTILE</b> (Floor Tile) <b>1-5% CHRYSOTILE</b> (Black Mastic) NONE DETECTED (Yellow Mastic)	Room 1 Restroom Vestibule (Sublayer of Visible Flooring)	CAT-I	100 Sq.  100 Sq.
<p>Please note that due to the large amount of different flooring materials found in rooms 1-4 at entry areas, restroom, restroom vestibules, and possible other areas of flooring, Entek recommends treating all vinyl floor tile and associated black mastic as asbestos containing in this entire classroom block. Estimated square footage of entire area is 4,800 square feet.</p>					

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 1-4					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
81A	Gray 4" Vinyl Base Cove, Yellow Mastic, Tan Mastic, Brown Mastic	NONE DETECTED (Base Cove) NONE DETECTED (Yellow Mastic) NONE DETECTED (Tan Mastic) <b>&gt;1% FIBROUS TREMOLITE</b> (Brown Mastic)	Rooms 1-4	CAT-II	200 Sq.
Please note sample 81A was not confirmed to contain <1% asbestos via 400 point count analysis and must be assumed to contain >1% asbestos for removal and disposal purposes.					
87A-B	Composition Asphalt Rolled Roofing, Black Felt	NONE DETECTED (Asphalt Roofing) <b>20-30% CHRYSOTILE</b> (Black Felt)	All Roof Areas	CAT-I	6,000 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos South Restroom Building					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
92A	Drywall & Joint Compound	NONE DETECTED (Drywall) <b>&lt;1% CHRYSOTILE</b> (Joint Compound 1) <b>&lt;1% CHRYSOTILE</b> (Joint Compound 2) <b>&lt;1% CHRYSOTILE</b> (Composite)	Ceilings  (Assumed to also be present behind plastic wall panels at walls)	Cal/OSHA ACCM Confirmed by 400 Point Count Analysis	2,000 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 9-15					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
102A 110A	Gray Vinyl Floor Tile, Black Mastic, Yellow Mastic	NONE DETECTED (Floor Tile) <b>1-2% CHRYSOTILE</b> (Black Mastic) NONE DETECTED (Yellow Mastic)	Rooms 10 & 15 (Beneath Carpet & Visible Tile)	CAT-I	1,800 Sq.
104A 105A-B 106A	Light Brown 9" Vinyl Floor Tile, Black Mastic	<b>1-5% CHRYSOTILE</b> (Floor Tile) <b>1-5% CHRYSOTILE</b> (Black Mastic) NONE DETECTED (Yellow Mastic)	Rooms 11-13 (Beneath Visible Flooring in Most Areas)	CAT-I CAT-I	2,700 Sq. 2,700 Sq.
108A	Brown Streaked 12" Vinyl Floor Tile, Black Mastic, Yellow Mastic	<b>1-2% CHRYSOTILE</b> (Floor Tile) <b>1-5% CHRYSOTILE</b> (Black Mastic) NONE DETECTED (Yellow Mastic)	Room 14	CAT-I CAT-I	900 Sq. 900 Sq.
N/a	Roofing Debris	UNKNOWN	Rooms 9-15 in Attic Spaces	CAT-I	Unknown if Present
PLEASE NOTE THE SUBSTRATE IN ROOMS 9-15 IS PLYWOOD FLOORING					

Suspect Materials Found or Assumed TO Contain Asbestos Portables 16-18					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Portables 19-20					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Portables 21-22					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Portables 23-25					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Portables 26-28					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 29-30					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Note 1.: **Category I Non-friable ACM** is asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos by area.

Note 2.: **Category II Non-friable ACM** is any material, excluding Category I non-friable ACM, containing more than one percent asbestos, which is non-friable such as transite and other concrete based products.

Note 3.: **Regulated Asbestos-Containing Material (RACM)** is any friable material, any Category I non-friable ACM which has become friable, any Category I non-friable ACM which will be or has been subjected to sanding, grinding, cutting, or abrading, any Class II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to a powder by the forces expected to act on the material in the course of demolition or renovation operations.

Note 4.: **Asbestos Containing Construction Materials (ACCM)** is a manufactured construction material containing greater than 0.1% asbestos by weight by the PLM method.

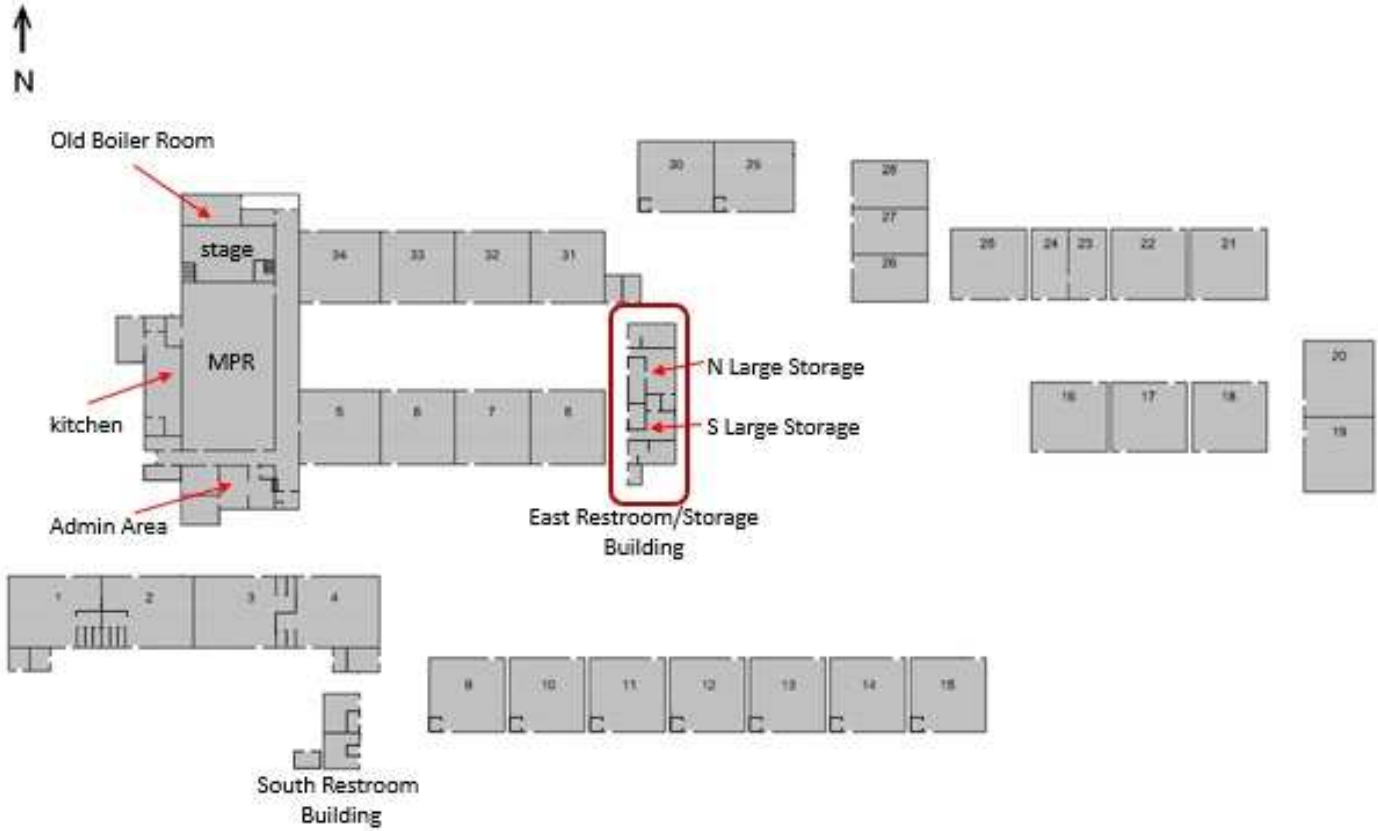
Note 5.: The terms “assume” and “presume” mean the named material is considered positive for containing asbestos and must be treated accordingly, until properly sampled in compliance with 40 CFR, Part 763 Asbestos-Containing Materials in Schools; Final Rule and Notice.



OAK RIDGE ELEMENTARY SCHOOL

EXHIBIT A

SECTION 26. SITE MAP



SECTION 27. FORMS

Competent Person Acknowledgement

The Cal/OSHA standard for asbestos related construction work, found in 8 CCR, 1529, outlines specific duties and qualifications of the "Competent Person." Find below a overview of these qualifications and responsibilities. The competent person must be authorized by their employer to take prompt corrective measures to eliminate hazards on the job and protect their workers safety. The competent person must be the Supervisor onsite who is capable of:

- Identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees.
- Identifying existing asbestos hazards in the work place and selecting the appropriate control strategy for asbestos exposure.

The duties of the competent persons include, but are not limited to:

- Frequent and regular inspections of the job site, materials, and equipment.
- Supervise or perform the set-up of the regulated area and/or containment.
- Ensure the integrity of the regulated area and/or containment.
- Set up procedures to control entry to and exit from the regulated area and/or containment.
- Supervise all employee exposure monitoring and assure it is conducted according to regulatory requirements.
- Ensure that employees working within the regulated area(s) wear respirators and protective clothing as required by regulation.
- Ensure that employees working set up, use, and remove engineering controls, use work practices and personal protective equipment in compliance with the regulations.
- Ensure that employees use hygiene facilities and observe the decontamination procedures specified in the regulation.
- Ensure through continuing onsite surveillance that engineering controls are functioning properly and employees are using proper work practices.
- Ensure that notification requirements of the regulation are met.

Additionally, the EPA requires the competent person to be trained in the Federal NESHAP regulations, the means to comply with them, and be on site during all removal operations.

I \_\_\_\_\_ have the authority to take prompt corrective measures to eliminate hazards on the job and protect workers safety. Furthermore, I have read and understand my duties as outlined above and under the applicable regulations, and will exercise them to best of my ability.

\_\_\_\_\_  
Signature of Competent Person Who Will Be Onsite      Date: \_\_\_\_\_      Employer: \_\_\_\_\_

\_\_\_\_\_  
Printed Name of Competent Person Who Will Be Onsite

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**REQUIREMENTS FOR THE DISTURBANCE OF LEAD IN CONSTRUCTION**

**PART 1.0 GENERAL REQUIREMENTS**

**1.1 Introduction**

These specifications are designed to minimize and control potential lead hazards during the disturbance of materials that contain lead. These procedures and precautions apply to the disturbance of lead that may result from the preparation of surfaces prior to painting, from the drilling into, cutting into, or removal of building components containing or covered with lead, or the demolition of buildings and/or structures that contain lead either in or on their surfaces.

The primary focus of these specifications is to address the work practices and procedures that the Contractor and/or other subcontractors must follow when conducting activities that may disturb lead in paint or other coatings or lead in ceramic tile glaze.

An asbestos inspection was conducted by Entek Consulting Group, Inc. for the Oak Ridge Elementary School Project and a report was prepared on May 3, 2023. The report includes all suspect building materials that were sampled and analyzed for asbestos and included an assessment for lead in paint. Limited testing was conducted at the site to determine concentrations of lead on building surfaces. Attached are the results of the testing of paint chips of the project area in Part 5.0 Results of Lead Testing.

Given the age of the building on this project, lead in measurable amounts is common in paint, varnish, stains, and ceramic tile. Limited testing was conducted at the site to determine concentrations of lead on building surfaces or materials. All interior and exterior painted, stained or varnished building surfaces are assumed to contain various concentrations of lead unless proven otherwise via laboratory analysis. The Contractor or other subcontractors may also encounter other building products such as lead sheeting, roof flashing or roof vents that may, in his or her judgement, be assumed to contain lead until proven otherwise.

The Contractor and other subcontractors working on this project must treat these suspect lead-containing products as containing lead unless the material is tested and proved to not contain lead by Entek Consulting Group, Inc. (Entek). Unless tested, Cal/OSHA regulations will apply if any of these surfaces or materials will be disturbed during the project work.

Entek anticipates enforcing Cal/OSHA and California Department of Public Health (CDPH) regulations regarding the training of workers disturbing lead and the containment and work practices utilized during that disturbance. The training requirements for workers and supervisors on this project are summarized in Part 1.5. Lead Training Requirements. The Contractor and other subcontractors disturbing lead must be familiar with the CDPH requirements regarding containment of lead debris and the Cal/OSHA lead in construction standard. Those requirements are summarized below in Part 1.3 Regulatory Compliance.

In summary, the Contractor and subcontractors shall utilize engineering controls to limit the release of lead dust or debris. These engineering controls may include, but are not limited to, using wet methods, using tools with vacuum recovery systems with High Efficiency Air Particulate (HEPA) filtration, using vacuums with HEPA filtration, using negative air pressure differential systems, and by the prompt clean up of any lead-containing debris that the work might produce. Dry scraping, sanding, grinding, or abrading lead-containing materials is not permitted. All work that disturbs lead will require a containment. The containment may be as simple as plastic sheeting on the floor or ground when drilling minor penetrations or scraping paint on exterior surfaces. Or, for the demolition of ceramic tile and any painted wall systems, it is likely to require the Contractor construct a full containment for the area and utilize a negative air pressure differential system. The requirements for work practices and containment are described in Part 3.5 Work Site Preparation & Containment Requirements.

The requirements of this specification apply to all employers who have employees who may reasonably be exposed to lead on this project. This includes the Contractor, who will normally be an environmental contractor such as an asbestos abatement contractor, or a painting contractor utilizing CDPH lead certified workers and supervisors. In addition, this specification applies to all subcontractors conducting work on this project who have employees who may disturb lead by drilling, cutting, scraping, or demolishing materials containing lead.

No Contractor shall begin work which will disturb known or suspect lead-containing surfaces or materials in a manner that may expose a worker to lead containing dust, create a potential for building contamination, or create possible lead containing waste, until all required pre-construction documentation has been reviewed and written approval has been received from the Owner and/or Project Monitor.

Activities expected to disturb lead-containing materials include, but are not limited to, painting preparation work such as scraping or sanding, penetration of painted surfaces through drilling or cutting, demolition of painted surfaces, removal of painted building components, and removal, drilling, or cutting of ceramic wall tiles. If the Contractor or subcontractors are observed conducting such activities without having written approval from the Owner and/or Project Monitor, they will be instructed to stop work. Work will not be allowed to resume until the Owner and/or Project Monitor provides approval for the work to begin.

This project involving potential disturbance of lead in the various painted materials is not considered a lead abatement project. The renovation project at this site would be considered "lead related construction work"; therefore, it is Entek's opinion the contractor is not required to submit a CDPH Form 8551 for this project.

## **1.2 Definitions**

**Action Level** - Airborne exposure to lead at or above  $30 \mu\text{g}/\text{m}^3$  over an eight-hour-time-weighted average as discussed in 8 CCR 1532.1. Typically, when employees are exposed over the Action Level, the employer must provide blood testing, training in compliance with 8 CCR 1532, and air sampling.

**Air Filtration Unit** - A portable exhaust system equipped with HEPA filtration and capable of maintaining a constant low velocity air flow into contaminated areas from adjacent uncontaminated areas. At a minimum, the air intake for the air filtration device must have a pre-filter on it which can be changed within the containment area. In most cases, air filtration devices will need to pass challenge testing by DOP before they are allowed to be used on site.

**Airlock** - A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

**Air Monitoring** - The process of measuring the content of a known volume of air collected during a specific period of time.

**Blood Testing** - Blood testing for lead and zinc protoporphyrin in compliance with the requirements for medical surveillance as listed in 8 CCR 1532.1.

**Cal/OSHA** - California Division of Occupational Safety and Health. A California agency that implements and enforces numerous health and safety standards regarding lead.

**Certified Lead Supervisor and Worker** - Supervisors and workers currently certified by the California Department of Public Health (CDPH).

**Challenge Testing** - Process used to verify that HEPA-filtered equipment does not leak or exhaust asbestos, lead, or other particulate. This testing must be done by a testing company, not affiliated with the Contractor, and approved by the Owner and Project Monitor. Challenge testing normally uses an oil mist as the challenge agent and measures how much, if any, of the agent is exhausted from the machine being tested.

**Clean Room** - An uncontaminated area or room which is a part of the worker decontamination enclosure system with provisions for storage of workers' street clothes and clean protective equipment. The term also includes the uncontaminated area or room of a Waste Transfer Airlock.

**Containment** - Isolation of the work area from the rest of the building to prevent escape of lead in dust, debris or in the air.

**Contractor** - The Contractor is the person or entity identified as such in the Contract Documents as being responsible for the environmental work as done in response to and in accordance with this document. References to the "Contractor" include the Contractor's authorized representatives. The Contractor may be a sub-contractor to the Primary Contractor. The Contractor normally will be responsible for paint preparation work that disturbs lead, paint scraping done prior to the demolition of structures, or the demolition of ceramic tile. The Contractor will typically need to use CDPH certified lead workers and supervisors to conduct their work that disturbs lead. Those employers disturbing smaller amounts of lead such as through drilling, cutting, or small component removal are typically known as a subcontractor for the purposes of this specification.

**Critical Barrier** - Critical Barriers are used to restrict water and airflow. Critical Barriers are the barriers placed over openings in the walls and ceilings of a work area in order to ensure that lead dust cannot escape the work area via these openings. Unless otherwise specified in these Specifications, critical barriers shall be constructed of at least one layer of six-mil thick poly.

**Curtained Doorway** - A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms. These are typically constructed by placing two overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. Other effective designs are permissible as long as they are approved by the Project Monitor.

**Decontamination Enclosure System** - A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of workers, containers, and equipment. This unit shall be constructed with at least two layers of six mil poly for the floors, walls, and ceiling. The floor of the dirty room shall consist of two layers of six mil poly plus a third layer of poly, four mil or thicker, to be used as a removable drop layer. Drop layer is to be removed as needed, but at least daily.

**CDPH** - California Department of Public Health. State agency that regulates the disturbance of lead in public buildings and on all structures in California. This agency and relevant regulations are primarily concerned with preventing childhood lead poisoning.

**DOP** - Dioctylphthalate particles, a testing agent for the efficiency of HEPA filters.

**DOT** - Department of Transportation, a Federal agency which has regulations and labeling requirements for the transportation of hazardous waste.

**DTSC** - Department of Toxic Substances Control, a department within the California Environmental Protection Agency charged with implementing and enforcing hazardous waste regulations.

**Dust or Debris** - Any visible dust or debris remaining in work area will be considered lead-containing residue.

**Entek** - Entek consulting Group, Inc. This is the Lead Project Monitoring/Management Firm for this project, and is the employer of the Project Monitor used on this project.

**EPA** - U.S. Environmental Protection Agency, a Federal agency that developed and enforces various asbestos and lead regulations.

**HVAC** - Heating, ventilation and air conditioning system.

**HEPA Filter** - A high efficiency particulate air filter capable of removing particles 0.3 microns in diameter from an air stream with 99.97% efficiency.

**HEPA-Filtered-Vacuum Recovery System** - This is a mechanical tool that has a shroud or covering over the area of a surface disturbed by a mechanical system in order to eliminate or significantly reduce the amount of dust released to the ambient air by the mechanical process. The shroud must be attached to a working vacuum with HEPA filtration.

**HEPA Vacuum** - A vacuum system equipped with HEPA filtration. Typically these units will need to be challenge tested before being allowed to be used inside of buildings on this project.

**Lead-Based Paint** - Materials meeting the definition of lead-based paint as defined by the California Department of Public Health and the United States Environmental Protection Agency. Currently defined as containing lead in concentrations equal to or greater than 1.0 mg/cm<sup>2</sup>, 5000 ppm, or 0.5% by weight.

**Lead-Containing Material** - Materials that contain measurable, quantifiable amounts of lead. The disturbance of these materials is regulated by Cal/OSHA.

**Lead-Containing Hazardous Waste** - Materials required by the State of California to be packaged, labeled, transported, and disposed of as a lead hazardous waste.

**Lead-Containing Waste Material** - Lead-containing waste material that does not need to be treated as a lead-containing hazardous waste.

**Lead Project Management or Monitoring Firm** – The firm hired by Owner to provide third-party oversight of the disturbance of lead performed on the Owner’s property by the Contractor or subcontractors.

**Mil** - A unit of length or thickness equal to one thousandth of an inch. Generally used when referring to the thickness of plastic (poly) sheeting used to contain the regulated area.

**Movable Object** - An unattached piece of equipment or furniture in the work area which can be removed from the work area.

**Negative Air Machines** - See Air Filtration Units.

**NIOSH** - The National Institute for Occupational Safety and Health. All respirators used on this project must be approved by NIOSH.

**Outside Air** - The air outside buildings and structures.



**Owner** - Property owner where the disturbance of lead will take place. For example, this may be a private building owner or manager, a government body such as a city or county agency, a military base, or a Owner district. This includes the Owner's authorized representatives and employees.

**PEL** - Permissible Exposure Limit (as used in 8 CCR 1532.1)

**Permissible Exposure Limit (PEL)** - Airborne exposure to lead above 50 µg/m<sup>3</sup> over an eight-hour, time-weighted average as discussed in 8 CCR 1532.1. Typically, when employees are exposed over the PEL, the employer must provide blood testing, respirators, protective clothing, shower decontamination, CDPH certification, regulated areas, and air sampling.

**Poly** - Flame-retardant polyethylene sheeting used to seal critical barriers, create cleaning barriers and drop layers, and to protect surfaces from damage or contamination.

**Primary Contractor** - The Contractor may not work directly for the Owner but instead subcontract with another contractor such as a general contractor or demolition contractor. The Primary Contractor is the entity responsible for hiring the Contractor if it is not the Owner.

**Pre-start Meeting** - Meeting held before the beginning of the project in which final details of the project are discussed and Contractor provides project monitor with pre-job submittal packet.

**Project Monitor** - An individual qualified by virtue of experience and education, designated as the Owner's representative and responsible for overseeing the work that disturbs lead on this project.

**Project Monitoring** - Activities undertaken by the Project Monitoring Firm for the purpose of monitoring the work done by the Contractor on this project in regards to the disturbance of lead.

**Regulated Area** - Term used by Cal/OSHA in 8 CCR 1532.1 to indicate a work area where exposure to airborne lead might exceed the Permissible Exposure Limit or where "Trigger Activities" may be performed. The area must be demarcated with signs and barriers designed to keep unauthorized people out of the area. Additionally "Regulated Area" means any measure used to restrict access to an area where personnel impacting lead-containing materials are required to wear respiratory protection and/or protective clothing by the project specifications regardless of airborne concentration of lead.

**Renovation, Repair and Painting Program (RRPP)** - US EPA 40 CFR Part 745 Lead-Based Paint (LBP) Poisoning Prevention in Certain Residential Structures. Regulations apply where there will be disturbance to lead-based paint in homes, child care facilities and pre-schools in child occupied facilities.

**Shower Room** - A room between the clean room and the equipment room in the decontamination enclosure with hot and cold or warm running water controllable at the tap and suitably arranged for complete showering during decontamination. Unless specified elsewhere in these specifications, or determined otherwise by the program monitor, the shower shall be on a metal pan to contain water splashed, leaked or spilled out of the shower unit.

**Specifications** - These written requirements describing procedures the Contractor must follow for this project.

**Subcontractor** - Contractors working for the Primary (General) Contractor but who are not primarily responsible for environmental work. For example, they may be responsible for, demolition, electrical, plumbing, general construction, minor painting, or other special trades.

**Submittals** - Pre-construction, interim construction, and post construction documents submitted by the contractor to the Owner as indicated in General Requirements and Bidding Requirements.

**Trigger Task** - Term commonly used to describe the tasks described by Cal/OSHA in 8 CCR 1532.1 (d)(2). These are tasks or activities that Cal/OSHA believes are expected to result in airborne exposures over the PEL until air monitoring proves otherwise. In brief, trigger tasks include manual demolition, scraping, sanding, using HEPA-attached equipment, using heat guns to remove lead paint, welding, torch cutting, and using other more aggressive techniques. (This is a summary list and does not list all tasks that are considered trigger tasks.) In addition, trigger tasks include any activity reasonably expected to result in airborne exposures to lead above the Permissible Exposure Limit.

**View Ports** - Clear windows into the regulated work area that allow authorized persons to view work activities inside the regulated area without entering the area. The view ports must be of sufficient number, constructed of materials of sufficient clarity, and be located in areas determined and/or approved of by the Project Monitor. All regulated work areas including mini-enclosures will require view ports unless specifically determined not to be feasible by the Project Monitor.

**Visible Emissions** - Any emissions containing particulate material that are visually detectable without the aid of instruments. For example, dust, debris, and water leaks are considered visible emissions.

**Waste Load-out/Transfer System** - A decontamination system utilized for transferring containerized waste from inside to outside of the work area. A series of connected rooms used for the load-out of lead-containing materials that have been properly containerized.

**Waste Bags** - Waste bags for lead-containing waste must be a minimum of six-mil thickness. In general, double bagging will be required.

**Waste Containers** - Waste containers are the containers into which lead-containing waste is placed. They may be bags of at least six-mil thickness, metal or fiber barrels, or other containers such as cardboard boxes approved by the Project Monitor. The Contractor is responsible for assuring that the type of container chosen is acceptable to the waste landfill to which the waste will be transported. Waste containers must be labeled according to the requirements of the California Department of Occupational Safety and Health (Cal/OSHA), Department of Toxic Substances Control (DTSC), Department of Transportation (DOT), and the Environmental Protection Agency (EPA).

**Waste Transfer Airlock** - A decontamination system utilized for transferring containerized waste from inside to outside of the work area.

**Wet Cleaning** - The process of eliminating lead contamination from building surfaces and objects by using cloths, mops, or other utensils which have been dampened with water and afterwards thoroughly decontaminated or disposed of as lead-contaminated waste.

**Work Area** - Designated rooms, spaces, or areas of the project in which the disturbance of lead is to be undertaken or which may become contaminated as a result of such action. A contained work area is a work area which has been sealed off from adjacent areas.

**Work Plan** - Contractor's written plan describing how the Contractor will perform the work in compliance with these specifications. The work plan shall include information on preparation of the work area, personal protective equipment, employee experience, training and assigned responsibilities during the project. It will also list decontamination procedures for personnel, work area and equipment, removal methods and procedures, required air monitoring program, procedures for handling and disposing of waste materials and procedures for final decontamination and cleanup.

**Worker** - A person who successfully meets the training requirements for the disturbance of lead as described in these specifications.

**8 CCR 1532.1** - Chapter 8 of the Labor Code, California Code of Regulations, Section 1532.1: Lead (Known as the Lead Standard for the Construction Industry)

**8 CCR 1544** - Chapter 8 of the Labor Code, California Code of Regulations, Section 1544: Respiratory Protection Standard.

**1.3 Regulatory Compliance**

Various agencies regulate work that disturbs lead-containing materials. The following is a summary of the most important agencies and regulations that apply during the disturbance of lead during construction work. This list is not to be considered comprehensive. The Contractor is responsible for complying with all applicable federal, state, and local regulations that may apply to the specific work they are conducting.

**1.3.1 Environmental Protection Agency (EPA)**

Lead: Identification of Dangerous Levels of Lead; Final Rule (40 CFR Part 745 Subpart D)

The EPA defines lead-based paint as paint and coatings that contain lead in concentrations equal to or more than one milligram per square centimeter (1 mg/cm<sup>2</sup>), 5000 parts per million (5000 ppm), or one half of one percent (0.5%) by weight. EPA regulations apply to all housing and child-occupied facilities built before 1978. When the term “lead-based paint” is used in the context of these specifications, the term is used only to refer to paint that contains lead in concentrations equal to or greater than that defined by the EPA as lead-based paint. This is to differentiate lead-based paint from the term “lead-containing paint” as used for compliance with Cal/OSHA.

**1.3.2 Housing and Urban Development (HUD)**

Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Property and Housing Receiving Federal Assistance (24 CFR Part 35)

The HUD Rule for Federal Housing (shortened name) applies to all residential properties built before 1978 that receive Federal financial assistance. This regulation uses the same definition of lead-based paint as the EPA. The work practices and procedures described in these specifications are designed to comply with occupant and worker protection regulations as mandated by OSHA and Cal/OSHA regulations for work that disturbs lead and **are not** designed to comply with all the requirements of 24 CFR Part 35. Should this project be covered by this regulation, the Owner may require additional practices and procedures in the scope of work for activities conducted in properties covered by the HUD Rule for Federal Housing.

**1.3.3 California Department of Public Health (CDPH)**

Accreditation, Certification, and Work Practices For Lead-Based Paint And Lead Hazards (Title 17, CCR, Division 1, Chapter 8, Sections 35000-361000)

This regulation primarily applies to residential and public buildings located in California. The definition of a public building is one that is “generally accessible to the public.” Some aspects of this regulation, particularly those that pertain to the definition of “presumed lead-based paint” and the containment requirements for disturbing lead-based paint **apply to all structures** in California.

This CDPH regulation definition of lead-based paint is identical to the EPA/HUD definition of 1 mg/cm<sup>2</sup>, 5000 ppm, and 0.5% by weight. In addition, this regulation requires all paint on structures in California to be treated as “presumed lead-based paint” unless the paint is on a home built after

1978 or a Owner built after 1992. Therefore, the paint in all owner's buildings covered by this project that were constructed before 1993 must be treated as lead-based paint unless tested and proved otherwise as described elsewhere in these specifications.

The CDPH regulation differentiates between work that disturbs lead as part of renovation or maintenance work and work that disturbs lead as part of "abatement" work as defined in Title 17. The work practices and procedures described in these specifications are designed to comply with occupant and worker protection regulations as mandated by Cal/OSHA regulations for work that disturbs lead as part of renovation, demolition, and maintenance work. These specifications are not designed to comply with the requirements for abatement as defined in the CDPH Title 17 regulation. Unless stated specifically otherwise in these specifications, the Owner does not anticipate any work being done as part of this project that meets the definition of abatement as used in Title 17. Therefore, unless specifically directed otherwise by this specification or by the direction of the Owner and/or Project Monitor, the Contractor and/or subcontractors shall NOT submit Form 8551, "ABATEMENT OF LEAD HAZARDS," to the CDPH since that form provides inappropriate notice for the work done on this project. The Contractor may be required to complete and submit this form should the scope of the work or the work practices change.

This regulation has significant penalties associated with the creation of "lead hazards." Lead hazards are defined as: "...disturbing lead based paint or presumed lead-based paint without containment, or any other nuisance which may result in persistent and quantifiable lead exposure." The requirements discussed in Part 3.5 Work Site Preparation & Containment Requirements are designed to meet CDPH requirements. Should a Contractor and/or subcontractor conduct work without a containment or release lead-contaminated dust or debris outside of the containment, they are in violation of this regulation. The Project Monitor will stop all work, consider the Contractor and/or subcontractor to be in violation of these specifications and the contract documents. Work will not be allowed to begin again until the Contractor and/or subcontractor takes adequate steps to correct their violation and convinces the Owner and/or Project Monitor that the violation will not occur again.

#### **1.3.4 California Occupational Safety and Health Administration (Cal/OSHA)**

**Lead Standard for the Construction Industry (8 CCR 1532.1)**

This standard regulates work done by employees who may disturb lead as part of demolition, construction, renovation or maintenance work. Painting activities that may disturb lead are covered by this standard. General construction work that disturbs lead is covered, as is the demolition of building components or entire structures.

Cal/OSHA regulates lead whenever lead is determined to exist in a material. When the term "lead-containing paint" is used in the context of these specifications, the term is used to refer to paint that contains lead in an amount equal to or above the reporting limit for the laboratory analysis or that detected by an X-ray Fluorescent Analyzer (XRF).

In addition, Cal/OSHA uses the EPA/HUD/CDPH definition of lead-based paint (1.0 mg/cm<sup>2</sup>, 5000 ppm, or 0.5% by weight) for their pre-job notification requirements discussed in Part 1.4 Lead-Work Pre-Job Notification Requirements.

The following information summarizes the significant requirements in the Cal/OSHA standard. This summary is not meant to substitute for the Contractor reading and being familiar with the Cal/OSHA requirements.

- a. The Cal/OSHA lead standard is very complex. Cal/OSHA regulates lead in materials when a laboratory can quantify the amount of lead. This means materials are regulated even when

they contain very small amounts of lead. The standard sets an "Action Level" for airborne lead at or above  $30 \mu\text{g}/\text{m}^3$  over an eight-hour-time-weighted average. Typically, if employees are expected to be exposed to this airborne lead level, the employer must conduct air sampling, provide blood lead testing, and provide specialized training. The standard sets a "Permissible Exposure Limit" or "PEL" for airborne lead at or above  $50 \mu\text{g}/\text{m}^3$  over an eight-hour-time-weighted average. The employer must continue the requirements needed at the Action Level but must now provide respirators, protective clothing, a shower decontamination system, and a written compliance program.

- b. In 8 CCR 1532.1 (p), employers are required to notify Cal/OSHA before employees conduct a trigger task that will disturb more than 100 square or linear feet of material that contains lead in concentrations equal to or above  $1.0 \text{ mg}/\text{cm}^2$ , 5000 ppm, or 0.5% by weight. The notification also applies to welding or torch cutting that takes more than one hour in a shift. Trigger tasks are described in 8 CCR 1532.1 (d)(2). In brief, they include manual demolition, scraping, sanding, using HEPA-attached equipment, using heat guns to remove lead paint, welding, torch cutting, and using other more aggressive techniques. This is a summary list and does not list all task that are considered trigger tasks.
- c. The California standard defines lead-containing paint at the Consumer Product Safety Commission's (CPSC) level of 0.06% by weight or 90 ppm for non-trigger tasks. The lead standard would not apply if the paint contains less than 90 ppm and the employees do not conduct trigger tasks. However if the employees do conduct trigger tasks, the entire standard applies.
- d. Cal/OSHA requires CDPH lead training and certification for any supervisors or workers who are "shown to be exposed" to airborne lead levels above the PEL in residential or public buildings. The Owner and Project Monitor believe that there is a reasonable expectation that those workers scraping paint prior to repainting, and those demolishing ceramic tile are likely to be exposed over the PEL. Therefore, on this project, that work must be done by CDPH certified workers and supervisors.
- e. Cal/OSHA requires the supervisor to establish a "regulated area" whenever employees may be exposed to airborne lead over the PEL or if they will perform trigger tasks as defined in 8 CCR 1532.1 (d)(2). The establishment of regulated areas is discussed in Part 3.5 Work Site Preparation & Containment Requirements.

#### 1.4 Lead-Work Pre-Job Notification Requirements

The Contractor is responsible for complying with the Lead-Work Pre-Job Notification as specified in 8 CCR 1532.1 (p). If notification is required for this project, the Contractor must provide the notification to Cal/OSHA and provide a copy of this notification to the Owner and/or Project Monitor as part of the Contractor's pre-work submittal package.

Unless the material is tested as described elsewhere in these specifications, the Contractor and subcontractors must anticipate notifying Cal/OSHA if they plan to manually demolish or perform another type of trigger task (such as paint scraping or sanding) on any painted surface or ceramic wall surface on this project if the amount of material to be disturbed equals or is greater than 100 square feet.

Notification to Cal/OSHA is not required if the paint on the painted surface is primarily intact (not loose and peeling) and the painted material is removed in a manner that does not disturb the paint. For example, door or window frames may be removed without providing the notification if the paint or coating on the frames is intact and the building components can be removed without significantly disturbing the coating.

Unless stated otherwise in these specifications, or directed otherwise by the Project Monitor, the Contractor and/or subcontractors shall NOT submit Form 8551, "ABATEMENT OF LEAD HAZARDS," to the CDPH since that form provides inappropriate notice for the work done on this project since no lead "abatement" as defined by CDPH will be conducted as part of this project.

### 1.5 Lead Training Requirements

At a minimum, the Contractor and subcontractors must meet the lead training requirements as specified by 8 CCR 1532.1. This will include training all employees who drill, cut, scrape, abrade, remove, clean up debris, or in any other way are exposed to lead from painted surfaces or ceramic tile found on the buildings or structures covered by this project. The different types of training are summarized below for the typical types of work that are expected to disturb lead on this project.

#### 1.5.1 Minimal Training Required For All Workers Exposed To Lead

This training will be sufficient for those who disturb lead in only minor ways. Those disturbing lead in more significant amounts will need to meet the training requirements stated in Part 1.5.2 or 1.5.3.

For example, this training applies to those workers who, for a total of less than one hour in an eight-hour shift, will drill or cut through painted surfaces, remove painted components (when the paint is intact), or remove ceramic tile significantly intact. *This time frame is guidance and not an official Cal/OSHA time frame. This time frame is suggested because it is thought that these tasks, done for such a short time frame, do not pose a realistic chance that workers will be exposed over the Action Level based on an eight-hour time-weighted average.* In some cases, however, depending on the surface and type of work being conducted, the Project Monitor may determine that more training is needed even if the worker disturbs lead for less than an hour. In general, workers with this training conducting this type of minimal disturbance of lead will not need to wear respirators while conducting this work.

The training must comply with the training requirements as listed 8 CCR 1532.1(l)(1)(A). In summary, this training must comply with Hazard Communication Training for lead as discussed in 8 CCR 5194. This training is also known as "hazard communication," or "lead awareness" training and is usually done in less than hour depending on the work the employee will conduct.

The Contractor and subcontractors will need to provide the Owner and/or Project Monitor written proof that this training has been provided before workers will be allowed to conduct work that disturbs lead even in minimal amounts. Entek can provide this training for the Contractor and/or subcontractors or they can obtain this training from any source the employer believes is qualified.

Proof of this training is not required if the employees are trained to the levels listed in Part 1.5.2 and/or 1.5.3.

#### 1.5.2 Required Training For Those Exposed Over the Action Level Or Who Conduct Trigger Tasks

This training must be done for all those workers who conduct trigger tasks or are expected to be exposed above the Action Level. Typically, this training will be required for workers who conduct a trigger task such as paint scraping or manual demolition of painted components and the work will take more than one hour in an eight-hour shift. *This is a guidance and not an Cal/OSHA time frame.* The Project Monitor may determine that this training is needed for some workers who conduct tasks for even less than an hour.

The training must comply with the training requirements as listed 8 CCR 1532.1 (I)(1)(B) and (I)(2)(A-H). In summary, the standard requires the worker to be trained in series of subjects. The length of training depends on the experience and previous training of the worker, the type of work they will conduct, and whether or not they already have been trained and approved to wear respirators. Workers receiving this training and conducting this type of work will typically need to wear respirators and protective clothing while they conduct the work.

An environmental contractor, or a contractor with environmental work experience, previous training, and a written respiratory protection program generally conducts this type of work. The Owner and Project Monitor do not recommend subcontractors attempt this type of work. However, subcontractors will be allowed to conduct this type of work on this project if they can demonstrate proof of training and carry out the work according to these specifications.

The Contractor and subcontractors will need to provide the Owner and/or Project Monitor written proof that this training has been provided all workers conducting the tasks that require this training. Entek can provide this training for the Contractor and/or subcontractors or they can obtain this training from any source the employer deems is qualified.

This training is not required if the employees are trained to the levels listed in Part 1.5.3.

### **1.5.3 Required Training For Those Who Are Reasonably Expected To Be Exposed Over The PEL And/Or Conduct Trigger Tasks On Over 100 Square Feet of Material**

Workers and supervisors must be CDPH Certified Lead-Related Construction Workers or Supervisors if they will conduct trigger tasks or other work reasonably expected to exceed the PEL and/or conduct this work on over 100 square feet of material. *This is a guidance amount and not a Cal/OSHA regulatory requirement. However this amount of material and type of work is reasonably expected to potentially release airborne exposures over the PEL and thus trigger the CDPH certification requirement.* This includes work such as the manual demolition of painted surfaces, ceramic walls, paint preparation work (sanding and scraping), and other tasks as described in 8 CCR 1532.1 (d)(2). Proof of training will be a currently valid CDPH certification card. Workers who can show a completed course completion form and a completed application form for certification will be allowed to work pending their being fully certified.

**Exception:** Licensed asbestos contractors performing paint scraping work on the outside of buildings only for the purpose of removing loose and peeling paint prior to the demolition of the building, or the demolition of a structure, will not be required to have the workers or on-site supervisor be CDPH certified. They must, however, show proof of training in compliance with 8 CCR 1532.1 (I)(2) for employees who may be exposed above the Action Level. In summary they must meet the training requirements of this specification as stated in Part 1.5.2. In addition, however, the Contractor must have a CDPH certified supervisor approve the containment setup at the start of each shift that will disturb lead, approve the work practices and personal protective equipment worn by the workers, verify that proper air monitoring is being collected, must be able to return to the site within two hours if requested by the Project Monitor, and must approve the final cleanup of the work area prior to a visual inspection of the work area being conducted by the Project Monitor. The certified supervisor will always be required to approve the initial set up of the containment, personal protection, and work practices at the start of the job, but then depending on the quality of the work demonstrated, the Project Monitor may not require the certified supervisor to inspect the work site at the start of each shift. This exemption will be revoked should air sampling on this project demonstrate airborne lead levels above the Action Level on workers or supervisors.

**1.5.4 Required Training for Projects Involving Disturbance of Lead-Based Paint in Child Occupied pre-1978 Homes, Child Care Facilities and Pre-schools**

Workers and supervisors must be trained in accordance with the US EPA RRP regulations for painting activities.

**1.6 Required Submittal Documents**

While additional documents may be required by the scope of work for this project, at a minimum, the Contractor will be required to provide the Owner and/or Project Monitor with the following documents regarding the Contractor's ability to safely disturb lead-containing materials.

**1.6.1 Submittals Prior To The Start Of Work**

All Contractors and subcontractors who will have employees disturb lead on this project must, at a minimum, provide proof of item number 1.6.1.e.1., lead hazard communication training in compliance with 8 CCR 1532.1 (l)(A)(1). This is the only submittal that must be provided by these employers as long as they do not disturb conduct more disturbance of lead than is described in Part 1.5.1.

The following submittals must be provided by all Contractors and subcontractors who will, at a minimum, have employees who will conduct trigger tasks for more than one hour per shift, will potentially be exposed above the Action Level, or will conduct other activities as determined by the Project Monitor that may result in significant exposure to lead.

- a. A written lead compliance plan in compliance with 8 CCR 1532.1 must be provided that includes the following:
  - 1. A description of equipment and materials, controls, crew size, job responsibilities, and operations and maintenance procedures for each activity in which lead is disturbed and potentially emitted;
  - 2. A description of specific control methods (wet methods, engineering controls, etc.) that will be used to ensure workers are not exposed above the PEL;
  - 3. Technology considered in meeting the Cal/OSHA permissible exposure level (PEL);
  - 4. Air monitoring data documenting sources of lead emissions;
  - 5. A detailed implementation schedule for the compliance plan, including the schedule for inspections by a competent person;
  - 6. A description of the lead work practice program which will be used to control worker exposures. This includes the use of protective work clothing, equipment, hygiene facilities and practices, and housekeeping practices;
  - 7. A description of the steps the Contractor or subcontractor will take to minimize the generation of hazardous waste produced on this project. This includes, but is not necessarily limited to how the contractor will separate waste streams. For example, how will the Contractor or subcontractor keep potentially hazardous waste such as paint chips and dust from being disposed of with other potentially non-hazardous construction materials and debris?



**Note:** If a Contractor or subcontractor is found conducting lead-related work not specifically mentioned and described in the compliance plan, the work will be stopped until a compliance plan including that work is submitted, reviewed, and approved by the Owner and/or Project Monitor.

- b. Copy of the Contractor or subcontractor's written respirator program in accordance with the requirements of 8 CCR 1544.
- c. Proof that all employees expected to wear respirators on this project have medical approval to wear a respirator.
- d. Copies of respiratory fit-tests for all workers expected to wear a respirator on this project. Fit testing must be done as required by and in accordance with 8 CCR 1544.
- e. Proof of training required by Part 1.5 for type of work employee will do.
  1. Proof of Hazard Communication Training for Lead done within the last calendar year for those exposed to lead or who will perform trigger tasks for less than one hour. *Proof may be a certificate or written statement stating training was completed and a list of names of those individuals who were trained. Proof of this training is not needed if employee provides proof of training required by items e. 2, or e 3.*
  2. Proof of training in compliance with 8 CCR 1532.1 (l)(2) done within the last calendar year for all employees who will conduct trigger tasks as defined in 8 CCR 1532.1 (d)(2) for more than one hour or who will reasonably be expected to be exposed to lead above the Action Level. *Proof may be a certificate or written statement stating training was completed and a list of names of those individuals who were trained.*
  3. Proof of CDPH lead certification for those workers who will conduct trigger tasks as defined in 8 CCR 1532.1 (d)(2) or will reasonably be expected to be exposed to airborne levels of lead above the PEL on projects that will disturb more than 100 square feet of lead-containing material. *Proof of certification will be a currently valid CDPH certification card as a worker or supervisor. Workers who can show proof of a valid course completion form and application being submitted to CDPH, will be allowed to work while awaiting full certification from CDPH.*
  4. Proof of current CDPH certification as a lead supervisor for the on-site competent person for projects involving the conduction of trigger tasks or other activities reasonably expected to exceed the PEL on all projects that will disturb more than 100 square feet of lead-containing material. *Proof of valid certification will be a currently valid CDPH certification card a worker.*
  5. If exception to requirement for CDPH certified supervisor listed in Part 1.5.3 is requested, then provide proof of CDPH certified supervisor who will verify containment, personal protection and work practices, and will be able to respond to the project within two hours of request by the Project Monitor.
  6. Proof of training meeting the requirements of the US EPA RRP regulations if applicable.
- f. Copies of all current SDS for chemicals used on this project.

## OAK RIDGE ELEMENTARY SCHOOL

## EXHIBIT B

- g. Manufacturers' certifications that high efficiency particulate air (HEPA) vacuums, pressure differential units and other local exhaust ventilation equipment conform to ANSI Z9.2-79 for all HEPA-filtered equipment that will be used on this project. *This is proof that the equipment is actually HEPA filtered. This is separate from the challenge testing requirement needed for equipment used in interior spaces.*
- h. Name and contact information of independent testing company who will challenge test all vacuums and air filtration devices used on this project.
- i. Statement regarding compliance with all Cal/OSHA exposure monitoring required for this project.
- j. Name and contact information for laboratory who will analyze air samples or waste samples and documentation of their certification to conduct such analysis.
- k. Name of Waste Transporter who will transport hazardous waste on this project and documentation that the Transporter is allowed to transport lead hazardous waste.
- l. Name of Waste Landfill to which lead hazardous waste will be sent and documentation that such landfill is allowed to accept such waste.
- m. Should waste water filtration be required on this project, submit manufactures documentation pertaining to the capability of waste water filters to filter particles of, at a minimum, five micrometers in size.
- n. List of all rented equipment to be used within a lead regulated area, or a statement that no rental equipment will be used on this project.
  - 1. If rental equipment is to be used, submit written statements from each rental company indicating the rental company's acknowledgment that the equipment is provided for and may be used in areas where airborne levels of asbestos and/or lead may be present.
- o. Submit emergency plans. At a minimum submit the following:
  - 1. Submit non-emergency telephone numbers, other than 911, for the appropriate Police, Sheriff, and Fire Departments.
  - 2. Name, pager or cell phone numbers of the on-site supervisor and his immediate company supervisor.
  - 3. Submit detailed written directions from the project site to the medical facility to be used in case of an emergency. Include a map which sufficiently shows the route to be taken from the site to the designated medical facility.
  - 4. Submit written emergency procedures pertinent to the work to be performed and which can be implemented by site personnel if the need arises.
- p. Local sanitation district Wastewater Discharge Permit for Surface Washers (if required).

- q. Cal OSHA Notification. This is required for this work on all projects that will disturb more than 100 square or 100 linear feet of lead in materials containing greater than 0.5%, 5,000 parts per million (weight by weight), or 1.0 mg/cm<sup>2</sup>.

The above listed documents must be provided prior to the start of work that will disturb lead. Under no circumstances will workers or supervisors be allowed to work on this project prior to the receipt, review, and acceptance of this documentation by the Owner and/or Project Monitor. In addition, documentation for rental equipment must be provided before the equipment may be used in a lead regulated area. All delays resulting from the failure of the Contractor and/or subcontractors to provide this information in the required time frame is solely the responsibility of the Contractor and/or subcontractor.

**The Contractor must use the Pre-Work Submittal Checklist provided at the end of these specifications to provide the Owner and/or Project Monitor these submittals. Failure to use the form will likely lead to the rejection of the submittal package and a delay in the project that will be the sole responsibility of the Contractor and/or subcontractor.**

The Contractor is responsible for maintaining current documents and resubmitting copies to the Owner and/or Project Monitor for any worker whose documents expire during the project. Any worker observed on a job site who either is not approved to conduct work by the Owner and/or Project Monitor or has been approved but documentation pertaining to training, medical evaluation, or respiratory fit testing has expired, will be instructed to stop work until these documents are received by the Owner and/or Project Monitor and the worker is approved to perform work that disturbs lead.

#### 1.6.2 Submittals Provided During The Work Or Following Completion Of The Work If Applicable

Depending on the document, these documents must be provided the Owner and/or Project Monitor on an ongoing basis during the work, or if appropriate following completion of the physical activities associated with the project. The documents must be received and approved by the Owner and/or Project Monitor before the work is considered complete. Failure to provide these documents means the work is not complete, even though the physical activities may be completed.

- a. Daily sign-in sheet for each worker entering a lead regulated area.
- b. The Contractor must provide the results of exposure sampling done to comply with the requirements of 8 CCR 1532.1 (d) and the requirements of this specification.
- c. The Contractor must provide blood sampling and analysis results of lead (BLL) and zinc protoporphyrin (ZPP) levels for all workers who are represented by air monitoring results that exceed the Action Level. Typically, the Project Monitor will require blood lead sampling for all workers on a work shift if one or more air sampling results for that shift is above the Action Level.

The written results of the blood sampling analysis must be provided the Owner and/or Project Monitor within 21 days of the exposure over the Action Level or within 12 days of the completion of the project, whichever comes first.

- d. Copies of job progress reports and project documentation. This must include the names of all employees onsite, the hours worked and a brief description of the work completed at the site(s).
- e. The Contractor must provide all waste disposal documentation.

**1.7 Third-party Oversight**

The Owner is utilizing the services of Entek Consulting Group, Inc. (Entek) as an independent third-party consultant to provide oversight of all work that disturbs lead on this project. The Contractor shall treat this third-party consultant as a designated representative of the Owner. The third-party consultant for this project is known as the Project Monitor. The Project Monitor is expected to perform some or all of the following activities on this project, but may also conduct other activities as needed:

- a. Visually monitor the work practices of the Contractor's employees to determine that the work is being done in compliance with these specifications. The Project Monitor may conduct this activity on a continual basis or may make unannounced random visits to the project site to check on the Contractor's performance.
- b. Visually inspect for the presence of visible emissions suspected to contain lead.
- c. Conduct personal and area air monitoring in accordance with accepted methods.
- d. Collect bulk samples of relevant materials to determine the presence or absence of lead.
- e. Visually inspect the work area for cleanliness after completion of the work.

**1.8 Air Sampling By The Owner and/or Project Monitor**

The Owner and/or Project Monitor may determine it appropriate to collect air samples to evaluate the effectiveness of the Contractor's engineering controls and work practices. The Contractor and/or subcontractors shall allow the Project Monitor to attach and collect personal air samples on the workers and shall instruct the workers to comply with the directions for that sampling as given by the Project Monitor.

Air sampling may also be used to verify the effectiveness of the Contractor's containment system. The Project Monitor may choose to collect area air samples within the work area. These samples results may be used to generate an eight-hour, time-weighted average. The result of area samples in a lead work area should normally be far below what the workers are breathing. Therefore should the Project Monitor collect area air samples within the work area that result in exposures above half the Action Level ( $15 \mu\text{g}/\text{m}^3$ ), the Project Monitor will require the Contractor and/or subcontractors to re-evaluate their work practices, engineering controls, and containment system.

The Project Monitor may also choose to collect area samples downwind, outside of the regulated work area. These sample results will be compared to background air samples upwind or samples collected prior to the beginning of work. Sample results indicating airborne lead emissions at or above  $5 \mu\text{g}/\text{m}^3$  above background levels will be interpreted to mean that the Contractor and/or subcontractors containment or engineering controls are inadequate. This may result in the temporary stoppage of work until the Project Monitor is assured that airborne lead levels will significantly diminish by the change in work practices or engineering controls.

**1.9 Notification of Employers of Employees in Adjacent Areas**

The Contractor and subcontractors who will disturb lead are responsible for ensuring that employers of employees in areas adjacent to the work being conducted have been notified that work disturbing lead will take place.

Typically this notification is in addition to the posting of lead regulated area signs. In summary, this notice shall be provided to all other contractors and subcontractors in areas adjacent to the work. Those employers must be notified in advance of any upcoming work that will disturb or impact lead in a manner that may generate airborne levels of lead that could present a potential exposure to workers at or above the Permissible Exposure Limit (PEL) as defined in 8 CCR 1532.1. This notice shall also provide information on the control measures being implemented and a warning that the employer's employees are to remain outside of the posted regulated areas. The Contractor and/or subcontractors anticipating the need for such notification shall coordinate this notification with the Owner and/or Primary Contractor.

**1.10 Suspension Of Work**

The Owner and/or Project Monitor may suspend all work that disturbs lead if any controls (such as barriers) fail, if debris known or suspected to contain lead is detected outside the containment, or if work is on the exterior of a structure and wind speeds are more than fifteen miles per hour, or if in the judgement of the Project Monitor, other factors exist that determine the work must be stopped because of the potential for the creation of lead hazards. For example, the Project monitor may conduct perimeter monitoring and discover that lead is being released in concentrations at  $5 \mu\text{g}/\text{m}^3$  above background levels or work area air monitoring that is above half the Action Level. In either case, the Owner and/or Project Monitor may suspend work until more effective containment, work practices, and engineering controls are utilized.

**1.11 Pre-Start Meeting**

The Project Monitor typically recommends that there be a pre-start meeting with the Contractor or subcontractor's representative and the Project Monitor approximately five days prior to the expected start of work. The Contractor will be expected to provide the majority of pre-work submittals described in Part 1.6.1 at that meeting. This meeting is designed to answer questions about the project and address issues of concern of either the Contractor, subcontractor, or Project Monitor. Should this meeting be determined not to be necessary, the submittals must be delivered to the Owner and/or Project Monitor no later than five working days in advance of the work.

**1.12 Testing For Lead In Paints, Coatings, Ceramic Tile, And Other Materials**

The Owner believes lead is common in the paint in the buildings on this project based on age or limited testing. Therefore the Owner does not anticipate paying for additional testing of paint. However, in some cases, it may be in the interest of the contractor and/or subcontractors to determine the exact concentration of lead in the paint or coating since that will affect Cal/OSHA and CDPH compliance issues. For example, many interior surfaces will contain paint which contains less than 600 parts per million lead. Should the paint be tested and that discovered, much of the Cal/OSHA lead standard and all of the CDPH Title 17 standard won't apply.

For example, should the paint contain less than 600 parts per million lead, the contractor and/or subcontractors could drill into or conduct other non-trigger tasks on this material without extensive training. Also, the demolition of these surfaces would not trigger prior notification to Cal/OSHA.

Should the contractor and/or subcontractor wish the paint or ceramic tile to be tested, they will need to request this of the Project Monitor. This testing must be done by the Owner's representative. The Project Monitor will

be able to assist the contractor and/or subcontractor in determining if testing the material is likely to be worthwhile for the contractor and/or subcontractor.

## **PART 2.0 MATERIALS AND EQUIPMENT**

### **2.1 Fire Resistant Plastic Sheeting (Poly)**

All plastic sheeting used on this project must be fire resistant whether used inside or outside of buildings.

### **2.2 Challenge Testing Of HEPA Filtration Systems**

All HEPA-equipped vacuums and air filtration units to be used on this project in interior spaces during operations that may disturb lead must be challenge tested and meet ANSI requirements using DOP or an equivalent testing agent. Except for HEPA air filtration units used to create negative pressure differentials for the demolition of ceramic tile, this testing must take place within ten calendar days prior to their use and after replacement of any HEPA filter removed from previously tested equipment. Air filtration units used in conjunction with the demolition of ceramic walls must be challenge tested on site. They do not need to be retested as long as they remain on site. They will need to be retested if they are moved off site. Copies of all testing certifications must be provided to the Owner and Project Monitor prior to use of the equipment.

Exception: Subcontractors using HEPA vacuums for incidental cleanup of lead dust resulting from the minimal disturbance of lead as discussed in Part 1.5.1 are exempt from the challenge testing requirement unless, in the judgement of the Project Monitor, there is a reasonable expectation that the subcontractor's HEPA vacuums are leaking.

### **2.3 Vacuum-Assisted Tools**

When using power tools to disturb lead, the Contractor shall only use tools that have a HEPA-filtered-vacuum recovery system.

### **2.4 Power Washing**

No high pressure or water blasting tools may be used if the spray will contact lead-containing paint.

For the purposes of this specification, power washing is defined as: The use of a low pressure "power washer" to rinse and/or wash stable, painted or coated surfaces to remove dust, dirt, grime, and other foreign matter in preparation for re-painting." Under no circumstance may power washing be used to remove lead-containing paints or coatings from surfaces. Before using power washing, all areas of loose, peeling, cracking, or unstable coatings must first be prepared for re-painting using the appropriate methods and personnel protective equipment as specified by Cal/OSHA and CDPH regulations, and these specifications. Typically this means all loose and peeling paint must be removed by hand scraping and sanding or the use of mechanical tools equipped with HEPA filtration.

Should a Contractor or subcontractor use power washing in a manner that releases paint from the surface, and that paint also not be contained, the Contractor or subcontractor will be responsible for all costs associated with the Owner hiring and environmental contractor to clean up the area. The area to be cleaned will be determined by the Project Monitor and will extend past the point of visually apparent debris.

Prior to performing power wash operations the Contractor must determine if the local sanitation district requires a Wastewater Discharge Permit for Surface Washers. Should this permit be required, the Contractor is responsible for obtaining it, accurately completing it and adhering to the permit requirements.

**2.5 Personal Protective Equipment**

The Contractor shall use NIOSH approved respirators and personal protective equipment as required by 8 CCR 1532.1 and as appropriate based on personal air monitoring results.

Respirator fit test records and the respiratory protection program shall be retained on site as part of the project documentation if respiratory protection is used on this project. Disposable dust/mist respirators shall not be used.

At a minimum, half-face respirators with P-100 (HEPA) cartridges will be required during surface preparation where there is manual scraping or sanding that will take more than one hour to complete. Dry scraping or sanding, mechanical scraping, abrading, sanding, or similar actions will trigger the need for respirators regardless of the duration of the activity.

Regardless of the duration of the work, all workers scraping lead-containing paint or removing or demolishing ceramic tile must wear disposable protective clothing over their wear home clothes. Workers demolishing surfaces that contain ceramic tile must wear full body protective clothing including hoods and gloves.

At a minimum, the Contractor and subcontractors must ensure that no lead dust or debris is tracked out of the contained, regulated area. The Contractor and subcontractors must ensure that all those allowed into the regulated area wear adequate foot coverings that ensure that they will not track contaminated material out of the area when they leave.

**2.6 Rental Equipment**

Any equipment rented for the purpose of disturbing lead or used within a lead regulated area must be accompanied with documentation verifying that the rental agency has been notified, and acknowledges receipt of notification that the equipment being rented will be used for work inside a lead regulated area. This documentation must be submitted to the Project Monitor prior to the equipment being used on the job site.

**PART 3.0 EXECUTION****3.1 Summary**

Contractors and subcontractors conducting lead related construction work will be evaluated on a performance standard which includes, but is not limited to, cleanliness of work area, work practices as verified by exposure monitoring, containment set up, and ultimately, the clean up of paint chips, dust, and debris.

Any work practice that creates paint chips, dust, glazed ceramic or painted debris must be conducted within a regulated area as defined in 8 CCR 1532.1 and within a containment at least as stringent as required by Title 17 and/or described in these specifications.

The containment system shall be designed and constructed to prevent visible dust or debris from escaping the work area as well as the escape of airborne lead emissions at or above  $10 \mu\text{g}/\text{m}^3$  above background levels. Should dust or debris generated by the work be found outside the containment, or the airborne lead outside the containment exceed background levels, the Project Monitor will determine that the containment is inadequate, in violation of Title 17 requirements, and work will be stopped until the Contractor and/or subcontractors redesign the containment to be more effective.

**3.2 Compliance With Requirements For The PEL and Action Level**

Contractors and subcontractors strictly adhering to the requirements listed in these specifications who conduct minimal disturbance of lead such as by the conduction of trigger task work amounting to less than one hour, may begin work assuming the Cal/OSHA Permissible Exposure Limit (PEL) will not be exceeded.

Contractors and subcontractors not strictly conforming to suggested work practices must start work assuming the PEL will be exceeded. This means they must comply with all OSHA requirements specified for work that results in exposures over the PEL. This will include, but is not limited to, complying with requirements for training, personal protection, regulated area development, blood testing, personal air monitoring, the development of a written compliance plan, and the notification of employers in adjacent areas.

Contractors and subcontractors must assume the PEL will be exceeded each time they conduct trigger activities that will exceed one hour in duration. This will trigger the need to wear respirators and protective clothing, meet the training requirements specified earlier in these specifications, conduct personal air sampling, develop a written compliance plan and all other actions described as necessary by 8 CCR 1532.1 and these specifications.

**3.2.1 Personal Air Sampling**

The Contractor and subcontractors are responsible for conducting personal air monitoring during disturbance of lead in compliance with the requirements of 8 CCR 1532.1. At a minimum, Contractors and subcontractors shall conduct representative exposure monitoring on workers on a daily basis whenever those workers will conduct trigger task activities that will take longer than one hour to complete in an eight-hour shift. In addition, air sampling must be done for any work for which the Project Monitor believes has a reasonable potential for generating airborne lead at or above the Action Level. The Project Monitor will not allow work to proceed if the Contractor is not prepared to conduct the necessary air monitoring.

Sample information must include (but is not restricted to) the name of the individuals wearing the samples, the individuals' Social Security Number or Company ID number, the date the samples were collected, identification by unique method of the area where the work is being performed, and identification of the work being performed. EXAMPLE: James Black, 000-11-222, 06/25/03, Bill Jackson Elementary Owner, Building H, Classroom 5, East covered walkway, paint surface preparation work.

Laboratory results shall be provided to the Owner and/or Project Monitor within 72 hours of sample collection. Electronic copies must be received within 14 days of the Contractor receiving the results from the laboratory. Contractor and/or subcontractor must submit proof that laboratory has the required licenses to analyze air samples for lead.

Should they wish to make use of the exceptions to air sampling stated in 8 CCR 1532.1 (d)(3)© & (D), the Contractor and/or subcontractors must submit the required information to the Owner and/or Project Monitor and receive written approval from the Owner and/or Project Monitor prior to reducing the personal protection, containment, or engineering controls stated in this specification. In general, air sampling results that are intended for use to reduce personal protection requirements must be collected on this project. Air sampling results from other projects will not be allowed to create a negative exposure assessment for use on this project.



**3.3 Work Involving Whole Component Removal Or Demolition Of Entire Structure**

Intact lead-containing paint on construction debris is generally not considered a hazardous waste in California. However, loose and peeling paint on structures may result in all construction debris from that site being considered a hazardous waste.

Therefore prior to the demolition or removal of painted material and the disposal of that material, all loose, peeling or flaking paint must be removed. This includes objects such as fences, built-in furniture or cabinets, other similar structures, as well as entire structures being demolished.

Any paint debris generated during this work must be separated into appropriate waste streams and handled as a hazardous waste, or as deemed appropriate as discussed in Part 3.11 Lead Waste Management.

**3.4 Prohibited Work Practices**

The following work activities are prohibited on the project:

- a. Open-flame burning or torching.
- b. Machine sanding or grinding of lead materials or surfaces coated with lead unless the machine is equipped with a HEPA-filtered-vacuum recovery system.
- c. Un-contained hydro-blasting or high-pressure washing.
- d. The use of power washing to remove loose and peeling paint.
- e. Abrasive blasting or sandblasting without a HEPA-filtered-vacuum recovery system or done outside of a negative pressure enclosure.
- f. Heat guns operating above 1,100 °F.
- g. Dry scraping, except for limited areas where electrical hazards create a higher risk than lead or unless specifically approved by the Project Monitor.
- h. Use of methylene chloride based paint strippers.

**3.5 Competent Person**

The Contractor and/or subcontractors disturbing lead shall have a competent person (as defined by Cal/OSHA for construction activities) onsite at all times to supervise and oversee all activities which may disturb materials containing lead.

The above requirement is not required for environmental contractors conducting work limited to the removal of loose and peeling paint on structures scheduled for demolition. In those situations, the on-site supervisor must meet the lead training requirements as stated in Part 1.5.2 Required Training For Those Exposed Over the Action Level Or Who Conduct Trigger Tasks. In addition, the Contractor must have a CDPH certified supervisor approve the containment setup at the start of each shift that will disturb lead, approve the work practices and personal protective equipment worn by the workers, verify that proper air monitoring is being collected, be able to return to the site within two hours if requested by the Project Monitor, and approve the final cleanup of the work area prior to a visual inspection of the work area being conducted by the Project Monitor. *The certified supervisor will always be required to approve the initial set up of the containment, personal protection, and work practices at the start of the job, but then depending on the quality of the work*

*demonstrated, the Project Monitor may not require the certified supervisor to inspect the work site at the start of each shift.* This exemption will be revoked should air sampling on this project demonstrate airborne lead exposures to workers or supervisors are above the Action Level.

### **3.6 Work Site Preparation & Containment Requirements**

The Contractor and/or subcontractor is required to contain the disturbance of lead in a manner that prevents lead-contaminated dust, debris, water, or air from leaving the regulated work area in an uncontrolled fashion. The containment must be developed in compliance with the requirements of Title 17 and these specifications. The presence of lead dust, debris, or air above background levels will indicate that the containment is inadequate. Work will be stopped and the Contractor and/or subcontractor must adjust work practices, engineering controls, or the containment in a manner that convinces the Project Monitor that the material will no longer be able to escape the regulated work area.

#### **3.6.1 Exterior Work Site Preparation & Containment**

The Contractor and subcontractors are responsible for ensuring that building occupants and those in adjacent areas are not exposed to lead dust or debris as they enter or exit buildings. The Contractor and subcontractors shall ensure that building occupants and others in the adjacent area do not enter the lead regulated area and have a safe means of access and egress to the building. Close all doors and windows within 20 feet of the renovation. On multi-story buildings, close all doors and windows within 20 feet of the renovation on the same floor as the renovation, and close all doors and windows on all floors below that are the same horizontal distance from the renovation.

Ensure that doors within the work area that will be used while the job is being performed are covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

Cover the ground with plastic sheeting or other disposable impermeable material extending 10 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents 10 feet of such ground covering. Ground containment measures may stop at the edge of the vertical barrier when using a vertical containment system.

The poly must be secured to the side of the building or structure with tape, or other anchoring system, so that there is no gap between the poly and the building or structure. The poly installed to cover ground or landscaping shall be installed in a manner to ensure that it will not blow away or billow from the wind. The use of weights such as wood is acceptable as long as the poly does not billow or blow in a manner that releases lead dust or debris off of it.

If the renovation will affect surfaces within 10 feet of the property line, the renovation firm must erect vertical containment or equivalent extra precautions in containing the work area to ensure that dust and debris from the renovation does not contaminate adjacent buildings or migrate to adjacent properties. Vertical containment or equivalent extra precautions in containing the work area may also be necessary in other situations in order to prevent contamination of other buildings, other areas of the property, or adjacent buildings or properties.

The exterior of all windows located within ten feet of any disturbance of lead must be sealed by covering them with at least one layer of six-mil thick poly sheeting. All ventilation machinery within 20 feet of the disturbance should be sealed by at least one layer of six-mil thick poly sheeting. Keep all windows within 20 feet of working surfaces closed, including windows of adjacent structures.

Should the disturbance of paint involve removing paint from the exterior of a window, then the Contractor or subcontractor must seal the inside of the window with two layers of six-mil thick poly. The Project Monitor will typically waive the requirement to seal the inside of the window with two layers of poly if the disturbance of lead involves less than 5% of the painted surface area of an exterior window.

Those in adjacent areas must be kept a sufficient distance from any chance of encountering lead dust and debris. Therefore the Contractor shall erect barrier tape at a distance sufficient enough from the poly barriers to ensure that those passing by the area are not directly adjacent to the poly containment barriers. In general, the barrier tape should be at least five feet from the edge of the poly placed on ground surfaces if those surfaces are accessible to unauthorized persons. The area off the poly sheeting, but inside of the barrier tape, is still part of the regulated area however and is not allowed to have any lead dust or debris present at any time.

The Contractor and/or subcontractor must post the regulated area sign as described in 8 CCR 1532.1 (m) (WARNING, LEAD WORK AREA, POISON, NO SMOKING OR EATING.) The posting may be done by wording on the barrier tape or by suspending OSHA-approved signs with the wording on the tape barriers or on readily apparent surfaces visible to persons outside the area.

All those entering the regulated area must sign in on a roster that documents their presence in the area. This roster must be provided the Owner and/or Project Monitor on a daily or weekly basis as determined by the Project Monitor.

Work disturbing lead shall not be conducted on exterior surfaces if wind speeds are greater than 15 miles per hour or, in the judgement of the Project Monitor, pose a risk of blowing lead dust or debris out of the regulated area.

In addition, for work done on ladders or man lifts, the Project Monitor is likely to require the workers to scrape loose and peeling paint directly into a container, rather than let the loose debris float down and possibly off the containment barrier. Typically the Project Monitor will allow the workers to scrape loose and peeling paint into a cardboard box held in one hand while scraping with the other hand.

Work must stop and cleanup occur before rain begins.

The Contractor shall not leave debris or poly sheeting out overnight if work is not completed. The Contractor shall keep all debris in a secured area until final disposal.

### **3.6.2 Interior Site Preparation & Containment**

For interior work site preparation, one layer of six-mil poly sheeting must be placed on the entire floor. However, the entire floor area need not be covered by poly for large interior areas where the disturbance of lead is limited to the perimeter of the area. If the entire floor area is not covered with poly, the poly must extend out a minimum of ten feet from those areas where lead will be disturbed. The poly sheeting must be secured to the wall using tape so there is no gap between the floor and the wall. The poly must also be secured to the floor.

If individual rooms are being worked in, seal all doorways with a primitive airlock flap to prevent contamination of other areas of the building. Post the regulated area signs, as required by 8 CCR 1532.1 (m), at the entrance to the regulated area and all other entry points to the area.

All those entering the regulated area must sign in on a roster that documents their presence in the area. This roster must be provided the Owner and/or Project Monitor on a daily or weekly basis as determined by the Project Monitor.

If feasible, turn off all HVAC systems in the regulated work area. In addition, seal all ventilation systems in the regulated work area with a minimum of one layer of six-mil poly. Any exceptions to this requirement must be approved by the Project Monitor. Typically, the Project Monitor will require all ventilation system ducts and/or registers to be sealed with poly if they are within 20 feet of the disturbance of lead even if they are turned off. Seal all furniture or other equipment that must remain in place with a layer of four or six-mil poly. A minimum of six-mil poly is required for all work disturbing ceramic tile.

Small amounts of ceramic tile, such as covering less than two square feet, may be removed using this type of interior containment if the tiles are removed using hand tools and remain substantially intact during the removal process. Additional requirements for interior site preparation are required when surfaces covered by lead-containing ceramic tile are demolished. Those requirements are discussed in Part 3.6.3.

### **3.6.3 Additional Containment Requirements For Demolition Of Ceramic Tile And/OR Mechanical Disturbance Or Blasting Of Lead-Containing Materials Without A HEPA-Filtered-Vacuum Recovery System**

This part primarily addresses work that will involve the demolition of building surfaces covered by lead-containing ceramic tile. These requirements shall also apply shall the Contractor and/or subcontractors disturb lead-containing material, in an interior space, using mechanical or blasting methods without a HEPA-filtered recovery system approved by the Project Monitor.

In addition to the requirements stated in Part 3.6.2, the demolition of ceramic tile that involves the breakage or cutting of the tile must be done inside a negative air pressure containment system. The negative air pressure must be generated using an air filtration unit that has been challenge tested on site as described in Part 2.2 Challenge Testing Of HEPA Filtration Systems.

Seal all critical barriers between the work area and the adjacent areas with a minimum of six-mil thick poly. Critical barriers are any openings in the surface areas of the regulated work area through which air, dust, or water might pass. This includes, but is not necessarily limited to all windows, doors, HVAC vents and units.

All objects or equipment that cannot be removed from the area must be covered and tape sealed with a minimum of six-mil thick poly. Any exceptions to this requirement must be specifically approved by the Project Monitor.

Typical decontamination requirements for paint scraping and most manual demolition are discussed in Part 3.6.4 Decontamination Procedures. However, the decontamination procedures surrounding the demolition of ceramic tile are much more stringent and are described below.

All regulated work areas where ceramic tile will be broken, or other tasks that will, in the opinion of the Project Monitor, generate significant amounts of lead dust, must include a personal decontamination area and the supervisor must ensure that, at a minimum, the following procedures are followed.

- a. Work That Disturbs Less Than 100 Square Feet Of Lead-Containing Material

Work involving the demolition of less than 100 square feet of lead-containing material, including ceramic tile, is not expected to result in airborne exposures over the PEL. Therefore the personal decontamination system may, at a minimum, be a one stage decontamination system that separates the work area from the adjacent areas.

1. This must, at a minimum, include an airlock chamber between the work area and the adjacent areas. Each side of the air lock must be covered by poly curtains. At no time, including during the removal of waste containers, may the poly doors be open on both sides of this chamber at the same time. This chamber must be a minimum of three feet by three feet by six feet tall. There must be a clean poly drop cloth measuring at least five feet by five feet immediately outside this air lock onto which workers will step after exiting the air lock. This poly drop cloth must be kept visually clean of dust and debris at all times. This poly drop cloth shall be removed at the end of the work shift and replaced with a new clean poly drop cloth at the start of the next shift.
  2. The workers must be able to remove their protective clothing and wash off their respirator before leaving the work area. The supervisor must ensure that they do not track lead containing materials out of the work area on their feet. Footwear worn out of the work area must have been covered by protective booties if worn in the work area. Following removal of the protective covering over the footwear, all footwear worn in the work area must be HEPA vacuumed before allowing it to be worn out of the regulated area. Footwear that can be washed before leaving the work area does not need to be covered by protective booties as long as the exterior of the footwear is thoroughly washed prior to being worn outside of the regulated area.
  3. After they leave the decontamination chamber, workers must go directly to a nearby location where they must thoroughly wash their hands and face. Cal/OSHA specifically states that the supervisor must ensure this washing takes place.
  4. Special attention must be given that workers do not track lead dust out of the work area on the soles of their feet or shoes.
  5. Following the exit of workers from the work area, whether leaving for breaks or at the end of the day, the supervisor must visually inspect the area outside the decontamination system to verify that no dust or debris is being tracked out.
  6. The Contractor shall not permit the storage or consumption of food and/or beverages inside the containment or within any of the decontamination chambers. Food or drink consumption within containment may result in the worker(s) dismissal from the site for the duration of the project.
  7. Work will be stopped if the Project Monitor determines that the decontamination system is not kept in acceptable condition or used properly.
- b. Work That Disturbs More Than 100 Square Feet Of Lead-Containing Material

For all work that disturbs more than 100 square feet of wall ceramic tile, the decontamination system must be a full, three-stage decontamination chamber with a shower as described below.

1. The three-stage decontamination unit with shower must be contiguous with the containment unless determined infeasible by the Project Monitor.
2. The worker decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room, separated from the work area by airlock chambers. The airlock chambers shall be at least three feet square in size. All fabricated units shall have, at a minimum, two layers of six-mil poly sheeting.
3. Entry and exit from all airlock chambers and the decontamination enclosure system chambers shall be through doorways designed to restrict air movement between chambers when not in use. The dirty side shall have an extra layer of six-mil poly sheeting on the floor as an extra drop cloth and it shall be replaced at least daily.
4. The clean room shall be sized and equipped to adequately accommodate the work crew. Lighting, heat and electricity shall be provided as necessary for comfort. This area must remain clean. If in the judgement of the Project Monitor, equipment storage or other activities taking place in this area affect the cleanliness of the area, the Contractor may be required to move that storage and those activities away from the designated clean area.
5. The shower room shall contain one or more showers as necessary to adequately accommodate workers and shall meet OSHA requirements for temporary shower facilities. The shower enclosure shall be constructed to ensure against leakage of any kind. In addition, the shower shall be a separate unit from the decontamination unit walls. The shower unit cannot be made from poly. Metal or hard plastic is acceptable. An adequate supply of soap, shampoo and towels shall be supplied by the Contractor and available at all times.
6. Shower water shall be drained, collected and filtered through a system with at least a five micrometer particle size collection capability. Filtered waste water shall be disposed of into a sanitary sewage system. Under no circumstances may it be released where it might enter a storm drain.
7. The shower chamber shall be, at a minimum, three feet by three feet wide by a minimum of six feet in height. The shower chamber shall be constructed so that no water from the shower can spray out of the chamber, nor any water run down the sides of the poly and escape the chamber system. The Contractor must have a back-up containment system to control leaks from the shower, connections and hoses. This can be either a secondary metal pan under the shower or a series of poly barriers, separate from the construction of the chamber, that are solely for the purpose of collecting water that might leak out of the shower system.
8. Each decontamination chamber shall have, at least, a four inch lip of poly from the floor up the wall to prevent possible transfer of water and debris between chambers. Excess poly at the corners of this floor is to be fitted to the sides of the chamber by folding poly and taping, as opposed to cutting away excess poly and taping seams. For some projects, particularly those where the decontamination chambers are located on surfaces needing special protection from water, the Project Monitor may determine additional precautions are necessary such as requiring the shower chamber to have an overflow pan, in which the shower unit sits, that is capable of holding two inches of water. The filter system and any hose connections transferring contaminated water shall be located in a secondary containment, such as a metal

pan. Any leakage shall be double-bagged or re-filtered. Should this requirement for an additional metal pan under the shower be required, it will be identified elsewhere in these specifications and discussed at the bid walk.

9. Unless otherwise specified in these specifications, the minimum size of the decontamination chambers shall be the following:
 

Clean Change Room	five feet x six feet x six feet high
Shower	three feet x three feet x six feet high
Dirty Change Room	five feet x six feet x six feet high
Air Lock Chambers	three feet x three feet x six feet high
10. The Dirty Change Room may be part of the work area as long as a separate drop cloth is placed down before the entrance to the first airlock chamber and this drop cloth dust not contain significant quantities of debris from the work area.
11. There must be a clean poly drop cloth measuring at least five feet by five feet immediately outside the clean side airlock onto which workers will step after exiting the airlock. This poly drop cloth must be kept visually clean of dust and debris at all times. This poly drop cloth shall be removed at the end of the work shift and replaced with a new clean poly drop cloth at the start of the next shift.
12. Special attention must be given that workers do not track lead dust out of the work area on the soles of their feet or shoes. Footwear worn out of the work area must have been covered by protective booties if worn in the work area. Following removal of the protective covering over the footwear, all footwear worn in the work area must be HEPA vacuumed before allowing it to be worn out of the regulated area. Footwear that can be washed before leaving the work area does not need to be covered by protective booties as long as the exterior of the footwear is thoroughly washed prior to being worn outside of the regulated area.
13. Following the exit of workers from the work area, whether leaving for breaks or at the end of the day, the supervisor must visually inspect the area outside the decontamination system to verify that no dust or debris is being tracked out.
14. The Contractor shall not permit the storage or consumption of food and/or beverages inside the containment or within any of the decontamination chambers. Food or drink consumption within containment may result in the worker(s) dismissal from the site for the duration of the project.
15. Work will be stopped if the Project Monitor determines that the decontamination system is not kept in acceptable condition or used properly.

**3.6.4 Decontamination Procedures**

Decontamination procedures shall be established by the Contractor and subcontractor depending upon the airborne concentrations of lead as well as the amount of dust and debris created by the work. At a minimum, the decontamination procedures shall be in compliance with 8 CCR 1532.1 (I)(1-5). As stated in 8 1532.1 (I)(1-5), the Contractor shall assure that these decontamination facilities are used by the supervisor and workers.

For work that does not exceed the PEL, and/or does not include the disturbance of more than 100 square feet of material, the Contractor and/or subcontractor must assure that a hand-washing station is available and used by the supervisor and workers. For work that exceeds the PEL, or involves the breakage of ceramic tile in amounts over 100 square feet, the Contractor must ensure that workers shower, at a minimum at the end of the work shift as required by 8 CCR 1532.1.

### **3.6.5 Avoiding Contamination Of Adjacent Areas By Proper Decontamination**

Should the Owner and/or Project Monitor discover that an occupant of the regulated area left the regulated area without properly decontaminating, the Contractor will be required to clean the adjacent areas that in the opinion of Project Monitor may have been exposed to lead dust or debris from this action. Failure to properly decontaminate is demonstrated by wearing protective clothing outside the regulated area that was previously worn in the area or by wearing footwear outside the regulated area that was not properly covered and/or decontaminated. The failure to adequately decontaminate will trigger the following cleaning. In all areas determined necessary by Project Monitor, the Contractor will be required to HEPA vacuum, then wet wash, then HEPA vacuum again all potentially contaminated areas and items to the satisfaction of the Project Monitor. The Project Monitor will not need to demonstrate the need for this cleaning by the presence of visible dust and will not need to collect settled dust samples in order to require the Contractor to implement the cleaning routine.

### **3.6.6 Approval Prior To Start Of Work**

The Project Monitor shall visually inspect any regulated area for compliance with this specification before the contractor and/or subcontractor may begin work that may disturb lead. The contractor and/or subcontractors may not begin work disturbing lead without approval from the Project Monitor. The contractor and/or subcontractor must contact the Project Monitor sufficiently in advance of needing the visual inspection and coordinate with the Project Monitor in order to minimize any delays resulting from the need for this visual inspection.

Typically, once the Project Monitor has reviewed the contractor and/or subcontractors regulated work area set up, the work site supervisor will be told that they may start work at future regulated work areas without prior authorization from the Project Monitor as long as they assure the Project Monitor that the containment and work practices will be implemented as approved by the Project Monitor.

### **3.7 Wet Work Practices**

Unless determined infeasible by the Project Monitor, all disturbance of lead-containing materials must utilize wet methods for dust suppression.

### **3.8 Prompt Cleanup Of Debris**

Removed lead-containing material shall be kept wet and promptly placed in the type of waste containers required by this specification. The Contractor and subcontractors are encouraged to place debris in containers shortly after it has been removed. However, at a minimum, all bulk debris must be containerized before any work stoppages such as for breaks, lunch, or the end of a shift. Bulk debris must be kept adequately wet until it is containerized. The Contractor must plan only to disturb amounts of material that can be cleaned up and containerized before the next work stoppage. Delays and additional costs incurred by the Contractor for failing to adequately calculate the amount of time needed to clean up debris will be the sole responsibility of the Contractor. For example, if a crew must work overtime to containerize debris before ending the shift, those additional costs are the sole responsibility of the Contractor.



The Contractor and/or subcontractor must not allow excessive amounts of dust and debris to gather on the floor containment barriers. If in the opinion of the Project Monitor, too much debris is being allowed to gather on the floor poly, the Project Monitor will require the Contractor or subcontractor to either assign a worker to conduct continual cleanup, or the workers scraping paint or conducting other work disturbing lead will have to contain the debris before it falls to the ground. Typically this is done by scraping paint directly into a cardboard box held by the worker as he or she scrapes off the loose and peeling paint.

### **3.9 Final Cleanup Of The Work Area**

#### **3.9.1 Exterior Work Areas**

The Contractor and/or subcontractor must HEPA vacuum up all visible dust and debris off containment barriers. Then gently roll and/or fold poly barriers in on themselves in order to avoid releasing any remaining dust to adjacent areas during this process.

The final step will be to vacuum up any visible dust or debris in the work area or regulated area that is suspected to contain lead. The area must be visually clean of all lead-related dust and debris, and all poly barriers must be removed before the workers leave the job site. The regulated area barrier tape and/or signs must be taken down. Critical barriers erected on windows and HVAC systems may be left in place if work will take place in those same areas during the next work shift. Otherwise those barriers must also be removed before the workers leave at the end of the shift.

#### **3.9.2 Cleanup Of Interior Work Areas**

All cleanup of the interior work area shall be performed using a HEPA vacuum and wet washing techniques. All surface areas in the work area that reasonably could have been exposed to airborne lead must be HEPA vacuumed and/or wet washed. This includes wall surfaces when the work included ceramic tile demolition. Ceilings must also be cleaned if the ceilings are less than five feet above the area where ceramic tiles were disturbed. For example, if the ceramic tile wainscoting extended six feet up the wall, and the ceiling is at eleven feet or lower, the ceiling will need to be vacuumed. If, however, the ceiling is above eleven feet, it will not need to be cleaned. This is based on the assumption that lead dust is unlikely to migrate up more than five feet. If in the judgement of the supervisor or Project Monitor the ceiling may be contaminated, the ceiling shall be cleaned regardless of how far it is above the disturbance of the tile.

### **3.10 Final Inspection Of The Work Area**

The Project Monitor will inspect work areas for visual signs of dust and debris related to the disturbance of lead. The Project Monitor will not inspect or evaluate the quality of paint preparation work such as paint scraping. The contractor who will be painting the prepared surfaces is responsible for the quality and workmanship of the surface preparation. However, if the work involves the removal of loose and peeling paint prior to the demolition of a structure, the Project Monitor will evaluate the completeness of that work.

For exterior work, the Project Monitor will visually inspect the work area to determine that there is no visible dust or debris still in the area that is reasonably expected to have been generated by the work. All poly barriers (except for on critical barriers in areas needed for the next shift) and barrier tape and signs must be removed.

Until told otherwise by the Project Monitor, the supervisor must notify the Project Monitor in advance of the end of the shift in order for the Project Monitor to visually inspect the work area prior to the workers leaving for the day. Typically this will not be required after the workers demonstrate that they consistently properly clean the work area before leaving.

For interior work, the Project Monitor will conduct a thorough visual inspection for dust and debris that may be related to the disturbance of lead. All surface areas must be clean. Residue dust will be assumed to contain lead and must be cleaned.

Until told otherwise by the Project Monitor, the supervisor shall notify the Project Monitor when the supervisor believes the work is complete and ready for a visual inspection. Prior to calling the Project Monitor for the visual inspection, the supervisor must personally inspect the area and determine that it is clean and ready for a final inspection.

The Project Monitor typically will not collect dust wipe samples to verify the cleanliness of an area unless specifically stated otherwise elsewhere in these specifications. However, dust wipes may be collected in either of the following circumstances. In both cases the supervisor will be told of the possibility of the collection of dust wipes and encouraged to conduct extra cleaning of the areas.

- a. Ceramic Tile Removal Closely Adjacent To Kindergarten Classrooms, Daycare Facilities, or Food Preparation Areas Including Kitchens and Eating Areas.

The Project Monitor is likely to conduct dust wipe sampling on the floor in the area between the decontamination unit and occupied areas of the property where children under the age of six routinely may be present. The supervisor will be told in advance that this testing will take place and is encouraged to clean the area between the decontamination area and where the sample will be collected. This sample will be collected within 20 feet of the decontamination chambers unless the Project Monitor believes that poor work practices or decontamination procedures have contaminated the area as discussed below.

- b. Failure To Comply With Work Practices, Engineering Controls, Or Decontamination Procedures

If in the judgement of the Project Monitor, the Contractor and/or subcontractor has not followed the requirements of this specification regarding work practices, engineering controls, and decontamination procedures, the Project Monitor will collect dust wipe samples in areas believed contaminated by the Contractor or subcontractors' actions. The supervisor of the project will be told in advance if such testing will be conducted and given time to clean those areas. For example, Part 3.6.5. describes actions that will lead to additional cleaning by the Contractor.

Should dust wipe sampling be necessary, the Project Monitor will conduct such testing with the specified intent of verifying whether the containment process and decontamination processes used by the Contractor and/or subcontractor were adequate in preventing the release of lead dust from the work area. The samples will be collected according to the procedures required in Title 17. The containment will be judged appropriate if the results of the samples do not indicate a dust lead hazard for floors as specified in Title 17.

### **3.11 Power Washing of Exterior Building Surfaces**

For the purposes of this procedure power washing is defined as the use of a low pressure "power washer" to rinse and/or wash stable, painted or coated surfaces to remove dust, dirt, grime, and other foreign matter in preparation for re-painting. In no circumstance is this to be construed as water blasting, and is not intended nor shall be used to remove lead-containing paints or coatings from surfaces. Loose and peeling paint must be removed by the other methods described in this specification before power washing may be conducted. Should power washing begin to release paint from the substrate, the Contractor must stop the power washing process and remove the loose material following the procedures described in these specifications.

**3.11.1 Waste Water Discharge Permits**

Many local sanitation districts require the completion and submission of a waste discharge permit prior to allowing the use of power washers. Therefore, prior to performing power-wash operations, the Contractor must obtain a Wastewater Discharge Permit for Surface Washers, if required, from the local Sanitation District, Water Quality Division; Industrial Waste Section, and adhere to the permit requirements. It is the Contractor's responsibility to obtain and properly fill out a current copy of this permit if it is required.

**3.11.2 Required Work Practices For Power Washing**

Where power washing of exterior surfaces of buildings coated with lead-containing paint(s) or seal coats is specified, or in those areas where the Contractor opts to use power washing to prepare surfaces, all of the following conditions must be met prior to uncontrolled washing without waste water control/collection measures. The following test is conducted prior to allowing the beginning of full power washing in order to verify that measurable amounts of lead are not being released by the washing process. Once it is determined that the washing process does not release lead, the Contractor will be allowed to proceed with power washing with only minimal additional requirements.

- a. The Contractor in coordination with the Project Monitor shall select a minimum of one test area typical of the surfaces to be power washed. This area shall be 100 or more square feet in area. On some sites where the building surfaces are different, the Project Monitor may require more than one area to be tested.
- b. The Contractor shall construct a floor containment for the test areas. The containment must be designed to capture and collect all wash water and any paint chips generated during the assessment. Typically the Contractor simply needs to use poly on the ground to create a basin like effect which will capture the spray water.
- c. The Project Monitor will first collect a sample of source water such as from the hose tap. The Contractor will then be asked to power wash the test area in a similar manner as to how the building as a whole will be power washed. Work shall be halted if the washing process causes delamination of paint from the test area surfaces. Modifications to the methods and work practices shall be made prior to resumption of power washing and these modifications must be approved by the Project Monitor prior to their implementation.
- d. The Project Monitor will collect one or more samples of the water runoff that was captured by the Contractor following power washing the test area. As long as there are no visible paint chips in the water and/or the amount of water is not excessive, the Contractor may release the captured water as long as it is absorbed by landscaping or will evaporate. No waste water resulting from power washing operations may be allowed to drain into any storm drain as required by the State of California.
- e. The Project Monitor will send these samples to a laboratory for lead in water analysis. The sample results for the source water will be compared to the water runoff sample. If similar amounts of lead are present in each, the power washing process is unlikely to release lead into the water or surrounding area. The power washing process should not release lead as long as loose and peeling paint was removed prior to the start of power washing.
- f. The Owner will pay for the collection of these water samples and their laboratory analysis.

- g. The Project Monitor will notify the Contractor as soon as the results of the testing process are known. The Project Monitor and the Contractor will need to discuss alternatives to power washing in the unlikely situation that the water test shows lead contamination in the runoff water.
- h. The Contractor shall assume that the testing and water analysis process will take a total of three work days. For example, if the test is done on the morning of the first day, the water samples will arrive at the laboratory on the morning of the second day. The results of the sampling process will be available on the afternoon of the third day. Since no power washing will be allowed until this testing process shows acceptable results, the Contractor must build this testing process into the work schedule. The Contractor may choose to accelerate the testing process but this will mean that the Contractor, rather than the Owner, will pay for the transportation of the samples to the laboratory and for the rush laboratory analysis. Even under "rush" conditions, it is very unlikely that the entire process could be completed in one day. The Contractor may want to schedule the testing process prior to the completion of other paint preparation work in order to have the results by the time the paint preparation work is complete.
- i. Upon receiving approval to begin power washing, the Contractor will be allowed to proceed power washing the building. The Contractor must, however, notify the Project Monitor 24 hours in advance of the beginning of power washing in order for the Project Monitor to monitor the process should he or she feel that is appropriate.
- j. Employee protective measures such as disposable clothing and respirators will not be required as power washing is not likely to result in airborne exposures of lead above the Action Level.
- k. Waste water produced from power washing operations which does not contain chips of paint may be allowed to soak into the ground below the area being washed. If the area located below or around the surface to be washed does not allow for absorption into the ground, the water must be directed toward an area on the property that will allow for absorption into the ground or evaporation. The Contractor must take steps to ensure that no waste water enters storm drains regardless of the lead content of the water.

### **3.12 Lead Waste Management**

Proper testing and disposal of all waste material is the responsibility of the Contractor.

The Contractor must plan the work in order to minimize the generation of hazardous waste during the disturbance of lead-containing materials. The Contractor must create separate waste streams as necessary to include separation of any loose paint chips or flakes debris from other construction debris. All waste streams must be identified by the Contractor before the work begins and separated during the course of the project to minimize costs of disposal.

The Contractor is responsible for all costs associated with the testing, removal, packing, loading, shipping, and disposal of lead containing waste generated during this project. This does not include waste water testing done to determine if power washing is permitted which will be covered by the Owner.

The Contractor is required to comply with all regulations in Title 8 Section 1532.1 Lead in Construction and Cal/EPA Title 22 for waste classification and disposal.

**3.12.1 Lead Waste Testing**

The Contractor must conduct appropriate waste stream characterization testing and/or filtering prior to disposal of waste products such as water, sand, paint chips, vacuum debris, and filters generated during surface preparation activities. Once completed, the test analysis results must be submitted to the Owner and/or Project Monitor for review. The Contractor is responsible for all costs associated with waste stream testing. Contractors may choose to avoid some waste testing by presuming that the waste is a lead hazardous waste. Waste must be tested if the Contractor wishes to treat it as a non-hazardous waste.

The Contractor may not remove or dispose of the identified materials from the job site until this review has been completed and the Contractor has been informed by the Owner and/or Project Monitor of their concurrence that the materials have been properly tested and meet the requirements allowing the materials to be classified as non-hazardous.

**3.12.2 Uniform Hazardous Waste Manifests**

For all hazardous waste that requires an EPA manifest, the Contractor must coordinate with the Owner for signature of the manifest. In general, the Contractor must notify the Owner a minimum of 24 hours in advance of the need for a signature. Hazardous waste cannot be transported without an authorized signature so it is the responsibility of the Contractor to coordinate with the Owner the time waste transporters will need the signature. Delays resulting from the failure of the Contractor to obtain an authorized signature from the Owner will be the sole responsibility of the Contractor, unless the Owner was provided 24 hour in advance notice and the transporter arrived on time during the regular work hours of the Owner.

**3.12.3 Waste Containers**

All debris generated in the regulated work area shall be placed in DOT approved containers. The containers shall be leak tight and meet the requirements as stated in these specifications.

If in the judgement of the Project Monitor, the Contractor's method of containerizing debris is inadequate and either results in the release of dust or debris or is reasonably expected to result in such a release, the Contractor will be forbidden to continue waste containerization or load out until the containers meet the approval of the Project Monitor. This may result in the Contractor being required to change from one type of container to another. It must be understood that the Contractor is responsible for proper containerization of waste and therefore, will be required to provide for adequate and appropriate containers regardless of cost incurred due to failure of one system of containerization being required over another.

If utilizing bags to contain lead hazardous waste, two bags at least six-mil in thickness must be used. The inner bag may be sealed with adequate amounts of tape necessary to secure the opening of the bag. Only the second or final bag must be gooseneck sealed.

Regardless of the wastes characterization or designation as construction debris or hazardous waste, all waste containers shall be stored in designated and secure areas separate from the work area prior to testing and/or disposal.

The Contractor is responsible for proper storage and labeling of all hazardous waste containers while they are being used as storage and before they leave the job site according to the requirements of DTSC and DOT.

Building components such as wood with loose and flaking paint must, at a minimum, be wrapped in one layer of six-mil poly and adequately sealed with tape to secure the containerized material.

Concentrated lead waste such as sludge from paint stripping operations, lead containing paint chips and/or dust, HEPA vacuum contents and filters must be assumed to be hazardous waste until properly tested and must, at a minimum, be placed in poly lined, DOT approved drums.

Hard edged materials such as floor tile, gypsum board, plaster, stucco, ceramic tile, and other materials that may tear bags must be assumed to be hazardous waste until properly tested and must, at a minimum, be placed in poly lined, ridged-walled containers such as fiber drums or cardboard boxes as the final container.

Sharp edged components with peeling, blistering or flaking paint (e.g., nails, screws, metal lath, tin sheeting, door frames, etc.) must, at a minimum, be wrapped in one layer of six-mil poly sheeting, or a single six-mil thick bag and adequately sealed with tape to secure the containerized material.

**3.13 Alternative Work Plans**

The Contractor and/or subcontractors may submit alternate work plans to the suggested work practices and containment strategies as stated in these specifications. These alternate work plans or containment strategies must be approved by Owner and/or Project Monitor prior to their implementation.

**PART 4.0 DOCUMENTATION SUBMITTAL REQUIREMENTS**

**Pre-Start Submittal Form**

**This form must be completed, signed, and submitted with the Contractor and/or subcontractors' documents required prior to the start of work. This form and these documents must be submitted to the Owner and/or Project Monitor in the time specified in the project documents prior to the start of work disturbing lead.**

Please attach submittals in the order listed below. Please check off each item that is submitted. Write NA in spaces for which you believe the requirement is Not Applicable.

All Contractors and subcontractors who will have employees disturb lead on this project must, at a minimum provide proof of item number 1.6.1.e.1., lead hazard communication training in compliance with 8 CCR 1532.1 (L)(A)(1). This is the only submittal that must be provided by these employers as long as they do not disturb more lead than is described in Part 1.5.1.

**The following submittals must be provided by all Contractors and subcontractors who will, at a minimum, have employees who will conduct trigger tasks for more than one hour per shift, will potentially be exposed above the Action Level, or will conduct other activities as determined by the Project Monitor that may result in significant exposure to lead.**

- a. \_\_\_ A written lead compliance plan in compliance with 8 CCR 1532.1 must be provided that includes the following:
1. \_\_\_ A description of equipment and materials, controls, crew size, job responsibilities, and operations and maintenance procedures for each activity in which lead is disturbed and potentially emitted;
  2. \_\_\_ A description of specific control methods (wet methods, engineering controls, etc.) that will be used to ensure workers are not exposed above the PEL;
  3. \_\_\_ Technology considered in meeting the Cal/OSHA PEL;
  4. \_\_\_ Air monitoring data documenting sources of lead emissions;
  5. \_\_\_ A detailed implementation schedule for the compliance plan, including the schedule for inspections by a competent person;
  6. \_\_\_ A description of the lead work practice program which will be used to control worker exposures. This includes the use of protective work clothing, equipment, hygiene facilities and practices, and housekeeping practices;
  7. \_\_\_ A description of the steps the Contractor or subcontractor will take to minimize the generation of hazardous waste produced on this project. This includes, but is not necessarily limited to how the contractor will separate waste streams. For example, how will the Contractor or subcontractor will keep potentially hazardous waste such as paint chips and dust from being disposed of with other potentially non-hazardous construction materials and debris.
- b. \_\_\_ Copy of the Contractor or subcontractor's written respirator program in accordance with the requirements of 8 CCR 1544.
- c. \_\_\_ Proof that all employees expected to wear respirators on this project have medical approval to wear a respirator.
- d. \_\_\_ Copies of respiratory fit-tests for all workers expected to wear a respirator on this project. Fit testing must be done as required by and in accordance with 8 CCR 1544.
- e. Proof of training required by Part 1.5 for type of work employee will do.
1. \_\_\_ Proof of Hazard Communication Training for Lead for those exposed to lead or who will perform trigger tasks for less than one hour. (*Proof may be a certificate or written statement stating training was completed and a list of names of those individuals who were trained. Proof of this training is not needed if employee provides proof of training required by items e. 2, or e. 3.*)
  2. \_\_\_ Proof of training in compliance with 8 CCR 1532.1 (l)(2) for all employees who will conduct trigger tasks as defined in 8 CCR 1532.1 (d)(2) for more than one hour or who will reasonably be expected to be exposed to lead above the Action Level. (*Proof may be a certificate or written statement stating training was completed and a list of names of those individuals who were trained.*) Not required if providing proof of training required in item e.3 and/or item e.4.

3. \_\_\_ Proof of CDPH lead certification for those workers who will conduct trigger tasks as defined in 8 CCR 1532.1 (d)(2) or will reasonably be expected to be exposed to airborne levels of lead above the PEL. This is required for this work on all projects that will disturb more than 100 square feet of lead-containing material. *(Proof of certification will be a currently valid CDPH certification card as a worker or supervisor. Workers who can show proof of a valid course completion form and application being submitted to CDPH, will be allowed to work while awaiting full certification from CDPH.)*
  4. \_\_\_ Proof of current CDPH certification as a lead supervisor for the on-site competent person for projects involving the conduction of trigger tasks or other activities reasonably expected to exceed the PEL. This is required for this work on all projects that will disturb more than 100 square feet of lead-containing material. *(Proof of valid certification will be a currently valid CDPH certification card)*
  5. \_\_\_ If exception to requirement for CDPH certified supervisor listed in Part 1.5.3 is requested, then provide proof of CDPH certified supervisor who will verify containment, personal protection and work practices, and will be able to respond to the project within two hours of request by the Project Monitor. *(Only applicable for paint scraping work done prior to the demolition of buildings or structures.)*
  6. \_\_\_ Workers and supervisors must be trained in accordance with the US EPA RRP regulations for painting activities.
- f. \_\_\_ Copies of all current SDS for chemicals used on this project.
  - g. \_\_\_ Manufacturers' certifications that high efficiency particulate air (HEPA) vacuums, pressure differential units and other local exhaust ventilation equipment conform to ANSI Z9.2-79 for all HEPA-filtered equipment that will be used on this project.
  - h. \_\_\_ Name and contact information of independent testing company who will challenge test all vacuums and air filtration devices used on this project (in interior spaces).
  - i. \_\_\_ Name and contact information for laboratory who will analyze air samples or waste samples and documentation of their certification to conduct such analysis.
  - j. \_\_\_ Name of Waste Transporter who will transport hazardous waste on this project and documentation that the Transporter is allowed to transport lead hazardous waste.
  - k. \_\_\_ Name of Waste Landfill to which lead hazardous waste will be sent and documentation that such landfill is allowed to accept such waste.
  - l. \_\_\_ Should waste water filtration be required on this project, submit manufactures documentation pertaining to the capability of waste water filters to filter particles of, at a minimum, five micrometers in size.
  - m \_\_\_ List of all rented equipment to be used within a lead regulated area, or a statement that no rental equipment will be used on this project.



- 1. \_\_\_\_ If rental equipment is to be used, submit written statements from each rental company indicating the rental company's acknowledgment that the equipment is provided for and may be used in areas where airborne levels of asbestos and/or lead may be present.
  
- n. \_\_\_\_ Submit emergency plans. At a minimum submit the following:
  - 1. \_\_\_\_ Submit non-emergency telephone numbers, other than 911, for the appropriate Police, Sheriff, and Fire Departments.
  - 2. \_\_\_\_ Name, pager or cell phone numbers of the on-site supervisor and his immediate company supervisor.
  - 3. \_\_\_\_ Submit detailed written directions from the project site to the medical facility to be used in case of an emergency. Include a map which sufficiently shows the route to be taken from the site to the designated medical facility.
  - 4. \_\_\_\_ Submit written emergency procedures pertinent to the work to be performed and which can be implemented by site personnel if the need arises.
  
- o. \_\_\_\_ Local sanitation district Wastewater Discharge Permit for Surface Washers (if required).
  
- p. \_\_\_\_ Cal OSHA Notification. This is required for this work on all projects that will disturb more than 100 square feet of lead-containing material.

The above listed documents must be provided in the time specified in the project documents prior to the start of work that will disturb lead. Under no circumstances will workers or supervisors be allowed to work on this project prior to the receipt of this documentation by the Owner and/or Project Monitor. All delays resulting from the failure of the Contractor and/or subcontractors to provide this information in the required time frame is solely the responsibility of the Contractor and/or subcontractor.

**Name, Signature, and Contact Information of Contractor's Personnel Completing Pre-Start Submittal Package**

NAME: \_\_\_\_\_  
(Print or Type)

SIGNATURE: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

\_\_\_\_\_

**OAK RIDGE ELEMENTARY SCHOOL**

**EXHIBIT B**

**This Specification was Developed By:**

Blake Howes  
CDPH #3315  
May 3, 2023

Phone: (916) 632-6800  
Fax: (916) 632-6812

PART 5.0 RESULTS OF LEAD TESTING

<b>Paints/Coatings/ Materials Determined to be Lead Based Paint (LBP)</b>		
<b>Paint/Coating Color or Material</b>	<b>Lead Content</b>	<b>Component/Location</b>
Beige Colored Paint	83,863 ppm	Metal Window Frames at Permanent Buildings
Blue Colored Paint	54,852 ppm	Round Metal Support Columns at Covered Walkways
Blue Colored Paint	7,266 ppm	Wood Beams and Ceiling Deck at Covered Walkways
Blue Colored Paint	33,092 ppm	Exterior Doors & Frames at Permanent Buildings
Light Blue Colored Paint	5,552 ppm	Wood Casework & Cabinetry at Permanent Buildings
Tan Colored Paint	5,648 ppm	Plaster Walls in Kitchen
Beige Colored Paint	49,113 ppm	Wood Window Frames at Permanent Buildings

<b>Paints/Coatings/ Materials Determined to be Lead Containing Paint (LCP)</b>		
<b>Paint/Coating Color or Material</b>	<b>Lead Content</b>	<b>Component/Location</b>
Blue Colored Paint	775 ppm	Wood Fascia at Permanent Buildings
White Colored Paint	315 ppm	Wood Wall Panels at Interiors of Permanent Buildings
Beige Colored Paint	165 ppm	Metal Frame at Exterior of Portables 23-25
Beige Colored Paint	503 ppm	Plaster Walls in Admin Area Hallways

<b>Paints/Coatings/Materials Determined NOT TO Contain Lead</b>	
<b>Paint/Coating Color or Material</b>	<b>Building Component</b>
Blue Colored Paint	Metal Gutters at Permanent Buildings
Beige Colored Paint	Exterior Stucco at Permanent Buildings
Beige Colored Paint	Exterior Cementitious Wall Panels at Rooms 9-15
Blue Colored Paint	Exterior Metal Hand Rails
Beige Colored Paint	Exterior Wood Panels at Portables
Tan Colored Paint	Interior Wainscot & Trim at MPR
Blue Colored Paint	Wood Baseboard at Admin Area Hallways

A lead in paint inspection was conducted by Entek and a report was prepared on May 3, 2023.

# OAK RIDGE ELEMENTARY SCHOOL

# EXHIBIT B

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## OTHER HAZARDOUS MATERIALS

### POLYCHLORINATED BIPHENYLS (PCB's) LIGHT BALLAST HANDLING PROCEDURES

The Contractor may be instructed to remove light fixtures which contain light ballasts during demolition/ renovation activities specified in the contract documents. These light ballasts typically contain PCBs in the oil used as coolant and lubricant. Any ballast containing PCBs is to be considered a "Hazardous Waste", and the Contractor is responsible for ensuring personnel who perform PCB related work (inspection, removal, clean-up) are trained and qualified to do so. All workers must also follow current OSHA regulations including 29 CFR 1910.120 and 8 CCR 5192, as well as other applicable federal, state and local laws and regulations.

#### PCB Light Ballasts

All light ballasts manufactured through 1978 are magnetic ballasts which contain PCBs. Installation of ballasts manufactured prior to 1978 continued for several more years. As a result it can be expected that any building constructed before 1980 which has not had a complete lighting retrofit is likely to have PCB containing ballasts. Therefore, unless the ballast is electronic (this type is PCB free), determined by testing not to contain PCBs, or the manufacturers label on the ballast states "No PCBs", it is assumed all light ballasts on this site contain PCB's, and must therefore be handled as a hazardous waste by the Contractor. The Contractor may have other options for disposal of any light ballasts found not to contain PCB's.

#### Light Ballast Inspection

Contractor should disconnect all power and de-energize all electrical equipment to be impacted prior to performing inspection of electrical devices scheduled for removal or replacement. This de-energizing should be performed by or under the supervision of a licensed electrician. Contractor shall inspect each ballast prior to its removal to determine if the ballast is leaking, if oily residue is present on the exterior of the ballast or the ballast has been damaged resulting in a leak. Upon discovering and prior to removal of any oil coated, leaking, or damaged ballast Contractor shall contact Owners representative to discuss work procedures, waste requirements, etc.

#### Handling Work Practices of Undamaged Light Ballasts

Handling of ballasts shall be consistent with existing ballast conditions. While a ballast may not initially indicate any damage or leakage to be present, it may become damaged or begin to leak for any number of reasons during the removal and handling process. Any skin contact will probably constitute overexposure to PCBs since they are easily absorbed through the skin. It is recommended any personnel who will perform PCB related work should at a minimum wear protective clothing, including chemically-resistant gloves, goggles, boots, and disposable coveralls.

#### Handling Work Practices of Damaged Light Ballasts

Handling of damaged ballasts shall be performed in a manner consistent with existing and current federal, state and local laws and regulations. Clean-up of spills, or contaminated surfaces will require the use of specifically trained and properly protected personnel utilizing state of the art work practices, removal equipment, and materials. The Owners representative must be notified prior to the performance of this type of work.

**PCB Containing Waste**

All PCB containing light ballasts, removed by the Contractor, shall be placed in leak tight approved containers (metal barrels) until they are removed from the site by a waste transporter permitted to haul hazardous materials. Barrels must not be loaded in excess of their approved capacity. For most barrels this is 750 pounds. No other materials except, a sufficient amount of absorbent packing material, shall be included with the light ballasts.

The Contractor should contact their waste hauler prior to the start of work for information pertaining to recommendations or the waste haulers stated requirements for packing PCB containing ballasts. However, at a minimum, the absorbent packing material should be added to the bottom of the waste barrel prior to the first ballast. Absorbent packing material should then be added intermittently as necessary to encase the ballasts as the waste barrel is being filled. When the waste barrel is filled, or no more light ballasts will be added, additional absorbent packing material should be added to completely cover the ballasts and the container then sealed.

Contractor is also responsible for appropriate labeling of waste barrels and securing of lids to meet federal and/or state requirements while being stored on the site.

All leaking or damaged ballasts must be handled in accordance with federal and state disposal requirements and shall be separated from undamaged ballasts in preparation for incineration at an appropriately licensed facility.

The Contractor is responsible for all costs associated with the removal, packing, loading, shipping, and disposal of each barrel of waste generated during this project. The Contractor is also responsible for obtaining and properly completing any Uniform Hazardous Waste Manifests needed for the disposal of PCB waste. However, the Contractor **SHALL NOT** sign any Uniform Hazardous Waste Manifests for the Owner.

**Non-PCB Light Ballasts**

Non-PCB light ballasts are considered a hazardous waste in California and the contractor is responsible for collection, packaging, labeling, and holding this waste stream for proper disposal. Non-PCB light ballasts shall be shipped for disposal or recycle by the Contractor.

**UNIVERSAL WASTE LAMP HANDLING PROCEDURES**

The Contractor may be instructed to remove light fixtures which contain lamps which are designated as "Universal Waste" during demolition/renovation activities specified in the contract documents. If the Contractor is instructed to remove such fixtures the following handling procedures shall be followed.

**Universal Wastes**

Universal wastes are hazardous wastes that are more common and pose a lower risk to people and the environment than other hazardous wastes. Federal and State regulations identify universal wastes. The regulations, called the "Universal Waste Rule," are in the California Code of Regulations (CCR), title 22, division 4.5, chapter 23.

**Universal Waste Lamps**

Universal Waste Lamp, also referred to as “lamp” is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. Any lamp which is not spent and has been designated to be reused is not classified as a waste and does not meet the requirements of a hazardous waste or a universal waste.

**Mercury-added lamps**

Mercury-added lamps (effective February 9, 2004): Fluorescent tubes and several other types of lamps (not incandescent light bulbs) contain a small amount of mercury that is necessary for their operation. Currently, most fluorescent lamps contain enough mercury to be a hazardous waste.

**Universal Waste Lamp Disposal**

Spent lamps typically contain concentrations of mercury exceeding the established Total Threshold Limit Concentration and/or the Soluble Threshold Limit Concentration values. Therefore, these lamps must be sent to an authorized recycle facility, or to a universal waste consolidator for shipment to an authorized recycling facility.

At a minimum the lamps must be packaged in boxes/packages/containers which are structurally sound, adequate to prevent breakage, and compatible with the content of the lamps. These packages must remain closed and be free of damage which could cause leakage under reasonably foreseeable conditions.

Each container shall be labeled or marked clearly with one of the following phrases: “Universal Waste–Lamp(s),” or “Waste Lamp(s).” or “Used Lamp(s)”.

Documentation in the form of a log, invoice, manifest, bill of lading or other shipping document is required to be submitted to the Owner’s Representative for each shipment of waste from the project site. This documentation shall include: name and address of generator and address of site waste is generated on, quantity of lamps to be shipped, date of shipment, name and address of hauler, and name and address of waste facility receiving the waste.

**Hazardous Waste Designation**

Any lamp which is not designated for recycling or continued use in a different fixture for which the lamp is manufactured for use in must be handled, managed, and disposed of as a hazardous waste in accordance with Cal/EPA Title 22. Since all spent lamps are required to be recycled the Owner will not approve of the disposal of lamps as hazardous without consultation and review of the specific circumstances which warrant this change in designation.

**MERCURY SWITCHES**

Thermostat switches that contain mercury are considered a hazardous waste if removed and disposed. Where the contract requires removal of thermostat switches, the contractor shall follow all requirements for packaging and disposal of these mercury containing wastes.

**SMOKE DETECTORS WHICH MAY CONTAIN A RADIOACTIVE ELEMENT**

The Contractor shall be responsible for the removal of any and all smoke detectors which may contain a radioactive element, which may be present in any building or corridor prior to the demolition of any building included in this project. These types of detectors are easily identified by reviewing the label which is usually found on the back of the detector. Older units may display the international radiation symbol (three bladed propeller) and the radioactive content. Newer units state the radioactive content and their Nuclear Regulatory Agency (NRC) license number.

The Contractor shall be responsible for contacting the manufacturer of any smoke detector with a radioactive element present to determine their return policies. The California Department of Toxic Substance Control (DTSC) has stated that it is a condition of the manufacturers NRC license that they must accept returned units for disposal. The Contractor shall be responsible for all costs associated with removing, packaging, and shipping of the detectors in compliance with the manufacturers policies and procedures.

Contractor shall submit to the Owner a letter from the manufacturer which includes the number of units received, date received, and acceptance of the shipment for disposal by that manufacturer.

**Additional Waste Management Requirements**

The Contractor is responsible for managing lamps in a manner which prevents release of any universal waste or component of a universal waste to the environment. The Contractor is also responsible for the immediate clean up of materials (mercury or other hazardous constituents) released by a lamp broken during removal or otherwise damaged while being handled into a container or containers designed to accommodate the resulting waste and its contents.

The Contractor is responsible for training employees in proper handling, packaging, storing and labeling the universal waste, as well as, how to respond to releases (66273.13). This may be accomplished by providing employees written instructions or posting these instructions in the area where the universal waste lamps are being stored.

The Contractor is responsible for all costs associated with the removal, packing, loading, shipping, clean up and disposal of hazardous materials removed during this project, and any waste generated due to breakage during this project. The Contractor is also responsible for obtaining and properly completing any Uniform Hazardous Waste Manifests needed for the disposal of lamp waste. However, the Contractor **SHALL NOT** sign any Uniform Hazardous Waste Manifests for the Owner.

It **SHALL** be the responsibility of the Contractor to contact the Owner in advance of the scheduled pick up time and date so the waste materials can be visually inspected for proper packing, and to have the Uniform Hazardous Waste Manifest properly signed by a Owner representative.

**MOLD CONTAMINATED BUILDING MATERIALS**

During the course of conducting the construction related project, the contractor may discover water damaged building components which may also have visible or suspect mold on building materials. Mold can be harmful to humans depending upon the amount of exposure and type of exposure; therefore, it is incumbent of the contractor to take precautions in the event of the discovery of mold contaminated building materials.

If mold contaminated building materials are discovered on the project, it should be brought to the attention of the project manager. In addition, any structural wood members should also be closely examined for possible dry rot and decay and brought to the attention of the project manager. Precautions should be implemented by the contractor to protect his/her employees from exposures to mold from both skin contact and inhalation exposures. Employees should be trained in accordance with the Cal/OSHA Hazard Communication Standard for mold hazards.



If this project involves asbestos related work, the work practices and worker protection for asbestos is very similar to mold related work. Workers performing asbestos related demolition of building components are required to be protected in accordance with Cal/OSHA Title 8 1529 Asbestos in Construction regulations. Workers performing asbestos related work are required to wear respirators with P-100 (HEPA) filters, and whole body disposable coveralls while removing the building materials within negative pressure HEPA filtered work enclosures. These same asbestos work practices defined in Title 8 1529 and in other specifications for this project shall apply to any mold contaminated building materials.

Any mold contaminated building materials shall be removed from the work environment in sealed bags. If the building materials have been determined to contain asbestos, the default criteria for handling, packaging, labeling, and disposal of the waste material shall be the Cal/OSHA, Federal EPA, and D.O.T. regulations for asbestos waste. If the mold impacted materials have been determined not to contain asbestos, the materials shall be placed in sealed six mil plastic bags and can be disposed as non-hazardous waste. If the mold impacted building components are painted, lead in the paint may be the determinant for disposal. Refer to the Lead in Construction specifications for handling of painted components for lead waste issues.

**FREON**

All refrigerant systems at the buildings containing Freon and other fluorocarbon products associated with heating, ventilating, and air-conditioning (HVAC) systems, or freezers, refrigerators, etc. if removed in the planned renovation or demolition project, shall be removed from the mechanical systems and recycled in accordance with Cal/EPA requirements.

**CRYSTALLINE SILICA**

Cal/OSHA Title 8 1532.3. Occupational Exposures to Respirable Crystalline Silica require all employers to control employee exposures to silica dust during construction related activities. The contractor is responsible for following all of the requirements in the silica regulations established by Cal/OSHA in Title 8 section 1532.3. Below are some of the key components related to engineering controls specific to different tasks. Below are excerpts from the silica standards; however, the contractor shall familiarize themselves with all of the requirements in this regulation.

(C) Specified exposure control methods. (1) For each employee engaged in a task identified on Table 1, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless the employer assesses and limits the exposure of the employee to respirable crystalline silica in accordance with subsection (d).

All employers shall refer to "Table 1 - Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica" which identify the specific Equipment/Task, required Engineering and Work Practice Control Methods, and the required respiratory protection based on number of hours for the specific tasks. The contractor shall implement at least one of the work practices and control measures for the work activity they chose to implement.

(3) Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

(2) When implementing the control measures specified in Table 1, each employer shall:

(A) For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;

(B) For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

(C) For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:

1. Is maintained as free as practicable from settled dust;
2. Has door seals and closing mechanisms that work properly;
3. Has gaskets and seals that are in good condition and working properly;
4. Is under positive pressure maintained through continuous delivery of fresh air;
5. Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0  $\mu\text{m}$  range (e.g., MERV-16 or better); and
6. Has heating and cooling capabilities.

(d) Alternative exposure control methods. For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

(1) Permissible exposure limit (PEL). The employer shall ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of 50  $\mu\text{g}/\text{m}^3$ , calculated as an 8-hour TWA.

(2) Exposure assessment.

(A) General. The employer shall assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level in accordance with either the performance option in subsection (d)(2)(B) or the scheduled monitoring option in subsection (d)(2)(C).

(B) Performance option. The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

(C) Scheduled monitoring option.

1. The employer shall perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, in each work area. Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica.

2. If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

3. Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, the employer shall repeat such monitoring within six months of the most recent monitoring.

4. Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the employer shall repeat such monitoring within three months of the most recent monitoring.

5. Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the action level, the employer shall repeat such monitoring within six months of the most recent monitoring until

## OAK RIDGE ELEMENTARY SCHOOL

## EXHIBIT C

two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring, except as otherwise provided in subsection (d)(2)(D).

**Prepared By:**

Blake Howes, Vice President  
Entek Consulting Group, Inc.  
May 3, 2023

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**AMENDMENT NO. 1 TO FACILITIES LEASE  
BY AND BETWEEN  
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT AND  
John F. Otto dba Otto Construction**

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This Amendment No. 1 to the Facilities Lease ("First Amendment") is made and entered into this **7<sup>th</sup> day of September 2023** ("Effective Date") by and between the Sacramento City Unified School District ("District") and **John F. Otto dba Otto Construction** ("Developer") (collectively, the "Parties") as follows:

**RECITALS**

**WHEREAS**, the Parties entered into a Facilities Lease, dated **April 11, 2023**, pertaining to the **Oak Ridge Elementary School New Construction** ("Project") at Oak Ridge Elementary School, located at 4501 Martin Luther King Jr. Blvd., Sacramento, CA, ("Project Site"); and

**NOW, THEREFORE**, the Parties agree as follows:

Section I. First Amendment of Facilities Lease.

1. **Table of Contents** is amended to include Item 50, Exhibit J – Contract Forms.

2. **Amendment #1 Facilities Lease, Page 11, SubParagraph 10.1.3.2.7** is amended to read: "Close-out documentation (not less than 1%)", is hereby approved by the District.

2a. **Amendment #1-Attachment 6.2 DSA approved specifications, Page 32, SubParagraph 10.1.6.2.3.4** "Close-out documentation shall have a value in the preliminary schedule of not less than 1%".

3. **Amendment #1 Facilities Lease Page 11, SubParagraph 10.1.3.2.13** is amended to read: "Owner and Maintenance Manuals (not less than 1%)" is hereby approved by the District.

4. **Amendment #1 Facilities Lease Page 11, SubParagraph 10.1.3.2.14** is amended to read: "Punchlist and District acceptance (not less than 1%)" is hereby approved by the District.

4a. **Amendment #1-Attachment 6.2 DSA approved specifications, Page 32, SubParagraph 10.1.6.2.3.5** "Punchlist and District acceptance not less than 1%".

5. **Page 15, Section 10.5 Compensation to John F. Otto dba Otto Construction for Preconstruction Services** is amended to read: "District agrees to reimburse John F. Otto dba Otto Construction in the total amount not to exceed ~~Seventy Two Thousand One Hundred Twenty DOLLARS (\$72,120)~~ **Seventy-seven thousand Seven hundred Twenty DOLLARS (\$77,720)**, for the performance of services contemplated by this Agreement."

6. **Page 16, SubParagraph 11.1.2** "Contract Time/Construction Schedule " is amended to read: "It is hereby understood and agreed that the Contract Time for this Project shall be **Seven Hundred Twenty-five (725)** calendar days for construction, and be **Seven Hundred Seventy-five (775)** calendar days for close-out, commencing with the Notice to Proceed for Increment 1 construction phase and

ending with completion of the construction work which will occur no later than **September 5, 2025** and close-out **October 25, 2025** ("Contract Time"). The Construction Schedule must be accepted by the District."

7. **Exhibit C (Guaranteed Maximum Price and Other Project Cost, Funding, and Payment Provisions) to the Facilities Lease** is amended and supplemented such that the existing Exhibit C is replaced with the amended Exhibit C, which is attached hereto as **Attachment "1"** and incorporated herein by this reference. All references to Exhibit C in the Facilities Lease shall mean and refer to Attachment "1" hereto. The Parties expressly acknowledge and agree that this amendment is intended to and does change payment provisions for the Project under the Facilities Lease, including, but not limited to, the amount of Tenant Improvement Payments and amount of Lease Payments.

a. **Exhibit C, Section 3 "Tenant Improvement Payments"** is amended to read: "Prior to the District's taking delivery or occupancy of the Project, the District shall pay to Developer an amount equal to the Guaranteed Maximum Price as modified pursuant to the terms of the Facilities Lease, including Exhibit C and Exhibit D, less the Loan Amount for the Lease Payments ("Tenant Improvement Payments"). The District shall withhold an amount equal to the Loan Amount as indicated in Attachment 3 to Exhibit C from the Developer for its Work on the Project. In other words, no further Tenant Improvement Payment will be made to Developer once the amount equal to Guaranteed Maximum Price minus the Loan Amount has been paid. Otherwise, the Tenant Improvement Payments will be processed based on the amount of Work performed according to Developer's Schedule of Values (Exhibit G to the Facilities Lease) and pursuant to the provisions in Exhibit D to the Facilities Lease, including withholding for or escrow of retention/lease payment of five percent (5%) of the Guaranteed Maximum Price. The withholding for the Loan Amount shall be separate from and in addition to withholding for or escrow of retention." And is hereby approved by the District.

8. **The Construction Schedule**, which is attached hereto as **Attachment "2"** and incorporated herein by this reference, is hereby approved by the District and is hereby added as Exhibit F (Construction Schedule) to the Facilities Lease.

9. **The Schedule of Values**, which is attached hereto as **Attachment "3"** and incorporated herein by this reference, is hereby approved by the District and is hereby added as Exhibit G (Schedule of Values) to the Facilities Lease.

10. **Exhibit D-1, Special Conditions, Appendix A District Mitigation and Reporting Program (MMRP) shall be updated to include MMRP/ERRATA dated August 2023 (37 pages) and Geotechnical Engineering Report and Geologic Hazards Evaluation dated February 13, 2023 (139 pages)** which is attached hereto as **Attachment "4.1 & 4.2"** and hereby approved by the District.

11. **Exhibit J, Contract Forms** which is attached hereto as **Attachment "5"** and incorporated herein by this reference, hereby added as Exhibit J, Contract Forms and is hereby approved by the District.

12. **Exhibit I, Division. 01s and DSA approved plans (38 pages), specifications (408 pages), and 103 T&I form (23 pages)** which is attached hereto as **Attachment "6.1, 6.2, & 6.3"** and incorporated herein by this reference, hereby added as Exhibit J, Contract Forms and is hereby approved by the District.

13. **Final Hazardous Materials Report, Asbestos Requirement Specification, Requirements for Disturbance of Lean in Construction Specification, and Other Hazardous Materials Specification (260 pages)**, which are attached hereto as **Attachment "7"** and incorporated herein by this reference is hereby approved by the District and is hereby added to the Facilities Lease.

Section II. All Other Provisions Reaffirmed.

All other provisions of the Facilities Lease shall remain in full force and effect and are hereby reaffirmed. If there is any conflict between this First Amendment and any provision of the Facilities Lease or any prior amendment thereto, the provisions of this First Amendment shall control.

**IN WITNESS WHEREOF**, the Parties have caused this Amendment No. 1 to the Facilities Lease to be executed by their respective officers who are duly authorized, as of the Effective Date.

**ACCEPTED AND AGREED** on the date indicated below:

Dated: \_\_\_\_\_, 2023

Dated: \_\_\_\_\_, 20\_\_

SACRAMENTO CITY UNIFIED SCHOOL  
DISTRICT

CORE WEST, INC.

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: Jesse Castillo

Name: Allison Otto

Title: CBO

Title: President

**AMENDMENT #1 - FACILITIES LEASE**

**For all or a portion of the following Site:**

Oak Ridge Elementary School New Construction  
4501 Martin Luther King Jr. Blvd. Sacramento, CA 95820  
APN: 020-0220-004-0000

**By and between**

Sacramento City Unified School District  
5735 47<sup>th</sup> Avenue  
Sacramento, CA 95824

**And**

John Hayward / Allison Otto  
John F. Otto dba Otto Construction  
1717 Second Street  
Sacramento, CA 95811

Dated as of April 11, 2023

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## **FACILITIES LEASE**

This facilities lease ("Facilities Lease"), dated as of April 11, 2023 ("Effective Date"), is made and entered into by and between John F. Otto dba Otto Construction ("John F. Otto dba Otto Construction"), a [California corporation] duly organized and existing under the laws of the State of California, as sublessor, and Sacramento City Unified School District, a school district duly organized and validly existing under the laws of the State of California, as sublessee ("District") (together, the "Parties").

### **RECITALS**

**WHEREAS**, the District is authorized under Section 17406 of the Education Code of the State of California to lease a site to John F. Otto dba Otto Construction and to have that John F. Otto dba Otto Construction develop and construct the project on the site and to lease back to the District the completed project and site; and

**WHEREAS**, on the date hereof, the District has leased to John F. Otto dba Otto Construction, a parcel of land located at 4501 Martin Luther King Jr. Blvd., Sacramento, CA known as **Oak Ridge Elementary School**, particularly described in **Exhibit A** and shown on **Exhibit B** attached hereto and incorporated herein by reference ("Site"); and

**WHEREAS**, District and John F. Otto dba Otto Construction have executed a site lease at the same time as this Facilities Lease whereby the District is leasing the Site to John F. Otto dba Otto Construction ("Site Lease"); and

**WHEREAS**, the District desires to provide for the development and construction of certain work to be performed on portions of the Site which will include construction of improvements to be known as the **Oak Ridge Elementary School New Construction Project** ("Project"); and

**WHEREAS**, District has retained **Nacht & Lewis Architects** ("Architect") to prepare plans and specifications for the Project ("Plans and Specifications") and to act as the Design Professional in General Responsible Charge for the Project; and

**WHEREAS**, the Governing Board of the District ("Board") has determined that it is in the best interests of the District and for the common benefit of the citizens residing in the District to construct the Project by leasing the Site to John F. Otto dba Otto Construction and by simultaneously entering into this Facilities Lease under which the District will lease back the completed Project and site from John F. Otto dba Otto Construction and if necessary, make Lease Payments; and

**WHEREAS**, the District further acknowledges and agrees that it has entered into the Site Lease and the Facilities Lease pursuant to Education Code Section 17406 as the best available and most expeditious means for the District to satisfy its substantial need for the facilities to be provided by the Project and to accommodate and educate District students and to utilize its facilities proceeds expeditiously; and

**WHEREAS**, this Site Lease and Facilities Lease are awarded based a competitive solicitation process pursuant to Education Code section 17406 and in compliance with the required procedures and guidelines for evaluating the qualifications of proposers adopted and published by the Board to the proposer providing the best value to the school district, taking into consideration the proposer's demonstrated competence and professional qualifications necessary for the satisfactory performance of the services required; and

**WHEREAS**, the selection of John F. Otto dba Otto Construction was conducted in a fair and impartial manner; and

**WHEREAS**, John F. Otto dba Otto Construction has reviewed the Lease Documents; and

**WHEREAS**, John F. Otto dba Otto Construction represents that it has the expertise and experience to perform the services set forth in this Facilities Lease; and

**WHEREAS**, the Parties have performed all acts, conditions and things required by law to exist, to have happened and to have been performed precedent to and in connection with the execution and entering into of this Facilities Lease and all those conditions precedent to exist, have happened and have been performed in regular and due time, form and manner as required by law, and the Parties hereto are now duly authorized to execute and enter into this Facilities Lease; and

**WHEREAS**, John F. Otto dba Otto Construction is authorized to lease the Site as lessee and to develop the Project by constructing the Project on the Site and to lease the completed Project and Site back to the District, and has duly authorized the execution and delivery of this Facilities Lease.

**NOW, THEREFORE**, in consideration of the above recitals and of the mutual covenants hereinafter contained, the Parties hereto do hereby agree as follows:

**1. Definitions**

In addition to the terms and entities defined above or in subsequent provisions, and unless the context otherwise requires, the terms defined in this section shall, for all purposes of this Facilities Lease, have the meanings herein specified.

**1.1 "Developer" or "Lessor"** means John F. Otto dba Otto Construction a California corporation, organized and existing under the laws of the State of California, Contractor's license number 178809 issued by the State of California, Contractors' State License Board, in accordance with division 3, chapter 9, of the Business and Professions Code, and its successors and assigns.

**1.2 "John F. Otto dba Otto Construction's Representative"** means the Managing Member of John F. Otto dba Otto Construction, or any person authorized to act on behalf of John F. Otto dba Otto Construction under or with respect to this Facilities Lease.

**1.3 "Contract Documents"** are defined in **Exhibit D** to this Facilities Lease.

**1.4 "District" or "Lessee"** means the Sacramento City Unified School District, a school district duly organized and existing under the laws of the State of California.

**1.5 "District Representative"** means the Superintendent of the District, or any other person authorized by the Governing Board of the District to act on behalf of the District under or with respect to this Facilities Lease.

**1.6 "Permitted Encumbrances"** means, as of any particular time:

**1.6.1** Liens for general ad valorem taxes and assessments, if any, not then delinquent, or which the District may permit to remain unpaid;

**1.6.2** The Site Lease.

**1.6.3** This Facilities Lease.

**1.6.4** Easements, rights of way, mineral rights, drilling rights and other rights, reservations, covenants, conditions or restrictions which exist of record as of the date of this Facilities Lease.

**1.6.5** Easements, rights of way, mineral rights, drilling rights and other rights, reservations, covenants, conditions or restrictions established following the date of recordation of this Facilities Lease and to which John F. Otto dba Otto Construction and the District consent in writing which will not impair or impede the operation of the Site.

## **2. Exhibits**

The following Exhibits are attached to and by reference incorporated and made a part of this Facilities Lease:

**2.1** Exhibit A - Legal Description of the Site: The description of the real property constituting the Site.

**2.2** Exhibit B - Description of the Project: The map or diagram depiction of the Project.

**2.3** ***Exhibit C - Guaranteed Maximum Price and Other Project Cost, Funding, and Payment Provisions:*** *A detailed description of the Guaranteed Maximum Price and the provisions related to the payment of that amount to John F. Otto dba Otto Construction, including Attachment 3, the Schedule of Lease Payments and Payoff Dates and Amounts.*

**2.4** Exhibit D - General Construction Provisions: The provisions generally describing the Project's construction.

**2.5** Exhibit D-1 - Special Conditions Provisions: The provisions describing conditions specific to the Project's construction.

**2.6** Exhibit E - Memorandum of Commencement Date: The Memorandum which will memorialize the commencement and expiration dates of the Lease Term.

**2.7** ***Exhibit F - Construction Schedule***

**2.8** ***Exhibit G - Schedule of Values***

**2.9** ***Exhibit H - Project Labor Agreement***

**2.10** ***Exhibit I - Division 01 Specification***

**2.11** ***Exhibit J - Contract Forms***

### **3. Lease of Project and Site**

**3.1** John F. Otto dba Otto Construction hereby leases the completed Project to the District, and the District hereby leases said completed Project and Site from John F. Otto dba Otto Construction upon the terms and conditions set forth in this Facilities Lease.

**3.2** The leasing by John F. Otto dba Otto Construction to the District of the completed Project and Site shall not affect or result in a merger of the District's leasehold estate pursuant to this Facilities Lease and its fee estate as lessor under the Site Lease. John F. Otto dba Otto Construction shall continue to have and hold a leasehold estate in the Site pursuant to the Site Lease throughout the Term thereof and the Term of this Facilities Lease.

**3.3** As to the Site, this Facilities Lease shall be deemed and constitute a sublease.

### **4. Term**

#### **4.1 Facilities Lease is Legally Binding**

This Facilities Lease is legally binding on the Parties upon execution by the Parties and the District Board's approval of this Facilities Lease. The "Term" of this Facilities Lease for the purposes of District's obligation to make Lease Payments shall commence on the date when John F. Otto dba Otto Construction delivers possession of the Project to District and when all improvements to be provided by John F. Otto dba Otto Construction are determined by the District to be completed as set forth in **Exhibit D** to this Facilities Lease.

Unless earlier terminated pursuant to the provisions of the Contract Documents, the Term of this Facilities Lease for the purposes of District's obligations to make Lease Payments shall terminate [one (1) year] thereafter or upon payment of the final lease payment.

**4.2** After John F. Otto dba Otto Construction has completed construction of the Project and the District has accepted the Project, the Parties shall execute the Memorandum of Commencement Date attached hereto as **Exhibit E** to memorialize the commencement date of the Lease Payments and expiration date of the Term. Notwithstanding this Term, the Parties hereby acknowledge that each has obligations, duties, and rights under this Facilities Lease that exist upon execution of this Facilities Lease and prior to the beginning of the Lease Payment obligations.

**4.3** The Term may be extended or shortened upon the occurrence of the earliest of any of the following events, which shall constitute the end of the Term:

**4.3.1** An Event of Default by District as defined herein and John F. Otto dba Otto Construction's election to terminate this Facilities Lease as permitted herein; or

**4.3.2** An Event of Default by John F. Otto dba Otto Construction as defined herein and District's election to terminate this Facilities Lease as permitted herein; or

**4.3.3** Consummation of the District's purchase option pursuant to the Guaranteed Maximum Price and Other Project Cost, Funding, and Payment Provisions indicated in **Exhibit C** ("Guaranteed Maximum Price Provisions"); or

**4.3.4** A third-party taking of the Project under Eminent Domain, only if the Term is ended as indicated more specifically herein; or

**4.3.5** Damage or destruction of the Project, only if the Term is ended as indicated more specifically herein.

## **5. Payment**

In consideration for the lease of the completed Project and Site by John F. Otto dba Otto Construction back to the District and for other good and valuable consideration, the District shall make all necessary payments pursuant to the Guaranteed Maximum Price Provisions indicated in **Exhibit C**.

## **6. Title**

**6.1** During the Term of this Facilities Lease, the District shall hold fee title to the Site, including the Project, and nothing in this Facilities Lease or the Site Lease shall change, in any way, the District's ownership interest.

**6.2** During the Term of this Facilities Lease, John F. Otto dba Otto Construction shall have a leasehold interest in the Site pursuant to the Site Lease.

**6.3** During the Term of this Facilities Lease, John F. Otto dba Otto Construction shall hold title to the Project improvements provided by John F. Otto dba Otto Construction which comprise fixtures, repairs, replacements or modifications thereto.

**6.4** If the District exercises its Purchase Option pursuant to the Guaranteed Maximum Price Provisions indicated in **Exhibit C** or if District makes all necessary payments under the Guaranteed Maximum Price Provisions indicated in **Exhibit C**, all right, title and interest of John F. Otto dba Otto Construction, its assigns and successors in interest in and to the Project and the Site shall be transferred to and vested in the District at the end of the Term. Title shall be transferred to and vested in the District hereunder without the necessity for any further instrument of transfer; provided, however, that John F. Otto dba Otto Construction agrees to execute any instrument requested by District to memorialize the termination of this Facilities Lease and transfer of title to the Project.

## **7. Quiet Enjoyment**

Upon District's possession of the Project, John F. Otto dba Otto Construction shall thereafter provide the District with quiet use and enjoyment of the Project, and the District shall during the Term peaceably and quietly have and hold and enjoy the Project, without suit, trouble or hindrance from John F. Otto dba Otto Construction, except as otherwise may be set forth in this Facilities Lease. John F. Otto dba Otto Construction will, at the request of the District and at John F. Otto dba Otto Construction's cost, join in any legal action in which the District asserts its right to such possession and enjoyment to the extent John F. Otto dba Otto Construction may lawfully do so. Notwithstanding the foregoing, John F. Otto dba Otto Construction shall have the right to inspect the Project and the Site as provided herein.

## **8. Representations of the District**

The District represents, covenants and warrants to John F. Otto dba Otto Construction as follows:

### **8.1 Due Organization and Existence**

The District is a school district, duly organized and existing under the Constitution and laws of the State of California.

### **8.2 Authorization**

The District has the full power and authority to enter into, to execute and to deliver this Facilities Lease, and to perform all of its duties and obligations hereunder, and has duly authorized the execution of this Facilities Lease.

### **8.3 No Violations**

Neither the execution and delivery of this Facilities Lease nor the Site Lease, nor the fulfillment of or compliance with the terms and conditions hereof or thereof, nor the consummation of the transactions contemplated hereby or thereby, conflicts with or results in a breach of the terms, conditions or provisions of any restriction or any agreement or instrument to which the District is now a party or by which the District is bound, or constitutes a default under any of the foregoing, or results in the creation or imposition of any lien, charge or encumbrance whatsoever upon any of the property or assets of the District, or upon the Site, except Permitted Encumbrances.

### **8.4 Condemnation Proceedings**

**8.4.1** District covenants and agrees, but only to the extent that it may lawfully do so, that so long as this Facilities Lease remains in effect, the District will not seek to exercise the power of eminent domain with respect to the Project so as to cause a full or partial termination of this Facilities Lease.

**8.4.2** If for any reason the foregoing covenant is determined to be unenforceable or in some way invalid, or if District should fail or refuse to abide by such covenant, then, to the extent it may lawfully do so, District agrees that the financial interest of John F. Otto dba Otto Construction shall be as indicated in this Facilities Lease.

## **9. Representations of John F. Otto dba Otto Construction**

John F. Otto dba Otto Construction represents, covenants and warrants to the District as follows:

### **9.1 Due Organization and Existence**

John F. Otto dba Otto Construction is a [California company] duly organized and existing under the laws of the State of [California], has the power to enter into this Facilities Lease and the Site Lease; is possessed of full power to lease, lease back, and hold real and personal property and has duly authorized the execution and delivery of all of the aforesaid agreements.

## **9.2 Authorization**

John F. Otto dba Otto Construction has the full power and authority to enter into, to execute and to deliver this Facilities Lease, and to perform all of its duties and obligations hereunder, and has duly authorized the execution of this Facilities Lease.

## **9.3 No Violations**

Neither the execution and delivery of this Facilities Lease and the Site Lease, nor the fulfillment of or compliance with the terms and conditions hereof or thereof, nor the consummation of the transactions contemplated hereby or thereby, conflicts with or results in a breach of the terms, conditions or provisions of any restriction or any agreement or instrument to which John F. Otto dba Otto Construction is now a party or by which John F. Otto dba Otto Construction is bound, or constitutes a default under any of the foregoing, or results in the creation or imposition of any lien, charge or encumbrance whatsoever upon any of the property or assets of John F. Otto dba Otto Construction, or upon the Site, except Permitted Encumbrances.

## **9.4 No Bankruptcy**

John F. Otto dba Otto Construction is not now nor has it ever been in bankruptcy or receivership.

## **9.5 No Encumbrances**

John F. Otto dba Otto Construction shall not pledge any District payments of any kind, related to the Site Lease, this Facilities Lease, or in any way derived from the Site, and shall not mortgage or encumber the Site, except as may be specifically permitted pursuant to the provisions of this Facilities Lease related to John F. Otto dba Otto Construction's financing the construction of the project.

## **9.6 Continued Existence**

John F. Otto dba Otto Construction shall not voluntarily commence any act intended to dissolve or terminate the legal existence of John F. Otto dba Otto Construction, at or before the latest of the following:

**9.6.1** Eighteen (18) months following completion of the Project.

**9.6.2** One (1) year following expiration or earlier termination of the Term.

**9.6.3** After dismissal and final resolution of any and all disputes between the Parties and/or any third-party claims related, in any way, to the Project.

While the lease documents are in effect, John F. Otto dba Otto Construction shall give District one hundred twenty (120) days written notice prior to dissolving or terminating the legal existence of John F. Otto dba Otto Construction.



## **10. Preconstruction Services**

### **10.1 Scope of the Preconstruction Services**

John F. Otto dba Otto Construction shall perform management and coordination services, plan and specification constructability reviews, provide value-engineering reviews and recommendations and other reviews as necessary to verify that the drawings and specifications are clear and reasonably accurate to minimize the need for changes during the construction phase of the project, including but not limited to the following:

#### **10.1.1 General Services**

**10.1.1.1** John F. Otto dba Otto Construction shall attend meetings between the Architect, the District, District site personnel, and any other applicable consultants of the District as required to discuss the Project, including budget, scope and schedule.

**10.1.1.2** John F. Otto dba Otto Construction shall assist the Architect with making formal presentations to the governing board of District. Such assistance is anticipated to include floor plans and elevations necessary for any architectural presentation.

**10.1.1.3** John F. Otto dba Otto Construction shall prepare a rough schedule in a format acceptable to District, and update as necessary.

**10.1.1.4** John F. Otto dba Otto Construction shall prepare and update the components of the Guaranteed Maximum Price and shall be primarily responsible for ensuring that the Project can be and is constructed for no more than that amount.

**10.1.1.5** While the Architect is anticipated to provide primary assistance, John F. Otto dba Otto Construction shall assist District with City land use issues.

**10.1.1.6** Architect shall act as lead and John F. Otto dba Otto Construction will assist District and Architect with DSA review, input, and timeframe for same.

**10.1.1.7** Architect shall act as lead and John F. Otto dba Otto Construction will assist with review and comment upon geotechnical / soils investigation and report.

**10.1.1.8** Architect shall act as lead and John F. Otto dba Otto Construction will assist with review and comment upon survey of the Site for the Project.

**10.1.1.9** John F. Otto dba Otto Construction will prepare meeting minutes.

**10.1.1.10** Prepare schedule for preconstruction deliverables, subject to District's approval, and provide preconstruction deliverables within time frames of approved preconstruction schedule.

## **10.1.2 Review of Design Documents.**

**10.1.2.1** Review Project design and budget with District and Architect based on the 100% Construction Documents submitted to DSA to:

**10.1.2.1.1** Provide recommendations on site use and improvements, selection of materials, building systems and equipment and methods of Project delivery;

**10.1.2.1.2** Provide recommendations on relative feasibility of construction methods, availability of materials and labor, time requirements for procurement, installation and construction of the Project and subparts thereof if requested, and factors relating to cost including, but not limited to, construction costs of alternate designs of materials, preliminary budgets and possible economics that could be achieved through alternate methods or substitutions;

**10.1.2.1.3** Provide recommendations on relative feasibility of construction methods, availability of materials and labor, time requirements for procurement, installation and construction of the Project and subparts thereof if requested, and factors relating to cost including, but not limited to, construction costs of alternate designs of materials, preliminary budgets and possible economics that could be achieved through alternate methods or substitutions;

**10.1.2.1.4** Provide plan review.

**10.1.2.1.5 Value-engineering.** Prepare a value-engineering report for District review and approval that:

**10.1.2.1.5.1** Details areas of cost saving (e.g. construction processes/procedures, specified materials and equipment, and equipment or other aspects of the design documents that can be modified to reduce costs and/or the time for achieving final completion of the Project and/or to extend life-cycle and/or to reduce maintenance/operations costs, without diminution in the quality of materials/equipment/workmanship, scope or intended purposes of the Project);

**10.1.2.1.5.2** Provides detailed estimate for proposed value-engineering items;

**10.1.2.1.5.3** Defines methodology or approaches that maximize value; and

**10.1.2.1.5.4** Identifies design choices that can be more economically delivered.

**10.1.2.1.6 Constructability Review.** Prepare detailed interdisciplinary constructability review within Fourteen (14) days of receipt of the plans from the District that:

**10.1.2.1.6.1** Ensures construction documents are well coordinated and reviewed for errors;

**10.1.2.1.6.2** Identifies to the extent known, construction deficiencies and areas of concern;

**10.1.2.1.6.3** Back-checks design drawings for inclusion of modifications; and

**10.1.2.1.6.4** Provides the District with written confirmation that:

**10.1.2.1.6.4.1** Requirements noted in the design documents prepared for the Project are consistent with and conform to the District's Project requirements and design standards.

**10.1.2.1.6.4.2** Various components have been coordinated and are consistent with each other so as to minimize conflicts within or between components of the design documents.

**10.1.2.2** Confirm Modifications to Design Drawings. If the District accepts John F. Otto dba Otto Construction's comments, including the value-engineering and/or constructability review comments, review the design documents to confirm that those comments are properly incorporated into the final design documents.

**10.1.2.3** In doing so, it is recognized that John F. Otto dba Otto Construction is not acting in the capacity of a licensed design professional, and that John F. Otto dba Otto Construction's examination is made in good faith to facilitate construction and does not create an affirmative responsibility of a design professional to detect errors, omissions or inconsistencies in the Contract Documents or to ascertain compliance with applicable laws, building codes or regulations. However, nothing in this provision shall abrogate John F. Otto dba Otto Construction's responsibilities for discovering and reporting any error, inconsistency, or omission pursuant to the Contract within the John F. Otto dba Otto Construction's standard of care including, without limitation, any applicable laws, ordinance, rules, or regulations.

### **10.1.3 Budget of Project Costs.**

**10.1.3.1** At each stage of plan review indicated above, John F. Otto dba Otto Construction will update and refine the budget of the Guaranteed Maximum Price based on the most recent set of design documents. John F. Otto dba Otto Construction shall also advise the District and the Architect if it appears that the total construction costs may exceed the Guaranteed Maximum Price established by the District

and shall make recommendations for corrective action. John F. Otto dba Otto Construction will further provide input to the District and Architect relative to value of construction, means and methods for construction, duration of construction of various building methods and constructability.

**10.1.3.2** In each budget of the Guaranteed Maximum Price, John F. Otto dba Otto Construction shall include values of scopes of work subdivided into component parts in sufficient detail to serve as the basis for progress payments during construction. This budget of the Guaranteed Maximum Price shall include, at a minimum, the following information divided into at least the following categories for each site:

**10.1.3.2.1** Overhead and profit;

**10.1.3.2.2** Supervision;

**10.1.3.2.3** General conditions;

**10.1.3.2.4** Layout & Mobilization (not more than 1%);

**10.1.3.2.5** Submittals, samples, shop drawings (not more than 3%);

**10.1.3.2.6** Bonds and insurance (not more than 2%);

**10.1.3.2.7** Close-out documentation (not less than ~~3%~~ **1%**);

**10.1.3.2.8** Demolition;

**10.1.3.2.9** Installation;

**10.1.3.2.10** Rough-in;

**10.1.3.2.11** Finishes;

**10.1.3.2.12** Testing;

**10.1.3.2.13** Owner and Maintenance Manuals (not less than ~~2%~~ **1%**); and

**10.1.3.2.14** Punchlist and District acceptance (not less than ~~3%~~ **1%**).

#### **10.1.4 Construction Schedule and Phasing Plan**

John F. Otto dba Otto Construction shall prepare a preconstruction schedule to guide the design team through to bid dates. That schedule shall show the multiple phases and interrelations of design, constructability review, and estimating. John F. Otto dba Otto Construction shall also prepare a full construction schedule for the Project detailing the construction activities. John F. Otto dba Otto Construction shall further investigate, recommend and prepare a schedule for the purchase of materials and equipment requiring long lead

time procurement, and coordinate the schedule with the early preparation of portions of the Contract Documents by the Architect.

#### **10.1.5 Construction Planning and Bidding**

**10.1.5.1** For all of John F. Otto dba Otto Construction's activities relating to construction planning and bidding, John F. Otto dba Otto Construction shall comply with all applicable legal requirements, including but not limited to those set forth in Education Code section 17406.

**10.1.5.2** Consult with District staff in relation to the existing site. Selected John F. Otto dba Otto Construction should make site visits, as needed to review the current site conditions. During this evaluation, Respondent may make recommendations relating to soils investigations and utility locations and capacities, in order to minimize unforeseen conditions.

**10.1.5.3** Attend meetings at the Site with the Architect and the design team as needed.

**10.1.5.4** Provide plan review and constructability services with an emphasis on ensuring that the Project can be completed within the established schedule and within the available budget.

**10.1.5.5** Provide a detailed analysis of all major Project systems with an emphasis on possible value engineering possibilities.

**10.1.5.6** Prepare and distribute specifications and drawings provided by District to facilitate bidding to John F. Otto dba Otto Construction's subcontractors.

**10.1.5.7** Review the drawings and specifications to eliminate areas of conflict and overlapping in the work to be performed by various subcontractors, and with a view to eliminating change order requests by the Architect or subcontractors.

**10.1.5.8** Conduct pre-bid conferences with invitations to Architect and CM firm. Coordinate with District and the Architect in responding to subcontractor questions or providing clarification to all subcontractors.

**10.1.5.9** DSA approved plans shall be utilized to receive subcontractor bids and develop the GMP in accordance with the lease-leaseback agreement forms, including the requirement that John F. Otto dba Otto Construction engage in competitive bidding for subcontractors for all scopes of work on the Project that constitute more than one half of one percent (0.5%) of the GMP. The District representative shall be present during the receipt of bids from subcontractors.

**10.1.5.10** Each phase GMP shall be presented to the District in the following manner within a three ring binder as well as submitted electronically as a bookmarked PDF on an external USB drive:

**10.1.5.10.1** Cover sheet, signed by John F. Otto dba Otto Construction indicating the GMP dollar amount with a certification, indicating that the GMP is all inclusive per the plans, specifications and addenda (contract documents). Also include certification stating, "John F. Otto dba Otto Construction hereby certifies that they have reviewed all subcontractor proposals and whether the subcontractor excluded portions of their scope John F. Otto dba Otto Construction has included all costs for a complete GMP in accordance with plans, specifications and addenda."

**10.1.5.10.2** A bid tabulation sheet indicating the breakdown by subcontractor/trade along with the appropriate general condition amount, other fees (as submitted with the response to the RFQ/P).

**10.1.5.10.3** Behind the bid tabulation sheet mentioned in subdivision 10.1.5.5.2 above should be a sheet that indicates what is included in the general conditions, which should match what was submitted in the response to the RFQ/P.

**10.1.5.10.4** Copies of all subcontractor bids received divided by trade that corresponds to the final spread sheet with a cover sheet indicating the scope and subcontractors that provided bids as well as those that were asked to bid, but did not submit a proposal. This sheet should have the dollar amounts for each subcontractor that provided a bid with the first column being the proposed subcontractor for that trade.

**10.1.5.10.5** Behind subdivision 10.1.5.5.4 above should be the bids for that trade with the proposed subcontractor bid on top and the other subcontractor bids in descending order based on best value score.

**10.1.5.10.6** The minimum number of bona fide bids from contractors for a specific trade shall be as follows:

**10.1.5.10.6.1** Two (2) bids for subcontracts up to One Hundred Thousand Dollars (\$100,000);

**10.1.5.10.6.2** Three (3) bids for subcontracts over One Hundred Thousand Dollars (\$100,000).

**10.1.5.10.7** If John F. Otto dba Otto Construction intends to propose to self-perform portion(s) of the construction of the Project, it must receive the District's prior written approval. If approved, John F. Otto dba Otto Construction must provide its pricing (its bid) to the District at least twenty-four (24) hours

prior to John F. Otto dba Otto Construction's receipt of Subcontractor bids for those portion(s) of the Work.

**10.1.5.10.7.1** Regardless of the scope of work and not in any way reducing the number of Subcontractor bids based on the other requirements of the Contract Documents, the minimum number of bona fide bids from Subcontractors for scope(s) of Work that John F. Otto dba Otto Construction is bidding to self-perform shall be Two (2) Bids, not including John F. Otto dba Otto Construction's pricing/bid.

**10.1.5.11** Produce detailed construction CPM schedules to be incorporated into the Project documents including identification of the Project critical path and agency approvals.

**10.1.5.12** Plan the phases and staging of construction, staging areas, temporary fencing, office trailer placement, access, etc. as required.

**10.1.5.13** Any other services that are reasonable and necessary to control the budget and schedule. List those areas where subconsultants will be required and where the Respondent has in-house expertise. Provide resumes of persons providing each of these services and for key personnel assigned to the Project.

## **10.2 Schedule**

Preconstruction services outlined above will commence on the date the District issues a Notice to Proceed with Preconstruction Services for the Agreement, and conclude upon approval of the Amendment to the Lease Agreements by District's Board, or termination of this Agreement by either party per the Agreement's terms. Any extension shall be subject to reasonable approval in writing by the Parties.

## **10.3 Ownership of Records**

It is mutually agreed that all materials prepared by John F. Otto dba Otto Construction under this Agreement shall become the property of the District and John F. Otto dba Otto Construction shall have no property right therein whatsoever. John F. Otto dba Otto Construction hereby assigns to District any copyrights associated with the materials prepared pursuant to the Agreement.

## **10.4 Open Book Policy**

There will be an open book policy with John F. Otto dba Otto Construction and its construction team. District shall have access to all **subcontractor bids, subcontractor schedule of values, value engineering back-up, contingency breakdown & tracking, and John F. Otto dba Otto Construction fees.**

## **10.5 Compensation to John F. Otto dba Otto Construction for Preconstruction Services**

District agrees to reimburse John F. Otto dba Otto Construction in the total amount not to exceed ~~Seventy Two Thousand One Hundred Twenty DOLLARS (\$72,120)~~ **Seventy-seven thousand Seven hundred Twenty DOLLARS (\$77,720)**, for the performance of services contemplated by this Agreement. John F. Otto dba Otto Construction shall be paid monthly for the actual fees and allowed costs and expenses for all time and materials required and expended for work requested and specified by the District as completed. Said amount shall be paid within thirty (30) days upon submittal to and verification by the District of a monthly billing statement showing completion of the tasks for that month on a line item basis. In the event John F. Otto dba Otto Construction and District continue with the lease/leaseback agreements for the development of the Project, this compensation for services rendered will be included as part of the Guaranteed Maximum Price ("GMP") to be paid to John F. Otto dba Otto Construction by District.

John F. Otto dba Otto Construction shall be responsible for any and all costs and expenses incurred by John F. Otto dba Otto Construction, including but not limited to the costs of hiring sub-consultants, contractors and other professionals, review of the Project's Plans and Specifications, review and preparation of necessary documentation relating to the development of the Project, all travel-related expenses, as well as for meetings with District and its representatives, long distance telephone charges, copying expenses, salaries of John F. Otto dba Otto Construction staff and employees working on the Project, overhead, and any other reasonable expenses incurred by John F. Otto dba Otto Construction in performance of the services contemplated by this Agreement.

## **10.6 Termination before Construction Phase**

**10.6.1** Before the notice to proceed with the Construction Phase is issued by the District, this Agreement may be terminated at any time without cause by District upon fourteen (14) days written notice to John F. Otto dba Otto Construction. In the event of such a termination by District, the District shall pay John F. Otto dba Otto Construction for all undisputed services performed and expenses incurred per this Agreement, supported by documentary evidence, including, but not limited to, payroll records, invoices from third parties retained by John F. Otto dba Otto Construction pursuant to this Agreement, and expense reports up until the date of notice of termination plus any sums due John F. Otto dba Otto Construction for Board-approved extra services. In ascertaining the services actually rendered hereunder up to the date of termination of this Agreement, consideration shall be given to completed work and work in process that would best serve the District if a completed product was presented.

**10.6.2** In the event that the Parties do not reach an agreement on the GMP, this Agreement will be terminated at that time. In the event of such a termination, the District shall pay John F. Otto dba Otto Construction no more than the not to exceed amount in Section 10.5 above.

## **10.7 Construction Phase**



John F. Otto dba Otto Construction shall not commence work for which a contractor is required to be licensed in accordance with Article 5 (commencing with Section 7065) of Chapter 9 of Division 3 of the Business and Professions Code and for which Division of the State Architect approval is required can be performed before receipt of the required Division of the State Architect approval.

## **11. Construction of Project**

### **11.1 Construction of Project**

**11.1.1** John F. Otto dba Otto Construction agrees to cause the Project to be developed, constructed, and installed in accordance with the terms hereof and the Construction Provisions set forth in **Exhibit D**, including those things reasonably inferred from the Contract Documents as being within the scope of the Project and necessary to produce the stated result even though no mention is made in the Contract Documents.

#### **11.1.2 Contract Time / Construction Schedule**

It is hereby understood and agreed that the Contract Time for this Project shall be **Seven Hundred Twenty-five (725)** calendar days for construction, and be **Seven Hundred Seventy-five (775)** calendar days for close-out, commencing with the Notice to Proceed for Increment 1 construction phase and ending with completion of the construction work which will occur no later than **September 5, 2025** and close-out **October 25, 2025** ("Contract Time"). The Construction Schedule must be accepted by the District.

#### **11.1.3 Schedule of Values**

John F. Otto dba Otto Construction will provide a schedule of values, approved by the District, which will be attached hereto as **Exhibit G** ("Schedule of Values"). The Schedule of Values must be approved by the District. Refer to Exhibit D of the Facilities Lease section 10.1.6.2

#### **11.1.4 Liquidated Damages**

Time is of the essence for all work John F. Otto dba Otto Construction must perform to complete the Project. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage that the District will sustain in the event of and by reason of John F. Otto dba Otto Construction's delay; therefore, John F. Otto dba Otto Construction agrees that it shall pay to the District the sum of Two thousand five hundred Dollars (\$2,500) per day as liquidated damages for each and every day's delay beyond the Contract Time.

**11.1.4.1** It is hereby understood and agreed that this amount is not a penalty.

**11.1.4.2** In the event any portion of the liquidated damages is not paid to the District, the District may deduct that amount from any money due or that may become due John F. Otto dba Otto Construction under this Facilities Lease. The District's right to assess liquidated damages is as indicated herein and in **Exhibit D**.

**11.1.4.3** The time during which the construction of the Project is delayed for cause as hereinafter specified may extend the time of completion for a reasonable time as the District may grant.

**11.1.5 Guaranteed Maximum Price**

John F. Otto dba Otto Construction will cause the Project to be constructed within the GMP as set forth and defined in the GMP provisions in **Exhibit C**, and John F. Otto dba Otto Construction will not seek additional compensation from District in excess of that amount.

**11.1.6 Modifications**

If the DSA requires changes to the Contract Documents submitted by District to John F. Otto dba Otto Construction, and those changes change the construction costs and/or construction time for the Project, then those changed costs or time will be handled as a modification pursuant to the provisions of **Exhibit D**.

**11.1.7 Labor Compliance Monitoring and Enforcement by Department of Industrial Relations**

This Project is subject to labor compliance monitoring and enforcement by the Department of Industrial Relations pursuant to Labor Code section 1771.4 and Title 8 of the California Code of Regulations. John F. Otto dba Otto Construction specifically acknowledges and understands that it shall perform the Work of this Contract while complying with all the applicable provisions of Division 2, Part 7, Chapter 1, of the Labor Code.

**12. Maintenance**

Following delivery of possession of the Project by John F. Otto dba Otto Construction to District, the repair, improvement, replacement and maintenance of the Project and the Site shall be at the sole cost and expense and the sole responsibility of the District, subject only to all punch list items and warranties against defects in materials and workmanship of John F. Otto dba Otto Construction as provided in **Exhibit D**. The District shall pay for or otherwise arrange for the payment of the cost of the repair and replacement of the Project resulting from ordinary wear and tear. The District waives the benefits of subsections 1 and 2 of Section 1932 of the California Civil Code, but such waiver shall not limit any of the rights of the District under the terms of this Facilities Lease.

**13. Utilities**

Following delivery of possession of the Project by John F. Otto dba Otto Construction to District, the cost and expenses for all utility services, including, but not limited to, electricity, natural gas, telephone, water, sewer, trash removal, cable television, janitorial service, security, heating, water, internet service, data transmission, and all other utilities of any type shall be paid by District.

**14. Taxes and Other Impositions**

All ad valorem real property taxes, special taxes, possessory interest taxes, bonds and special lien assessments or other impositions of any kind with respect to the Project, the Site and the

improvements thereon, charged to or imposed upon either John F. Otto dba Otto Construction or the District or their respective interests or estates in the Project, shall at all times be paid by District. In the event any possessory interest tax is levied on John F. Otto dba Otto Construction, its successors and assigns, by virtue of this Facilities Lease or the Site Lease, District shall pay such possessory interest tax directly, if possible, or shall reimburse John F. Otto dba Otto Construction, its successors and assigns for the full amount thereof within forty-five (45) days after presentation of proof of payment by John F. Otto dba Otto Construction.

## **15. Insurance**

### **15.1 John F. Otto dba Otto Construction's Insurance**

John F. Otto dba Otto Construction shall comply with the insurance requirements as indicated here and in **Exhibit D**.

#### **15.1.1 Commercial General Liability and Automobile Liability Insurance**

**15.1.1.1** John F. Otto dba Otto Construction shall procure and maintain, during the life of the Project, Commercial General Liability Insurance and Automobile Liability Insurance that shall protect John F. Otto dba Otto Construction, District, its Board Members, employees, agents, Construction Manager(s), Project Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, personal injury, death, advertising injury, and medical payments arising from, or in connection with, operations under the Project. This coverage shall be provided in a form at least as broad as Insurance Services (ISO) Form CG 00 01 11 88. John F. Otto dba Otto Construction shall ensure that Products Liability and Completed Operations coverage, Fire Damage Liability coverage, and Automobile Liability coverage including owned, non-owned, and hired automobiles, are included within the above policies and at the required limits, or John F. Otto dba Otto Construction shall procure and maintain these coverages separately.

**15.1.1.2** John F. Otto dba Otto Construction's deductible or self-insured retention for its Commercial General Liability Insurance policy shall not exceed five thousand dollars (\$5,000) for deductible or twenty-five thousand dollars (\$25,000) for self-insured retention, respectively, unless approved in writing by District.

**15.1.1.3** All such policies shall be written on an occurrence form.

#### **15.1.2 Excess Liability Insurance**

**15.1.2.1** If John F. Otto dba Otto Construction's underlying policy limits are less than required, subject to 15.1.2.3 below, John F. Otto dba Otto Construction may procure and maintain, during the life of the Project, an Excess Liability Insurance Policy to meet the policy limit requirements of the required policies in order to satisfy, in aggregate with its underlying policy, the insurance requirements herein.

**15.1.2.2** There shall be no gap between the per occurrence amount of any underlying policy and the start of the coverage under the Excess Liability Insurance Policy. Any Excess Liability Insurance Policy shall protect John F. Otto dba Otto Construction, District, its Board Members, employees, agents, Construction Manager(s), Project Manager(s), Project Inspector(s), and Architect(s) in amounts and including the provisions as set forth in **Exhibit D** and/or the Supplementary Conditions (if any), and that complies with all requirements for Commercial General Liability and Automobile Liability and Employers' Liability Insurance.

**15.1.2.3** The District, in its sole discretion, may accept the Excess Liability Insurance Policy that brings John F. Otto dba Otto Construction's primary limits to the minimum requirements herein.

### **15.1.3 Subcontractor**

John F. Otto dba Otto Construction shall require its Subcontractor(s), if any, to procure and maintain Commercial General Liability Insurance, Automobile Liability Insurance, and Excess Liability Insurance (if Subcontractor elects to satisfy, in part, the insurance required herein by procuring and maintaining an Excess Liability Insurance Policy) with minimum limits at least equal to the amount required of John F. Otto dba Otto Construction except where smaller minimum limits are permitted as set forth below.

### **15.1.4 Workers' Compensation and Employer's Liability Insurance**

**15.1.4.1** In accordance with provisions of section 3700 of the California Labor Code, John F. Otto dba Otto Construction and every Subcontractor shall be required to secure the payment of compensation to its employees.

**15.1.4.2** John F. Otto dba Otto Construction shall procure and maintain, during the life of the Project, Workers' Compensation Insurance and Employer's Liability Insurance for all of its employees engaged in work under the Project, on/or at the Site of the Project. This coverage shall cover, at a minimum, medical and surgical treatment, disability benefits, rehabilitation therapy, and survivors' death benefits. John F. Otto dba Otto Construction shall require its Subcontractor(s), if any, to procure and maintain Workers' Compensation Insurance and Employer's Liability Insurance for all employees of Subcontractor(s). Any class of employee or employees not covered by a Subcontractor's insurance shall be covered by John F. Otto dba Otto Construction's insurance. If any class of employee or employees engaged in Work on the Project, on or at the Site of the Project, is not protected under the Workers' Compensation Insurance, John F. Otto dba Otto Construction shall provide, or shall cause a Subcontractor to provide, adequate insurance coverage for the protection of any employee(s) not otherwise protected before any of those employee(s) commence work.

### **15.1.5 Builder's Risk Insurance: Builder's Risk "All Risk" Insurance**

**15.1.5.1** John F. Otto dba Otto Construction shall procure and maintain during the duration of construction, Builder's Risk (Course of Construction), or similar first party property coverage acceptable to the District, issued on a replacement cost value basis. The cost shall be consistent with the total replacement cost of all insurable Work of the Project included within the Contract Documents. Coverage is to insure against all risks of accidental physical loss and shall include without limitation the perils of vandalism and/or malicious mischief (both without any limitation regarding vacancy or occupancy), sprinkler leakage, civil authority, theft, sonic disturbance, earthquake, flood, collapse, wind, rain, dust, fire, war, terrorism, lightning, smoke, and rioting. Coverage shall include debris removal, demolition, increased costs due to enforcement of all applicable ordinances and/or laws in the repair and replacement of damaged and undamaged portions of the property, and reasonable costs for the Architect's and engineering services and expenses required as a result of any insured loss upon the Work and Project, including completed Work and Work in progress, to the full insurable value thereof.

### **15.1.6 Pollution Liability Insurance**

**15.1.6.1** John F. Otto dba Otto Construction shall procure and maintain Pollution Liability Insurance that shall protect John F. Otto dba Otto Construction, District, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, including natural resource damage, cleanup costs, removal, storage, disposal, and/or use of the pollutant arising from operations under this Facilities Lease, and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims. Coverage shall apply to sudden and/or gradual pollution conditions resulting from the escape or release of smoke, vapors, fumes, acids, alkalis, toxic chemicals, liquids, or gases, natural gas, waste materials, or other irritants, contaminants, or pollutants, including asbestos. This coverage shall be provided in a form at least as broad as Insurance Services Offices, Inc. (ISO) Form CG 2415, or John F. Otto dba Otto Construction shall procure and maintain these coverages separately.

**15.1.6.2** John F. Otto dba Otto Construction warrants that any retroactive date applicable to coverage under the policy shall predate the Effective Date of this Facilities Lease and that continuous coverage will be maintained or an extended reporting or discovery period will be exercised for a period of three (3) years, beginning from the time that the Work under the Contract is completed.

**15.1.6.3** If John F. Otto dba Otto Construction is responsible for removing any pollutants from a site, then John F. Otto dba Otto Construction shall ensure that Any Auto, including owned, non-

owned, and hired, are included within the above policies and at the required limits, to cover its automobile exposure for transporting the pollutants from the site to an approved disposal site. This coverage shall include the Motor Carrier Act Endorsement, MCS 90.

**15.1.7 Not Used**

**15.1.8 Proof of Carriage of Insurance and Other Requirements Endorsements and Certificates**

**15.1.8.1** John F. Otto dba Otto Construction shall not commence Work nor shall it allow any Subcontractor to commence Work on the Project, until John F. Otto dba Otto Construction and its Subcontractor(s) have procured all required insurance and John F. Otto dba Otto Construction has delivered in duplicate to the District complete endorsements (or entire insurance policies) and certificates indicating the required coverages have been obtained, and the District has approved these documents.

**15.1.8.2** Endorsements, certificates, and insurance policies shall include the following:

**15.1.8.2.1** A clause stating the following, or other language acceptable to the District:

“This policy shall not be canceled and the coverage amounts shall not be reduced until notice has been mailed to District, Architect, and Construction Manager stating date of cancellation by the insurance carrier. Date of cancellation may not be less than thirty (30) days after date of mailing notice.”

**15.1.8.2.2** Language stating in particular those insured, extent of insurance, location and operation to which insurance applies, expiration date, to whom cancellation notice will be sent, and length of notice period.

**15.1.8.3** All endorsements, certificates and insurance policies shall state that District, its Board Members, employees and agents, Construction Manager(s), Project Manager(s), Inspector(s) and Architect(s) are named additional insureds under all policies except Workers’ Compensation Insurance and Employers’ Liability Insurance.

**15.1.8.4** All endorsements shall waive any right to subrogation against any of the named additional insureds.

**15.1.8.5** John F. Otto dba Otto Construction’s and Subcontractors’ insurance policy(s) shall be primary and non-contributory to any insurance or self-insurance maintained by District, its Board Members, employees and/or agents, the State of California,

Construction Manager(s), Project Manager(s), Inspector(s), and/or Architect(s).

**15.1.8.6** John F. Otto dba Otto Construction's insurance limit shall apply separately to each insured against whom a claim is made or suit is brought.

**15.1.8.7** No policy shall be amended, canceled, or modified, and the coverage amounts shall not be reduced, until John F. Otto dba Otto Construction or John F. Otto dba Otto Construction's broker has provided written notice to District, Architect, and Construction Manager stating date of the amendment, modification, cancellation or reduction, and a description of the change. Date of amendment, modification, cancellation or reduction may not be less than thirty (30) days after date of mailing notice.

**15.1.8.8** Insurance written on a "claims made" basis shall be retroactive to a date that coincides with or precedes John F. Otto dba Otto Construction's commencement of Work, including subsequent policies purchased as renewals or replacements. Said policy is to be renewed by John F. Otto dba Otto Construction and all Subcontractors for a period of five (5) years following completion of the Work or termination of this Facilities Lease. Such insurance must have the same coverage and limits as the policy that was in effect during the term of this Facilities Lease, and will cover John F. Otto dba Otto Construction and all Subcontractors for all claims made.

**15.1.8.9** John F. Otto dba Otto Construction's and Subcontractors' insurance policy(s) shall be primary and non-contributory to any insurance or self-insurance maintained by District, its Board Members, employees and/or agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s), and/or Architect(s).

**15.1.8.10** All endorsements shall waive any right to subrogation against any of the named additional insureds.

**15.1.8.11** All policies shall be written on an occurrence form.

**15.1.8.12** All of John F. Otto dba Otto Construction's insurance shall be with insurance companies with an A.M. Best rating of no less than A: XI.

**15.1.8.13** The insurance requirements set forth herein shall in no way limit John F. Otto dba Otto Construction's liability arising out of or relating to the performance of the Work or related activities.

**15.1.8.14** Failure of John F. Otto dba Otto Construction and/or its Subcontractor(s) to comply with the insurance requirements herein shall be deemed a material breach of the Facilities Lease and constitute a Default by John F. Otto dba Otto Construction pursuant to this Facilities Lease.

**15.1.9 Insurance Policy Limits**

The limits of insurance shall not be less than the following amounts:

COMMERCIAL GENERAL LIABILITY	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	\$5,000,000 per occurrence; \$10,000,000 aggregate]  Subcontractors (over 10%): \$2,000,000 per occurrence; \$4,000,000 annual aggregate
EXCELL LIABILITY		John F. Otto dba Otto Construction: \$25,000,000 per occurrence; \$25,000,000 annual aggregate  Subcontractors (over 10%): \$10,000,000 per occurrence ; \$10,000,000 annual aggregate
AUTOMOBILE LIABILITY – ANY AUTO	Combined Single Limit	\$3,000,000 (limits may be met with Excess Liability Policy required herein)
WORKERS’ COMPENSATION		Statutory limits pursuant to State law
EMPLOYER’S LIABILITY		\$1,000,000
BUILDER’S RISK (COURSE OF CONSTRUCTION)		Replacement Cost
POLLUTION LIABILITY		\$2,000,000 per occurrence; \$2,000,000 annual aggregate

If John F. Otto dba Otto Construction normally carries insurance in an amount greater than the minimum amounts required by District, that greater amount shall become the minimum required amount of insurance for purposes of the Contract. Therefore, John F. Otto dba Otto Construction hereby acknowledges and agrees that all insurance carried by it shall be deemed liability coverage for all actions it performs in connection with the Contract.



The limits of insurance for those subcontractors whose subcontract does not exceed 10% of the contract value shall not be less than the following amounts:

COMMERCIAL GENERAL LIABILITY	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	\$2,000,000 per occurrence; \$4,000,000 in annual aggregate
Excess Liability		\$5,000,000 per occurrence; \$5,000,000 annual aggregate
AUTOMOBILE LIABILITY - ANY AUTO	Combined Single Limit	\$2,000,000
WORKERS' COMPENSATION		Statutory limits pursuant to State law
EMPLOYER'S LIABILITY		\$1,000,000

Notwithstanding anything in this Facilities Lease to the contrary, the above insurance requirements may be modified as appropriate for subcontractors, with District's prior written approval.

**15.2 District's Insurance**

**15.2.1 Rental Interruption Insurance**

District shall at all times from and after District's acceptance of the Project, for the benefit of District and John F. Otto dba Otto Construction, as their interests may appear, maintain rental interruption insurance to cover loss, total or partial, of the use of the Project due to damage or destruction, in an amount at least equal to the maximum estimated Lease Payments payable under this Facilities Lease during the current or any future twenty-four (24) month period. This insurance may be maintained as part of or in conjunction with any other insurance coverage carried by the District, and such insurance may be maintained in whole or in part in the form of participation by the District in a joint powers agency or other program providing pooled insurance. This insurance may not be maintained in the form of self-insurance.

**15.2.2 Property Insurance**

District shall at all times from and after District's acceptance of the Project, carry and maintain in force a policy of property insurance for 100% of the insurable replacement value with no coinsurance penalty, on the Site and the Project, together with all improvements thereon, under a standard "all risk" contract insuring against loss or damage. John F. Otto dba Otto Construction shall be named as additional insureds or co-insureds thereon by way of endorsement. District shall have the right to procure the required insurance through a joint powers agency or to self-insure against such losses or portion thereof as is deemed prudent by District.

## **16. Indemnification and Defense**

**16.1** To the fullest extent permitted by California law, John F. Otto dba Otto Construction shall indemnify, keep and hold harmless the District, the Architect(s) and Construction Manager(s), their respective consultants, separate contractors, board members, officers, representatives, agents, and employees, in both individual and official capacities ("Indemnitees"), against all suits, claims, injury, damages, losses, and expenses ("Claims"), including but not limited to attorney's fees and costs, caused by, arising out of, resulting from, or incidental to, in whole or in part, the performance of the Work under this Contract by John F. Otto dba Otto Construction or its Subcontractors, vendors and/or suppliers. However, John F. Otto dba Otto Construction's indemnification and hold harmless obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent the Claim(s) is/are caused wholly by the active negligence or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. This indemnification and hold harmless obligation of John F. Otto dba Otto Construction shall not be construed to negate, abridge, or otherwise reduce any right or obligation of indemnity that would otherwise exist or arise as to any Indemnitee or other person described herein. This indemnification and hold harmless obligation includes, but is not limited to, any failure or alleged failure by John F. Otto dba Otto Construction to comply with any law and/or provision of the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of John F. Otto dba Otto Construction's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the DIR.

**16.2** To the furthest extent permitted by California law, John F. Otto dba Otto Construction shall also defend Indemnitees, at its own expense, including but not limited to attorneys' fees and costs, against all Claims caused by, arising out of, resulting from, or incidental to, in whole or in part, the performance of the Work under this Facilities Lease by John F. Otto dba Otto Construction, its Subcontractors, vendors, or suppliers. However, without impacting John F. Otto dba Otto Construction's obligation to provide an immediate and ongoing defense of Indemnitees, John F. Otto dba Otto Construction's defense obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. The District shall have the right to accept or reject any legal representation that John F. Otto dba Otto Construction proposes to defend the Indemnitees. If any Indemnitee provides its own defense due to failure to timely respond to tender of defense, rejection of tender of defense, or conflict of interest of proposed counsel, John F. Otto dba Otto Construction shall reimburse such Indemnitee for any expenditures. John F. Otto dba Otto Construction's defense obligation shall not be construed to negate, abridge, or otherwise reduce any right or obligation of defense that would otherwise exist as to any Indemnitee or other person described herein. John F. Otto dba Otto Construction's defense obligation includes, but is not limited to, any failure or alleged failure by John F. Otto dba Otto Construction to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of John F. Otto dba Otto Construction's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders

by the DIR. John F. Otto dba Otto Construction shall give prompt notice to the District in the event of any Claim(s).

**16.3** Without limitation of the provisions herein, if John F. Otto dba Otto Construction's obligation to indemnify and hold harmless the Indemnitees or its obligation to defend Indemnitees as provided herein shall be determined to be void or unenforceable, in whole or in part, it is the intention of the Parties that these circumstances shall not otherwise affect the validity or enforceability of John F. Otto dba Otto Construction's agreement to indemnify, defend, and hold harmless the rest of the Indemnitees, as provided herein. Further, John F. Otto dba Otto Construction shall be and remain fully liable on its agreements and obligations herein to the fullest extent permitted by law.

**16.4** Pursuant to Public Contract Code section 9201, the District shall provide timely notification to John F. Otto dba Otto Construction of the receipt of any third-party Claim relating to this Contract. The District shall be entitled to recover its reasonable costs incurred in providing said notification.

**16.5** In any and all Claims against any of the Indemnitees by any employee of John F. Otto dba Otto Construction, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, John F. Otto dba Otto Construction's indemnification obligation herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for John F. Otto dba Otto Construction or any Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

**16.6** The District may retain so much of the moneys due to John F. Otto dba Otto Construction as shall be considered necessary, until disposition of any such Claims or until the District, Architect(s) and Construction Manager(s) have received written agreement from John F. Otto dba Otto Construction that John F. Otto dba Otto Construction will unconditionally defend the District, the Architect(s) and Construction Manager(s), their respective officers, agents and employees, and pay any damages due by reason of settlement or judgment.

**16.7** John F. Otto dba Otto Construction's defense and indemnification obligations hereunder shall survive the completion of Work, including the warranty/guarantee period, and/or the termination of the Contract.

## **17. Eminent Domain**

### **17.1 Total Taking After Project Delivery**

If, following delivery of possession of the Project by John F. Otto dba Otto Construction to District, all of the Project and the Site is taken permanently under the power of eminent domain, the Term shall cease as of the day possession shall be so taken.

**17.1.1** The financial interest of John F. Otto dba Otto Construction shall be limited to the amount of principal payments pursuant to the GMP provisions indicated in **Exhibit C** that are then due or past due together with all remaining and succeeding principal payments pursuant to the GMP provisions indicated in **Exhibit C** for the remainder of the original Term. For example, if all of the Project and the Site is taken at the end of the third year of the Term, John F.

Otto dba Otto Construction shall be entitled to receive from the eminent domain award the sum of all principal payments pursuant to the GMP provisions indicated in **Exhibit C** that would have been owing for the fourth year through the end of the Term had there been no taking.

**17.1.2** The balance of the award, if any, shall be paid to the District.

### **17.2 Total Taking Prior to Project Delivery**

If all of the Project and the Site is taken permanently under the power of eminent domain and John F. Otto dba Otto Construction is still performing the work of the Project and has not yet delivered possession of the Project to District, the Term shall cease as of the day possession shall be so taken. The financial interest of John F. Otto dba Otto Construction shall be the amount John F. Otto dba Otto Construction has expended to date for work performed on the Project, subject to documentation reasonably satisfactory to the District.

### **17.3 Partial Taking**

If, following delivery of possession of the Project by John F. Otto dba Otto Construction to District, less than all of the Project and the Site is taken permanently, or if all of the Project and the Site or any part thereof is taken temporarily, under the power of eminent domain.

**17.3.1** This Facilities Lease shall continue in full force and effect and shall not be terminated by virtue of that partial taking and the Parties waive the benefit of any law to the contrary, and

**17.3.2** There shall be a partial abatement of any principal payments pursuant to the GMP provisions indicated in **Exhibit C** as a result of the application of the net proceeds of any eminent domain award to the prepayment of those payments hereunder. The Parties agree to negotiate, in good faith, for an equitable split of the net proceeds of any eminent domain award and a corresponding reduction in the payments required pursuant to the GMP provisions indicated in **Exhibit C**.

## **18. Damage and Destruction**

If, following delivery of possession of all or a portion of the Project by John F. Otto dba Otto Construction to District, the Project is totally or partially destroyed due to fire, acts of vandalism, flood, storm, earthquake, Acts of God, or other casualty beyond the control of either party hereto, the Term shall end and District shall no longer be required to make any payments required pursuant to the GMP provisions indicated in Exhibit C that are then due or past due or any remaining and succeeding principal payments pursuant to the GMP provisions indicated in Exhibit C for the remainder of the original Term.

## **19. Abatement**

**19.1** If, after the Parties have executed the Memorandum of Commencement Date attached hereto as **Exhibit E**, the Project becomes destroyed or damaged beyond repair, the District may determine its use of the Project abated. Thereafter, the District shall have no obligation to make, nor shall John F. Otto dba Otto Construction have

the right to demand, the Lease Payments as indicated in the GMP provisions indicated in Exhibit C to this Facilities Lease. The Term shall cease at that time.

**19.2 The** Parties hereby agree that the net proceeds of the District's rental interruption insurance that the District must maintain during the Term, as required herein, shall constitute a special fund for the payment of the Lease Payments indicated in the GMP provisions indicated in **Exhibit C**.

**19.3** The District shall as soon as practicable after such event, apply the net proceeds of its insurance policy intended to cover that loss ("Net Proceeds"), either to:

**19.3.1** Repair the Project to full use.

**19.3.2** Replace the Project, at the District's sole cost and expense, with property of equal or greater value to the Project immediately prior to the time of the destruction or damage, and that replacement, once completed, shall be substituted in this Facilities Lease by appropriate endorsement; or

**19.3.3** Exercise the District's purchase option *to Exhibit D to the Facilities Lease* n as indicated in the GMP provisions indicated in **Exhibit C** to this Facilities Lease.

**19.4** The District shall notify John F. Otto dba Otto Construction of which course of action it desires to take within thirty (30) days after the occurrence of the destruction or damage. The Net Proceeds of all insurance payable with respect to the Project shall be available to the District and shall be used to discharge the District's obligations under this Section.

## **20. Access**

### **20.1 By John F. Otto dba Otto Construction**

John F. Otto dba Otto Construction shall have the right at all reasonable times to enter upon the Site to construct the Project pursuant to this Facilities Lease. Following the acceptance of the Project by District, John F. Otto dba Otto Construction may enter the Project at reasonable times with advance notice and arrangement with District for purposes of making any repairs required to be made by John F. Otto dba Otto Construction.

### **20.2 By District**

The District shall have the right to enter upon the Site at all times. District shall comply with all safety precautions and procedures required by John F. Otto dba Otto Construction.

## **21. Assignment, Subleasing**

### **21.1 Assignment and Subleasing by the District**

Any assignment or sublease by District shall be subject to all of the following conditions:

**21.1.1** This Facilities Lease and the obligation of the District to make the payments required pursuant to the GMP provisions indicated in **Exhibit C** shall remain obligations of the District; and

**21.1.2** The District shall, within thirty (30) days after the delivery thereof, furnish or cause to be furnished to John F. Otto dba Otto Construction a true and complete copy of any assignment or sublease.

## **21.2 Assignment by John F. Otto dba Otto Construction**

John F. Otto dba Otto Construction may assign its right, title and interest in this Facilities Lease, in whole or in part to one or more assignees, only after the written consent of District, which District will not unreasonably withhold. No assignment shall be effective against the District unless and until the District has consented in writing. Notwithstanding anything to the contrary contained in this Facilities Lease, no consent from the District shall be required in connection with any assignment by John F. Otto dba Otto Construction to a lender for purposes of financing the Project as long as there are not additional costs to the District.

## **22. Termination, Default And Suspension**

### **22.1 Termination; Lease Terminable Only As Set Forth Herein**

**22.1.1** Except as otherwise expressly provided in this Facilities Lease, this Facilities Lease shall not terminate, nor shall District have any right to terminate this Facilities Lease or be entitled to the abatement of any necessary payments pursuant to the GMP provisions in **Exhibit C** or any reduction thereof. The obligations hereunder of District shall not be otherwise affected by reason of any damage to or destruction of all or any part of the Project; the taking of the Project or any portion thereof by condemnation or otherwise; the prohibition, limitation or restriction of District's use of the Project; the interference with such use by any private person or contractor; the District's acquisition of the ownership of the Project (other than pursuant to an express provision of this Facilities Lease); any present or future law to the contrary notwithstanding. It is the intention of the Parties hereto that all necessary payments pursuant to the GMP provisions indicated in **Exhibit C** shall continue to be payable in all events, and the obligations of the District hereunder shall continue unaffected unless the requirement to pay or perform the same shall be terminated or modified pursuant to an express provision of this Facilities Lease.

**22.1.2** Nothing contained herein shall be deemed a waiver by the District of any rights that it may have to bring a separate action with respect to any Event of Default by John F. Otto dba Otto Construction hereunder or under any other agreement to recover the costs and expenses associated with that action. The District covenants and agrees that it will remain obligated under this Facilities Lease in accordance with its terms.

**22.1.3** Following completion of the Project, the District will not take any action to terminate, rescind or avoid this Facilities Lease, notwithstanding the bankruptcy, insolvency, reorganization, composition, readjustment, liquidation, dissolution, winding-up or other proceeding affecting John F. Otto dba Otto Construction or any assignee of John F. Otto dba Otto Construction in any such proceeding, and notwithstanding any action with respect to this Facilities Lease

which may be taken by any trustee or receiver of John F. Otto dba Otto Construction or of any assignee of John F. Otto dba Otto Construction in any such proceeding or by any court in any such proceeding. Following completion of the Project, except as otherwise expressly provided in this Facilities Lease, District waives all rights now or hereafter conferred by law to quit, terminate or surrender this Facilities Lease or the Project or any part thereof.

**22.1.4** District acknowledges that John F. Otto dba Otto Construction may assign an interest in some or all of the necessary payments pursuant to the GMP provisions indicated in **Exhibit C** to a lender in order to obtain financing for the cost of constructing the Project and that the lender may rely on the foregoing covenants and provisions in connection with such financing.

## **22.2 District's Request for Assurances**

If District at any time reasonably believes John F. Otto dba Otto Construction is or may be in default under this Contract, District may in its sole discretion notify John F. Otto dba Otto Construction of this fact and request written assurances from John F. Otto dba Otto Construction of performance of Work and a written plan from John F. Otto dba Otto Construction to remedy any potential default under the terms of this Contract that the District may advise John F. Otto dba Otto Construction of in writing. John F. Otto dba Otto Construction shall, within ten (10) calendar days of District's request, deliver a written cure plan that meets the District's requirements in its request for assurances. John F. Otto dba Otto Construction's failure to provide such written assurances of performance and the required written plan, within ten (10) calendar days of request, will constitute a material breach of this Contract sufficient to justify termination for cause.

## **22.3 District's Right to Terminate John F. Otto dba Otto Construction for Cause**

### **22.3.1 Grounds for Termination**

The District, in its sole discretion, without prejudice to any other right or remedy, may terminate the Site Lease and Facilities Lease and/or terminate John F. Otto dba Otto Construction's right to perform the work of the Facilities Lease based upon any of the following:

**22.3.1.1** John F. Otto dba Otto Construction refuses or fails to execute the Work or any separable part thereof; or

**22.3.1.2** John F. Otto dba Otto Construction fails to complete said Work within the time specified or any extension thereof; or

**22.3.1.3** John F. Otto dba Otto Construction persistently fails or refuses to perform Work or provide material of sufficient quality as to be in compliance with the Facilities Lease; or

**22.3.1.4** Prior to completion of the Project, John F. Otto dba Otto Construction is adjudged a bankrupt, files a petition for relief as a debtor, or a petition is filed against John F. Otto dba Otto Construction without its consent, and the petition not dismissed within sixty (60) days; or

**22.3.1.5** Prior to the completion of the Project, John F. Otto dba Otto Construction makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency; or

**22.3.1.6** John F. Otto dba Otto Construction persistently or repeatedly refuses and/or fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials to complete the Work in the time specified; or

**22.3.1.7** John F. Otto dba Otto Construction fails to make prompt payment to Subcontractors, or for material, or for labor; or

**22.3.1.8** John F. Otto dba Otto Construction persistently disregards laws, or ordinances, or instructions of District as indicated in **Exhibit D**, or otherwise in violation of **Exhibit D**; or

**22.3.1.9** John F. Otto dba Otto Construction fails to supply labor, including that of Subcontractors, that is sufficient to prosecute the Work or that can work in harmony with all other elements of labor employed or to be employed on the Work; or

**22.3.1.10** John F. Otto dba Otto Construction or its Subcontractor(s) is/are otherwise in breach, default, or in substantial violation of any provision of this Facilities Lease, including but not limited to a lapse in licensing or registration.

## **22.3.2 Notification of Termination**

**22.3.2.1** Upon the occurrence at District's sole determination of any of the above conditions, or upon John F. Otto dba Otto Construction's failure to perform any material covenant, condition or agreement in this Facilities Lease, District may, without prejudice to any other right or remedy, serve written notice upon John F. Otto dba Otto Construction and its Surety of District's termination of this Facilities Lease and/or John F. Otto dba Otto Construction's right to perform the Work of this Facilities Lease. This notice will contain the reasons for termination.

**22.3.2.2** Unless, within fifteen (15) days after the service of the notice, any and all condition(s) shall cease, and any and all violation(s) shall cease, or arrangement satisfactory to District for the correction of the condition(s) and/or violation(s) be made, this Facilities Lease and the Site Lease shall cease and terminate; provided, however, if the failure stated in the notice cannot be corrected within fifteen (15) days after the service of notice, District may consent to an extension of time, provided John F. Otto dba Otto Construction instituted and diligently pursued corrective action within the applicable fifteen (15)-day period and until the violation is corrected. Upon District determination, John F. Otto dba Otto Construction shall not be entitled to receive any further payment until the entire Work is finished.



**22.3.2.3** Upon Termination, District may immediately serve written notice of tender upon Surety whereby Surety shall have the right to take over and perform this Facilities Lease only if Surety:

**22.3.2.3.1** Within three (3) days after service upon it of the notice of tender, gives District written notice of Surety's intention to take over and perform this Facilities Lease; and

**22.3.2.3.2** Commences performance of this Facilities Lease within three (3) days from date of serving of its notice to District.

**22.3.2.4** Surety shall not utilize John F. Otto dba Otto Construction in completing the Project if the District notifies Surety of the District's objection to John F. Otto dba Otto Construction's further participation in the completion of the Project. Surety expressly agrees that any John F. Otto dba Otto Construction which Surety proposes to fulfill Surety's obligations is subject to District's approval.

**22.3.2.5** If Surety fails to notify District or begin performance as indicated herein, District may take over the Work and execute the Work to completion by any method it may deem advisable at the expense of John F. Otto dba Otto Construction and/or its Surety. John F. Otto dba Otto Construction and its Surety shall be liable to District for any excess cost or other damages the District incurs thereby. Time is of the essence in this Facilities Lease. If the District takes over the Work as herein provided, District may, without liability for so doing, take possession of and utilize in completing the Work all materials, appliances, plan, and other property belonging to John F. Otto dba Otto Construction as may be on the Site of the Work, in bonded storage, or previously paid for.

### **22.3.3 Effect of Termination**

**22.3.3.1** If District terminates the Site Lease and the Facilities Lease pursuant to this section, the Site and any improvements built upon the Site shall vest in District upon termination of the Site Lease and Facilities Lease, and District shall thereafter be required to pay only the principal amounts then due and owing pursuant to the GMP provisions indicated in **Exhibit C**, less any damages incurred by District due to John F. Otto dba Otto Construction's default, acts, or omissions.

**22.3.3.2** The District shall retain all rights it possesses pursuant to this Facilities Lease including, without limitation.

**22.3.3.2.1** The right to assess liquidated damages due because of any project delay; and

**22.3.3.2.2** All rights the District holds to demand performance pursuant to John F. Otto dba Otto Construction's required performance bond.

**22.3.3.3** John F. Otto dba Otto Construction shall, only if ordered to do so by the District, immediately remove from the Site all or any materials and personal property belonging to John F. Otto dba Otto Construction that have not been incorporated in the construction of the Work, or which are not in place in the Work. The District retains the right, but not the obligation, to keep and use any materials and personal property belonging to John F. Otto dba Otto Construction that have not been incorporated in the construction of the Work, or which are not in place in the Work. John F. Otto dba Otto Construction and its Surety shall be liable upon the performance bond for all damages caused the District by reason of John F. Otto dba Otto Construction's failure to complete the Work under this Facilities Lease.

**22.3.3.4** In the event that the District shall perform any portion of, or the whole of the Work, pursuant to the provisions of the General Conditions, the District shall not be liable nor account to John F. Otto dba Otto Construction in any way for the time within which, or the manner in which, the Work is performed by the District or for any changes the District may make in the Work or for the money expended by the District in satisfying claims and/or suits and/or other obligations in connection with the Work.

**22.3.3.5** In the event termination for cause is determined to have not been for cause, the termination shall be deemed to have been a termination for convenience effective as of the same date as the purported termination for cause.

**22.3.3.6** In the event that the Site Lease and Facilities Lease are terminated for any reason, no allowances or compensation will be granted for the loss of any anticipated profit by John F. Otto dba Otto Construction or any impact or impairment of John F. Otto dba Otto Construction's bonding capacity.

**22.3.3.7** If the expense to the District to finish the Work exceeds the unpaid Guaranteed Maximum Price, John F. Otto dba Otto Construction and Surety shall pay difference to District within twenty-one (21) days of District's request. District may apply any amounts otherwise due to John F. Otto dba Otto Construction to this difference.

**22.3.3.8** The District shall have the right (but shall have no obligation) to assume and/or assign to a replacement contractor or construction manager, or other third party who is qualified and has sufficient resources to complete the Work, the rights of John F. Otto dba Otto Construction under its subcontracts with any or all Subcontractors. In the event of an assumption or assignment by the District, no Subcontractor shall have any claim against the District or third party for Work performed by Subcontractor or other

matters arising prior to termination of the Facilities Lease. The District or any third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after assumption or assignment. Should the District so elect, John F. Otto dba Otto Construction shall execute and deliver all documents and take all steps, including the legal assignment of its contractual rights, as the District may require, for the purpose of fully vesting in the District the rights and benefits of its Subcontractors under Subcontracts or other obligations or commitments. John F. Otto dba Otto Construction must include this assignment provision in all of its Facilities Leases with its Subcontractors.

**22.3.3.9** All payments due John F. Otto dba Otto Construction hereunder shall be subject to a right of offset by the District for expenses, damages, losses, costs, claims, or reimbursements suffered by, or due to, the District as a result of any default, acts, or omissions of John F. Otto dba Otto Construction.

**22.3.3.10** The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to District.

## **22.4 Termination of John F. Otto dba Otto Construction for Convenience**

**22.4.1** District in its sole discretion may terminate the Facilities Lease in whole or in part upon three (3) days written notice to John F. Otto dba Otto Construction.

**22.4.2** Upon notice, John F. Otto dba Otto Construction shall:

**22.4.2.1** Cease operations as directed by the District in the notice;

**22.4.2.2** Take necessary actions for the protection and preservation of the Work as soon as possible; and

**22.4.2.3** Terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

**22.4.3** Within 30 days of the notice, John F. Otto dba Otto Construction shall submit to the District a payment application for the actual cost for labor, materials, and services performed, including all John F. Otto dba Otto Construction's and Subcontractor(s)' mobilization and/or demobilization costs, that is unpaid. John F. Otto dba Otto Construction shall have no claims against the District except for the actual cost for labor, materials, and services performed that adequately documented through timesheets, invoices, receipts, or otherwise. District shall pay all undisputed invoice(s) for work performed until the notice of termination.

**22.4.4** Under a termination for convenience, the District retains the right to all the options available to the District if there is a termination for cause.

## **22.5 John F. Otto dba Otto Construction Remedies Upon District Default**

### **22.5.1 Events of Default by District Defined**

The following shall be "Events of Default" of the District under this Facilities Lease. The terms "Event of Default" and "Default," whenever they are used as to the District in the Site Lease or this Facilities Lease, shall only mean one or more of the following events:

**22.5.1.1** Failure by the District to pay payments required pursuant to the GMP provisions in **Exhibit C**, and the continuation of this failure for a period of forty-five (45) days.

**22.5.1.2** Failure by the District to perform any material covenant, condition or agreement in this Facilities Lease and that failure continues for a period of forty-five (45) days after John F. Otto dba Otto Construction provides District with written notice specifying that failure and requesting that the failure be remedied; provided, however, if the failure stated in the notice cannot be corrected within the applicable period, John F. Otto dba Otto Construction shall not withhold its consent to an extension of time if corrective action is instituted by the District within the applicable period and diligently pursued until the default is corrected.

### **22.5.2 Remedies on District's Default**

If there has been an Event of Default on the District's part, John F. Otto dba Otto Construction may exercise any and all remedies granted pursuant to this Facilities Lease; provided, however, there shall be no right under any circumstances to accelerate any of the payments required pursuant to the GMP provisions in **Exhibit C** or otherwise declare those payments not then past due to be immediately due and payable.

**22.5.2.1** John F. Otto dba Otto Construction may rescind its leaseback of the Project to the District under this Facilities Lease and re-rent the Project and Site to another lessee for the remaining Term for no less than the fair market value for leasing the Project and Site, which shall be:

**22.5.2.1.1** An amount determined by a mutually-agreed upon appraiser; or

**22.5.2.1.2** If an appraiser cannot be agreed to, an amount equal to the mean between a District appraisal and a John F. Otto dba Otto Construction appraisal for the Project and Site, both prepared by MAI-certified appraisers.

**22.5.2.2** District's obligation to make the payments required pursuant to the GMP provisions indicated in **Exhibit C** shall be:

**22.5.2.2.1** Increased by the amount of costs, expenses, and damages incurred by John F. Otto dba Otto Construction in re-renting the Project and Site; and

**22.5.2.2.2** Decreased by the amount of rent John F. Otto dba Otto Construction receives in re-letting the Project and Site.

**22.5.2.3** District agrees that the terms of this Facilities Lease constitute full and sufficient notice of the right of John F. Otto dba Otto Construction to re-rent the Project and Site in the Event of Default without effecting a surrender of this Facilities Lease, and further agrees that no acts of John F. Otto dba Otto Construction in re-renting as permitted herein shall constitute a surrender or termination of this Facilities Lease, but that, on the contrary, in the event of an Event of Default by the District the right to re-rent the Project and Site shall vest in John F. Otto dba Otto Construction as indicated herein.

### **22.5.3 District's Continuing Obligation**

Unless there has been damage, destruction, a Taking, or John F. Otto dba Otto Construction has acted, failed to act, or is in default as indicated above providing District with the right to terminate for cause, the District shall continue to remain liable for the payments required pursuant to the GMP provisions in **Exhibit C** and those amounts shall be payable to John F. Otto dba Otto Construction at the time and in the manner therein provided.

### **22.5.4 No Remedy Exclusive**

No remedy herein conferred upon or reserved to John F. Otto dba Otto Construction is intended to be exclusive and every such remedy shall be cumulative and shall be in addition to every other remedy given under this Facilities Lease or now or hereafter existing at law or in equity. No delay or omission to exercise any right or power accruing upon any Default shall impair any such right or power or shall be construed to be a waiver thereof, but any such right and power may be exercised from time to time and as often as may be deemed expedient. In order to entitle John F. Otto dba Otto Construction to exercise any remedy reserved to it in this article, it shall not be necessary to give any notice, other than such notice as may be required in this Article or by law.

## **22.6 Emergency Termination Pursuant to Public Contracts Act of 1949**

**22.6.1** This Facilities Lease is subject to termination as provided by sections 4410 and 4411 of the Government Code of the State of California, being a portion of the Emergency Termination of Public Contracts Act of 1949.

**22.6.1.1** Section 4410 of the Government Code states:

In the event a national emergency occurs, and public work, being performed by contract, is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment or labor, as the result of an order or a proclamation of the President of the United States, or of an order of any federal authority, and the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the work, then the public agency and the contractor may, by written agreement, terminate said contract.

**22.6.1.2** Section 4411 of the Government Code states:

Such an agreement shall include the terms and conditions of the termination of the contract and provision for the payment of compensation or money, if any, which either party shall pay to the other or any other person, under the facts and circumstances in the case.

**22.6.2** Compensation to John F. Otto dba Otto Construction shall be determined at the sole discretion of District on the basis of the reasonable value of the Work done, including preparatory work. As an exception to the foregoing and at the District's discretion, in the case of any fully completed separate item or portion of the Work for which there is a separate previously submitted unit price or item on the accepted schedule of values, that price may control. The District, at its sole discretion, may adopt the Schedule of Values Price as the value of the work done or any portion thereof.

**22.7 Suspension of Work**

**22.7.1** District in its sole discretion may suspend, delay or interrupt the Work in whole or in part for such period of time as the District may determine upon three (3) days written notice to John F. Otto dba Otto Construction.

**22.7.1.1** An adjustment may be made for changes in the cost of performance of the Work caused by any suspension, delay or interruption. No adjustment shall be made to the extent:

**22.7.1.1.1** That performance is, was or would have been so suspended, delayed or interrupted by another cause for which John F. Otto dba Otto Construction is responsible; or

**22.7.1.1.2** That an equitable adjustment is made or denied under another provision of the Site Lease or the Facilities Lease; or

**22.7.1.1.3** That the suspension of Work was the direct or indirect result of John F. Otto dba Otto Construction's failure to perform any of its obligations hereunder.

**22.7.1.1.4** The delay could not have been avoided or mitigated by John F. Otto dba Otto Construction's reasonable diligence.

**22.7.1.2** Any adjustments in cost of performance may have a fixed or percentage fee as provided in the section on Format for Proposed Change Order in **Exhibit D**. This amount shall be full compensation for all John F. Otto dba Otto Construction's and its Subcontractor(s)' changes in the cost of performance of the Facilities Lease caused by any such suspension, delay or interruption.

**23. Limitation of District Liability**

District's financial obligations under this Contract shall be limited to the payment of the compensation provided in this Contract. Notwithstanding any other provision of this Contract, in no event shall District be liable, regardless of whether any claim is based on contract or tort, for any special, consequential, indirect or incidental damages, including, but not limited to, lost profits or revenue, lost bonding capacity, arising out of or in connection with this Contract for the services performed in connection with this Contract.

**24. Notices**

All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed to have been received five (5) days after deposit in the United States mail in registered or certified form with postage fully prepaid or one (1) business day after deposit with an overnight delivery service with proof of actual delivery:

**If to District:**

Sacramento City Unified School District  
5735 47th Avenue  
Sacramento, CA 95824  
Attn: Tina Alvarez Bevans

**If to Developer:**

John F. Otto dba Otto Construction  
1717 Second Street  
Sacramento CA 95811  
Attn: John Hayward/Allison Otto

**With a copy to:**

Deidree Sakai, Esq.  
Dannis Woliver Kelley  
200 California Street, Suite 400  
San Francisco, CA 94111

John F. Otto dba Otto Construction and District, by notice given hereunder, may designate different addresses to which subsequent notices, certificates or other communications will be sent.

**25. Binding Effect**

This Facilities Lease shall inure to the benefit of and shall be binding upon John F. Otto dba Otto Construction and District and their respective successors, transferees and assigns.

**26. No Additional Waiver Implied by One Waiver**

In the event any agreement contained in this Facilities Lease should be breached by either party and thereafter waived by the other party, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other breach hereunder.

**27. Severability**

In the event any provision of this Facilities Lease shall be held invalid or unenforceable by any court of competent jurisdiction, that holding shall not invalidate or render unenforceable any other provision hereof, unless elimination of the invalid provision materially alters the rights and obligations embodied in this Facilities Lease or the Site Lease.

**28. Amendments, Changes and Modifications**

Except as to the termination rights of both Parties as indicated herein, this Facilities Lease may not be amended, changed, modified, altered or terminated without the written agreement of both Parties hereto.

**29. Net-Net-Net Lease**

This Facilities Lease shall be deemed and construed to be a "net-net-net lease" and the District hereby agrees that all payments it makes pursuant to the GMP provisions in **Exhibit C** shall be an absolute net return to John F. Otto dba Otto Construction, free and clear of any expenses, charges or set-offs.

**30. Execution in Counterparts**

This Facilities Lease may be executed in several counterparts, each of which shall be an original and all of which shall constitute one and the same instrument.

**31. John F. Otto dba Otto Construction and District Representatives**

Whenever under the provisions of this Facilities Lease the approval of John F. Otto dba Otto Construction or the District is required, or John F. Otto dba Otto Construction or the District is required to take some action at the request of the other, the approval or request shall be given for John F. Otto dba Otto Construction by John F. Otto dba Otto Construction's Representative and for the District by the District's Representative, and any party hereto shall be authorized to rely upon any such approval or request.

**32. Applicable Law**

This Facilities Lease shall be governed by and construed in accordance with the laws of the State of California, and venued in the County within which the Site is located.



**33. Attorney's Fees**

If either party brings an action or proceeding involving the Property or to enforce the terms of this Facilities Lease or to declare rights hereunder, each party shall bear the cost of its own attorneys' fees.

**34. Captions**

The captions or headings in this Facilities Lease are for convenience only and in no way define, limit or describe the scope or intent of any provisions or sections of this Facilities Lease.

**35. Prior Agreements**

This Facilities Lease and the corresponding Site Lease collectively contain all of the agreements of the Parties hereto with respect to any matter covered or mentioned in this Facilities Lease and no prior agreements or understanding pertaining to any matter shall be effective for any purpose.

**36. Further Assurances**

Parties shall promptly execute and deliver all documents and instruments reasonably requested to give effect to the provisions of this Facilities Lease.

**37. Recitals and Exhibits Incorporated**

The Recitals set forth at the beginning of this Facilities Lease and the attached Exhibits are hereby incorporated into its terms and provisions by this reference.

**38. Time of the Essence**

Time is of the essence with respect to each of the terms, covenants, and conditions of this Facilities Lease.

**39. Force Majeure**

A party shall be excused from the performance of any obligation imposed in this Facilities Lease and the exhibits hereto for any period and to the extent that a party is prevented from performing that obligation, in whole or in part, as a result of delays caused by the other party or third parties, a governmental agency or entity, an act of God, pandemic, war, terrorism, civil disturbance, forces of nature, fire, flood, earthquake, strikes, or lockouts, and that non-performance will not be a default hereunder or a grounds for termination of this Facilities Lease.

**40. Interpretation**

None of the Parties hereto, nor their respective counsel, shall be deemed the drafters of this Facilities Lease for purposes of construing the provisions thereof. The language in all parts of this Facilities Lease shall in all cases be construed according to its fair meaning, not strictly for or against any of the Parties hereto.

[SIGNATURES ON NEXT PAGE]

**IN WITNESS WHEREOF**, the Parties have caused this Facilities Lease to be executed by their respective officers who are duly authorized, as of the Effective Date.

**ACCEPTED AND AGREED** on the date indicated below:

Dated: \_\_\_\_\_, 20\_\_

Dated: \_\_\_\_\_, 20\_\_

Sacramento City Unified School District

John F. Otto dba Otto Construction

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: Chief Business Officer

Title: \_\_\_\_\_

**EXHIBIT A**

**LEGAL DESCRIPTION OF SITE**

**Attached is the Legal Description for:**

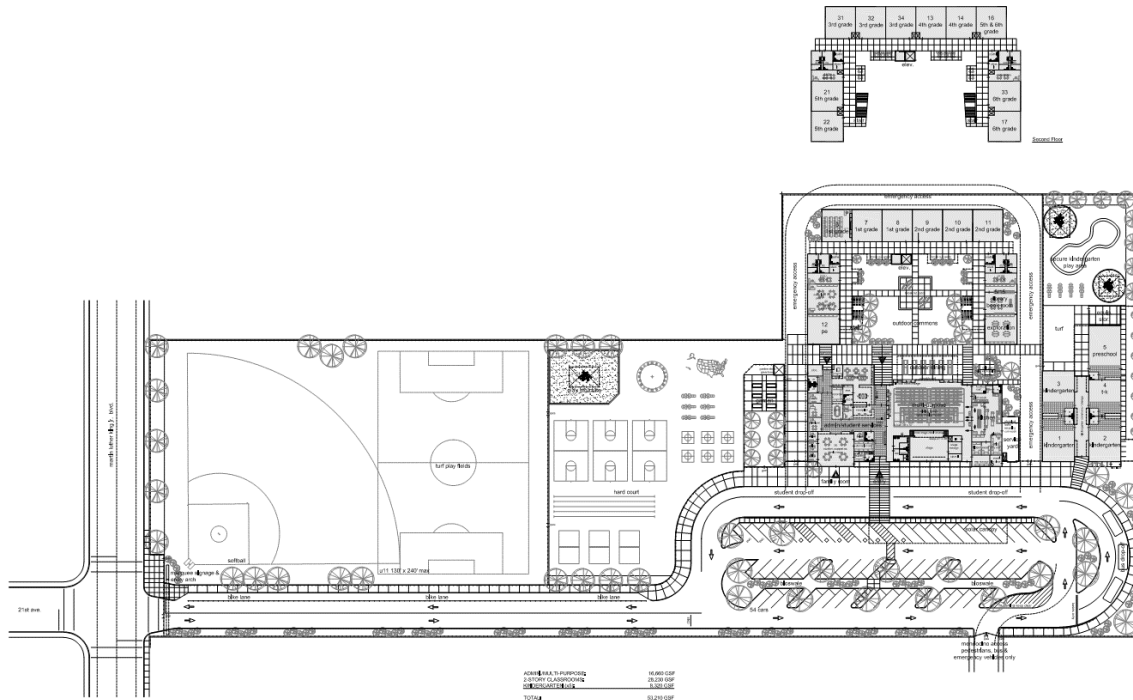
Oak Ridge Elementary School New Construction  
4501 Martin Luther King Jr. Blvd., Sacramento, CA 95820  
APN: 020-0220-004-0000

**EXHIBIT B**

**DESCRIPTION OF PROJECT**

**Attached is a map or diagram of the Site that is subject to this Facilities Lease and upon which John F. Otto dba Otto Construction will construct the Project.**

Project includes but is not limited to: Inc 1 Sitework package and Inc 2 Building package. Inc 1 Sitework construction will begin late August 2023. Inc 2 Building construction will begin May 2024 and will have two (2) phases. The first phase will be the construction of new single-story administration/multi-purpose/kitchen building; a two-story classroom building; and a single-story kindergarten building. Also included in the Inc 2 package will be the relocation of the school entrance on MLK Jr. Blvd. to align with the intersection of 21<sup>st</sup> and MLK Jr. and the relocation of the parking lot to the south-east corner of the property. The final phase of the project will include the demolition of the existing buildings and construction of new hard court and turf fields.



Compact Scheme / 2-story CRB (no phasing)

**EXHIBIT C – “ATTACHMENT 1”**

**GUARANTEED MAXIMUM PRICE AND  
OTHER PROJECT COST, FUNDING, AND PAYMENT PROVISIONS**

Attached are the terms and provisions related to Site Lease payments, the Facilities Lease, the Guaranteed Maximum Price and other related cost, funding, and payment provisions.

**EXHIBIT D – PLEASE REFER TO “ATTACHMENT 7.2”**

**GENERAL CONSTRUCTION PROVISIONS**

Attached are the general construction terms and conditions for the Project.

**EXHIBIT D-1 – PLEASE REFER TO “ATTACHMENT 7.2”**

**SPECIAL CONDITIONS**

Attached are the special terms and conditions for the Project.

**EXHIBIT E**

**MEMORANDUM OF COMMENCEMENT DATE**

This MEMORANDUM OF COMMENCEMENT DATE is dated \_\_\_\_\_, 20\_\_, and is made by and between \_\_\_\_\_ ("John F. Otto dba Otto Construction"), as Lessor, and the Sacramento City Unified School District ("District"), as Lessee.

1. John F. Otto dba Otto Construction and District have previously entered into a Facilities Lease dated as of \_\_\_\_\_, 20\_\_, (the "Lease") for the leasing by John F. Otto dba Otto Construction to District of the completed Project in [City], California, referenced in the Lease.

2. District hereby confirms the following:

A. That all construction of the Project required to be performed pursuant to the Facilities Lease has been completed by John F. Otto dba Otto Construction in all respects;

B. That District has accepted and entered into possession of the Project and now occupies same; and

C. That the term for the Lease Payments under the Facilities Lease commenced on \_\_\_\_\_, 20\_\_ and will expire at 11:59 P.M. on \_\_\_\_\_, 20\_\_.

**THIS MEMORANDUM OF COMMENCEMENT DATE IS ACCEPTED AND AGREED** on the date indicated below:

Dated: \_\_\_\_\_, 20\_\_

Dated: \_\_\_\_\_, 20\_\_

Sacramento City Unified School District

John F. Otto dba Otto Construction

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_



**EXHIBIT F – “ATTACHMENT 2”**

**CONSTRUCTION SCHEDULE**

Attached is a detailed Project Construction Schedule with a duration no longer than the Contract Time, and with specific milestones that John F. Otto dba Otto Construction shall meet.

~~[To Be Attached Via Addendum]~~

**EXHIBIT G – “ATTACHMENT 3”**

**SCHEDULE OF VALUES**

Attached is a detailed Schedule of Values that complies with the requirements of the Construction Provisions (Exhibit “D”) and that has been approved by the District.

~~[To Be Attached Via Addendum]~~

**EXHIBIT H**

**PROJECT LABOR AGREEMENT – Visit the District Website**

[https://www.scusd.edu/sites/main/files/file-attachments/scusd\\_pla\\_june\\_9\\_2022\\_final\\_signed.pdf?1659979868](https://www.scusd.edu/sites/main/files/file-attachments/scusd_pla_june_9_2022_final_signed.pdf?1659979868)

**EXHIBIT I**  
***see DSA approved specifications "Attachment 6.2"***

DIVISION 01 SPECIFICATION

Attached is Div. 01 Specification for this Project

**EXHIBIT J – “ATTACHMENT 5”**

**CONTRACT FORMS**

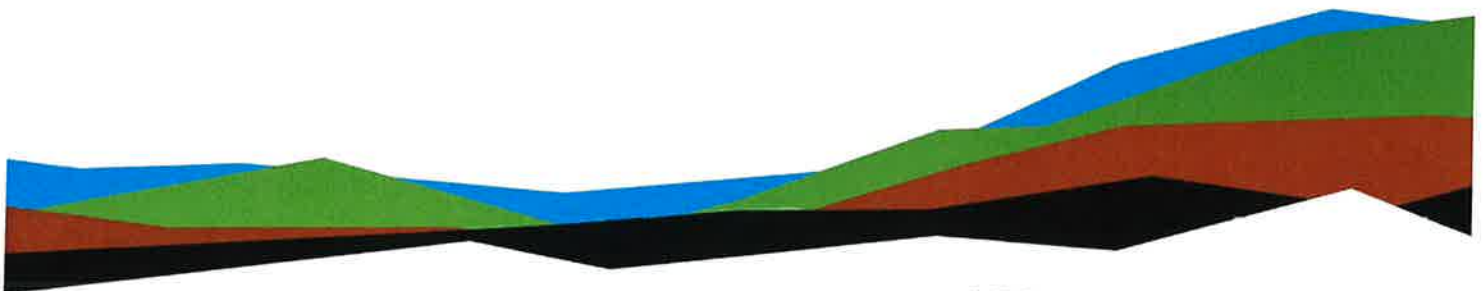
# Oak Ridge Elementary School Improvements

## Geotechnical Engineering Report and Geologic Hazards Evaluation

February 13, 2023 | Terracon Project No. NB225139

**Prepared for:**

Sacramento City Unified School  
District  
5735 47th Avenue  
Sacramento, CA 95824



Nationwide  
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- Facilities
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- Geotechnical
- Materials

**Geotechnical Engineering Report**

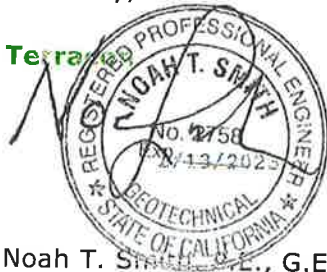
Oak Ridge Elementary School Improvements | Sacramento, CA 95820  
February 13, 2023 | Terracon Project No. NB225139



We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon



Noah T. Smith P.E., G.E.  
Principal



Eric S. Smith P.E.  
Senior Engineer



Curtis E. Hall P.E.  
Project Geologist

**Geotechnical Engineering Report**

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**Attachments**

**Exploration and Testing Procedures**

**Site Location and Exploration Plans**

**Exploration and Laboratory Results**

**Supporting Information**

**Note:** This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the  Terracon logo will bring you back to this page. For more interactive features, please view your project online at [client.terracon.com](http://client.terracon.com).

Refer to each individual Attachment for a listing of contents.



## Geotechnical Engineering Report

Oak Ridge Elementary School Improvements | Sacramento, CA 95820

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### General Comments

This section contains important information about the limitations of this geotechnical engineering report.

1. If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

## Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering Report and Geologic Hazards Evaluation services performed for the proposed school facility to be located at 4501 Martin Luther King Jr. Boulevard in Sacramento, CA 95820. The purpose of these services was to provide an assessment of geologic hazards at the site and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Seismic site classification per the 2022 California Building Code (CBC)
- Site preparation and earthwork
- Demolition considerations
- Foundation design and construction
- Floor slab design and construction
- Lateral earth pressures
- Pavement design and construction
- Stormwater detention considerations
- Liquefaction potential

The geotechnical engineering Scope of Services for this project included the advancement of test borings, laboratory testing, engineering analysis, and preparation of this report.

Drawings showing the site and boring locations are shown on the [Site Location](#) and [Exploration Plan](#), respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs in the [Exploration Results](#) section.

## Geotechnical Engineering Report

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Item	Description
<b>Maximum Loads</b>	<p>In the absence of information provided by the design team, we will use the following loads in estimating settlement based on our experience with similar projects.</p> <ul style="list-style-type: none"><li>■ Columns: 30 to 45 kips per story</li><li>■ Walls: 1 to 4 kips per linear foot (klf)</li><li>■ Slabs: 150 pounds per square foot (psf)</li></ul>
<b>Grading</b>	<p>A preliminary grading plan was not available for review at the time this report was prepared. We have assumed general cuts and fills of 2 feet or less will be required to develop final grades, excluding any required remedial grading.</p>
<b>Below-Grade Structures</b>	<p>Site improvements include culverts, drainage structures, storm drain lines, and an elevator pit with an anticipated maximum depth of 5 feet bgs or less.</p>
<b>Pavements</b>	<p>The anticipated ACI traffic categories and daily truck traffic were assumed to consist of:</p> <ul style="list-style-type: none"><li>■ Category A: Car parking areas and access lanes, 10 truck per day</li><li>■ Category B: Entrance and truck service lanes, 10 trucks per day</li><li>■ Category C: Buses</li><li>■ Category D: Heavy duty trucks, 10 trucks per day</li><li>■ Category E: Garbage or fire truck lanes</li></ul> <p>We assumed the following traffic indices (TIs) will be used:</p> <ul style="list-style-type: none"><li>■ Auto Parking Areas: TI = 5.0:</li><li>■ Auto Road: TI = 5.5</li><li>■ Truck Parking Areas: TI = 6.0</li><li>■ Truck Ramps and Roads: TI = 8.0</li></ul>
<b>Building Code</b>	2022 California Building Code (CBC)

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

## Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration.

## Geotechnical Engineering Report

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As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	<b>Sandy Lean Clay</b>	Soft to hard sandy lean clay
2	<b>Silty Clay</b>	Medium stiff to hard silty clay
3	<b>Clayey Sand</b>	Medium dense to very dense clayey sand
4	<b>Poorly Graded Sand with Gravel</b>	Very dense poorly graded sand with gravel

Additional borings, auger probes, test pits, or geophysical testing could be performed to obtain more specific subgrade information.

### Groundwater Conditions

Groundwater was encountered in Boring B8 at an approximate depth of 36 feet bgs at the time of drilling and at an approximate depth of 30 feet bgs at the completion of drilling. Groundwater was not encountered in the remaining borings drilled to depths varying from 5 feet bgs to 25 feet bgs at the time of our field exploration.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structures may be higher or lower than anticipated. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

### Historical Groundwater Conditions

Available groundwater data were reviewed in order to estimate the historical groundwater conditions for the site. Groundwater was not encountered in borings drilled to a depth of 15 feet bgs in July 2007 at the Christian Brothers High School immediately north of the project site. Groundwater data for State monitored wells in the area are summarized in the following table.

## Geotechnical Engineering Report

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# Geology and Geologic Hazards

## Regional Geologic Setting

The Great Valley geomorphic province is situated between the Sierra Nevada and Coast Range geomorphic provinces and can be separated into the (northern) Sacramento Valley and (southern) San Joaquin Valley. The Great Valley, commonly referred to as the Central Valley, can best be described as a trough into which sediments from the Coast Ranges and Sierra Nevada have been almost continuously deposited since the Jurassic Period, forming an alluvial plain approximately 50 miles wide and 400 miles long in the central portion of California<sup>1</sup>.

## Site Geology

The site is located within the Great Valley geomorphic province of California, more specifically, the southern portion of the Sacramento Valley. The site lies approximately 40 kilometers west of the Sierra Nevada foothills, and 50 kilometers east of the Coast Ranges. As depicted in the Regional Geologic Map<sup>2</sup>, the site is underlain by the middle unit of the Middle to Late Pleistocene Riverbank Formation. The Riverbank Formation is described as arkosic alluvium mainly consisting of sand with some silt and is thought to be glacial outwash derived from the Sierra Nevada<sup>3</sup>. This formation forms terraces and alluvial fans along the Mokelumne and Consumnes Rivers.

As part of the current Geotechnical Engineering field exploration, 19 borings were advanced to depths ranging from 5 to 50 feet below existing ground surface (bgs). The soils encountered in our borings are generally consistent with the mapped geology.

---

<sup>1</sup> California Geological Survey (2002); *Note 36: California Geomorphic Provinces*

<sup>2</sup> Gutierrez, C.I. (2011); *Preliminary Geologic Map of the Sacramento 30' X 60' Quadrangle, California*; California Geological Survey (CGS); Preliminary Geologic Maps PGM-11-06; Scale 1:100,000

<sup>3</sup> Atwater, Brian F. and Marchand, Denis E. (1980); *Preliminary Maps Showing Late Cenozoic Deposits of the Bruceville, Elk Grove, Florin, and Galt 7.5-Minute Quadrangles, Sacramento and San Joaquin Counties, California*; U.S. Geological Survey (USGS); Open-File Report 80-849.

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Discovered during development of the Rio Vista gas fields (1936-1943), the Midland fault is a north-trending near vertical to steeply west-dipping fault. Activity on the fault appears to be constrained to the early Tertiary continental margin<sup>1</sup>.

Based on the site's proximity to this boundary, and the comparatively long distance to strike-slip faulting associated with the San Andreas fault system, the Great Valley fault system may present the most significant seismic hazard to this project.

### Fault Rupture Potential

The site is not located within a State of California Earthquake Fault Zone, as established by the California Geological Survey (CGS)<sup>2</sup>. The nearest potentially active faults capable of surface rupture are the Midland fault zone, located approximately 20 miles west of the site, and the Dunnigan Hills fault, located approximately 23 miles northwest. Known faults or fault-related features are not located within this site; therefore, the potential for fault rupture within the site is considered low.

### Historical Earthquakes

A search of the USGS Earthquake catalog for historic seismic events since 1800, with a magnitude of 4.5 to 9.0, and within 150 kilometers of the site yielded 123 results. The search returned 69 events of magnitude 4.5 to 4.9, 37 events between 5.0 and 5.9, 14 events between 6.0 and 6.9, and 2 events of magnitude 7.0 or greater. The following table summarizes those events with a magnitude of 6.0 or greater.

Summary of Historic Seismicity				
Event ID	Date	Magnitude	Distance from Site (miles)	Direction from Site
<b>The 1906 San Francisco Earthquake</b>	1906-04-18	7.9	80	WSW
<b>The 1838 San Andreas Fault Earthquake</b>	1838-06-25	7.4	93	SW
<b>The 1868 Hayward Fault Earthquake</b>	1868-10-21	6.8	67	SW
<b>Near Vacaville</b>	1892-04-19	6.6	30	W
<b>South of Sonoma</b>	1898-03-31	6.4	61	W

<sup>1</sup> Harwood, D.S. and Helley, E.J.(1987); *Late Cenozoic tectonism of the Sacramento Valley, California*; U.S. Geological Survey (USGS); Professional Paper 1359.

<sup>2</sup> California Geological Survey (Rev 2018); *Special Publication 42: Earthquake Fault Zones*.

## Geotechnical Engineering Report

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have occurred on associated faults<sup>1</sup>. Most of these are centered on the southern sections, including the 1985 Kettleman Hills-North Dome earthquake (Mw 6.1) and the 1993 Coalinga earthquake (Mw 6.5).

The 1892 Vacaville-Winters earthquake sequence likely occurred on the Gordon Valley thrust<sup>2</sup>. Shaking from these earthquakes, as well as the magnitude 5.6 aftershock centered in Dixon, California, were felt as far north as Redding, California. According to Stover and Coffman<sup>3</sup> cracks were observed in walls in Willows, California (about 56 miles north of the site), and in Esparto, California (about 32 miles to the northwest), "every brick chimney fell, and wood-frame buildings were wretched out of shape".

### Inundation by Tsunamis and Seiches

Tsunamis are long period waves, usually produced by a submarine earthquake, volcanic eruption, or landslide. Seiches are an oscillation of a body of water in an enclosed or semi-enclosed basin, mainly caused by local changes in atmospheric pressure aided by tidal currents, winds, and occasionally by earthquakes and landslides. The site is outside of any tsunami hazard zones<sup>4,5</sup>, and there are no bodies of water in the immediate vicinity of the site; therefore, tsunamis and seiches are not a potential hazard to the site.

### Flooding

The site is not located within a potential inundation zone for seismically-induced dam/reservoir failure. No large water storage facilities are known to exist in the area of

---

<sup>1</sup> Wakabayashi, J. and Smith, D.L. (1994); *Evaluation of recurrence intervals, characteristic earthquakes, and slip rates associated with thrusting along the Coast Range-Central Valley geomorphic boundary, California*; Bulletin of the Seismological Society of America; Vol. 84; pp 1960-1970.

<sup>2</sup> O'Connell, D.R.H., Unruh, J.R., and Block, L.V. (2001); *Source characterization and ground-motion modeling of the 1892 Vacaville-Winters earthquake sequence, California*; Bulletin of the Seismological Society of America, Vol. 91, pp 1471-1497.

<sup>3</sup> Stover, C.W. and Coffman, J.L. (1993); *Seismicity of the United States, 1568-1989 (revised)*; U.S. Geological Survey (USGS); Professional Paper 1527

<sup>4</sup> California Governor's Office of Emergency Services (Cal OES); "My Hazards App"; accessed January 27, 2023; <https://myhazards.caloes.ca.gov/>

<sup>5</sup> American Society of Civil Engineers (ASCE); "ASCE 7 Hazard Tool"; accessed January 27, 2023; <https://asce7hazardtool.online/>

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approximately -0.02 feet of vertical displacement between January 2015 and October 2022.

While subsidence is potentially damaging to extensive structures, such as irrigation ditches or large water lines, damage to the proposed structures (having relatively small footprint areas) is not anticipated due to the distributed nature of the subsidence area. Organic-rich soils with significant collapse potential were not encountered during our exploration and are not anticipated to be present in the general area of the site. Therefore, the potential for regional subsidence effects at the site is considered low.

## Erosion Potential

The subject site is proposed to be covered with structures and flatwork with minimal landscaping. Erosion by wind and water is not considered to be a hazard at the site.

## Volcanic Eruption

Based on our review of available literature from the USGS<sup>1</sup>, the site is not located within an area designated as a volcanic hazard zone.

## Radon

Radon is an odorless and invisible naturally occurring carcinogenic gas produced by the decay of uranium and radium. It is the second leading cause of lung cancer in the United States. In accordance with Sections 307 and 309 of the Indoor Radon Abatement Act of 1988 (IRAA), the EPA identified areas within the United States with the potential for elevated indoor radon levels. An assessment of geologic radon potential in California<sup>2</sup> indicates that Sacramento County and the Central Valley have low radon potential. The EPA Map of Radon Zones in California assigns each county to one of three zone designations based on radon potential. The site location (Sacramento County) is mapped as Zone 3, meaning it has a low potential for radon and average indoor radon levels may be less than 2 pCi/L.

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<sup>1</sup> Mangan, M., Ball, J., Wood, N., Jones, J.L., Peters, J., Abdollahian, N., Dinitz, L., Blankenheim, S., Fenton, J., and Pridmore, C. (2019); *California's exposure to volcanic hazards (ver. 1.1, December 2019)*; U.S. Geological Survey (USGS); Scientific Investigations Report 2018-5159.

<sup>2</sup> Schumann, R. Randall (1993); *Geologic Radon Potential of EPA Region 9, Arizona, California, Hawaii, and Nevada*; U.S. Geological Survey (USGS); Open-File Report 93-292-I; pp. 70-93.

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Based on this exception, the spectral response accelerations presented below were calculated using the site coefficients ( $F_a$  and  $F_v$ ) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2022 CBC.

Description	Value
2022 California Building Code (CBC) Site Classification <sup>1</sup>	D-Default <sup>2</sup>
Risk Category	III
Site Latitude <sup>3</sup>	38.5340°
Site Longitude <sup>3</sup>	-121.4624°
$S_s$ , Spectral Acceleration for a Short Period <sup>4</sup>	0.559
$S_1$ , Spectral Acceleration for a 1-Second Period <sup>4</sup>	0.250
$F_a$ , Site Coefficient	1.353
$F_v$ , Site Coefficient (1-Second Period)	2.100
$S_{DS}$ , Spectral Acceleration for a Short Period	0.504
$S_{D1}$ , Spectral Acceleration for a 1-Second Period	0.350

1. Seismic site soil classification in general accordance with the *2022 California Building Code*, which refers to ASCE 7-16. Site Classification is required to determine the Seismic Design Category for a structure.
2. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7-16 and the CBC. Subsurface explorations at this site were extended to a maximum depth of approximately 50 feet bgs. Standard penetration resistance values from our borings were used to help determine the site soil classification. The site properties below the maximum exploration depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper exploration or geophysical testing may be performed to confirm the conditions below the current maximum depth of exploration.
3. Provided coordinates represent a point located at the general center of the site.
4. These values were obtained using online seismic design maps and tools provided by SEAOC and OSHPD (<https://seismicmaps.org/>).



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sand and poorly graded sand were present in Borings B3 and B8 that could have the potential for liquefaction. As a result, we performed a quantitative evaluation of the potential for liquefaction to occur considering the cohesionless soils only and the effects if liquefaction were to occur on this project.

A Peak Ground Acceleration (PGA) of 0.320g and an earthquake magnitude of 6.51 for the project site was used in our evaluation. Based on our review the available groundwater data presented in the **Historical Groundwater Conditions** section of this report and groundwater data collected from our borings during our field exploration, we believe a historical high groundwater level of 23 feet bgs is appropriate for design of the proposed facility. As a result, we utilized a groundwater depth of 23 feet in our evaluation.

The liquefaction study and analysis of seismic settlement utilized the software "LiquefyPro" by CivilTech Software. The analysis was based on the soil data obtained from Boring B-8. Fines corrections were made using the Stark/Olson et al. method. The settlement analyses used the Ishihara/Yoshimine method. A factor of safety of 1.3 was used against liquefaction. The liquefaction potential analysis was calculated from a depth of 23 to 50 feet bgs. A summary of the results of our analysis has been attached to this report.

Based on our review of the calculations, liquefaction-induced settlement is not anticipated at the site. In addition, the geologic deposits at the site are Middle to Late Pleistocene in age. It is generally accepted that Pleistocene age deposits are not considered susceptible to liquefaction. In our opinion, the potential for seismically induced hazards such as settlement, lateral spreading, and loss of bearing capacity are low.

## Percolation/Infiltration

We performed 3 percolation tests within the proposed site development for use by the project civil engineer in the design of the storm water retention system. The percolation tests were performed using borings P-1, P-2 and P-3 drilled to a depth of approximately 5 feet bgs. The approximate locations of the test holes are shown on the [Exploration Plan](#).

After drilling the test holes, we placed approximately 2 inches of gravel in the bottom of each hole, then placed a slotted PVC pipe in each hole, and filled the annular space around the pipe with gravel. The test holes were filled with water and left to saturate for a minimum 24 hours. We then filled the shallow holes with water to depths ranging from about 4.8 to 5.2 foot and measured the drop-in water surface over a period of 2 hours depending on the hole, refilling the holes as necessary to maintain the desired head.

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**Subsurface Soil Variation:** Variations in subsurface soil conditions and the presence of fine layering can affect the infiltration rate of the receptor soils. Due to variation in the thickness and type of the upper surface fine grained soils, infiltration rates may vary across the site. **Construction Considerations:** The infiltration rate of the receptor soils will be reduced in the event that fine sediment, organic materials, and/or oil residue are allowed to accumulate in the retention facilities. The use of a filtration system is highly recommended as well as a maintenance program.

Operation of heavy equipment during construction may densify the receptor soils below the infiltration facility. The soils exposed in the bottom of the infiltration facility should not be compacted and should remain in their native condition. This may require scarification of the soils prior to construction.

**Maintenance of Facilities:** Satisfactory long-term performance of an infiltration facility will require some degree of maintenance. Accumulations of sediment, organic materials, or other material that serve to reduce their permeability of the receptor soils should be removed from the filtration system on a regular basis so as not to enter the retention system. The filtration system shall have a rigorous maintenance program, debris from the filtration maintenance should be disposed of at an approved facility in accordance with applicable regulation.

## Corrosivity

The table below lists the results of laboratory soluble sulfate, soluble chloride, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

**Corrosivity Test Results Summary**

Boring	Sample Depth (feet)	Soil Description	Soluble Sulfate (%)	Soluble Chloride (%)	Electrical Resistivity ( $\Omega$ -cm)	pH
B-1	0-4	Sandy Lean Clay	<0.01	0.01	3,717	7.4
B-10	2½	Silty Clay	<0.01	0.01	2,891	7.8

Results of soluble sulfate testing can be classified in accordance with ACI 318 – Building Code Requirements for Structural Concrete. Numerous sources are available to characterize corrosion potential to buried metals using the parameters above. ANSI/AWWA is commonly used for ductile iron, while threshold values for evaluating the

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probably increase if modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. Some of these options are discussed in this report such as replacement of expansive soils or chemical stabilization.

The near surface, medium plasticity clays could become unstable with typical earthwork and construction traffic, especially after precipitation events. The effective drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade will persist. Additional site preparation recommendations, including subgrade improvement and fill placement, are provided in the **Earthwork** section.

The soils which form the bearing stratum for shallow foundations are plastic and exhibit potential for shrink-swell movements with changes in moisture. Additional areas of localized highly plastic soils may be present where borings were not performed. Maintaining above optimum moisture conditions in the bearing soils and a minimum dead load pressure on footings should reduce the anticipated swell movements to tolerable levels. The **Shallow Foundations** section addresses support of the structures directly bearing on firm native soil. We do not expect significant dead load on the floors and recommend either overexcavation or chemical treatment of near-surface moderate to high plasticity clays to reduce the heave potential. The **Floor Slabs** section addresses slab-on-grade support of the structures using overexcavation or chemical treatment techniques.

## Earthwork

We anticipate general grading may consist of cuts and fills on the order of 2 feet or less excluding any required remedial grading. Specific site grading information was unavailable at the time this report was prepared. If elevation and site grading differ from our stated assumptions, Terracon should be contacted to determine if additional earthwork recommendations are warranted.

Earthwork is anticipated to include demolition, clearing and grubbing, excavations, and engineered fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations, floor slabs, and pavements.

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### Subgrade Preparation

After clearing, any required cuts and overexcavation should be made.

Subgrade soils beneath proposed floor slab and hardscape areas should either be overexcavated to a minimum depth of 18 inches below finished subgrade or be chemically treated to a depth of 18 inches with quicklime or Portland cement.

Once cuts and over-excavation operations are complete, the resulting subgrade should be proofrolled with an adequately loaded vehicle such as a fully-loaded tandem-axle dump truck. The proofrolling should be performed under the observation of the Geotechnical Engineer or their representative. Areas excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Such areas should either be removed or modified by stabilizing as noted in the following section **Soil Stabilization**. Excessively wet or dry material should either be removed, or moisture conditioned and recompacted.

Excavated material may be stockpiled for use as fill provided it is cleaned of organic material, debris, and any other deleterious material and meets the criteria for general or structural fill specified in the **Fill Material Types** section of this report.

Once proof rolling has been performed, all exposed areas which will receive fill, should be scarified, moisture conditioned as necessary, and compacted per the compaction requirements in this report. The depth of scarification of subgrade soils and moisture conditioning of the subgrade is highly dependent upon the time of year of construction and the site conditions that exist immediately prior to construction. If construction occurs during the winter or spring, when the subgrade soils are typically already in a moist condition, scarification and compaction may only be 8 inches. If construction occurs during the summer or fall when the subgrade soils have been allowed to dry out deeper, the depth of scarification and moisture conditioning may be as much as 18 inches or more. A representative from Terracon should be present to observe the exposed subgrade and confirm the depth of scarification and moisture conditioning required.

Following scarification, moisture conditioning, and compaction of the subgrade soils, compacted structural fill soils should then be placed to the proposed design grade and the moisture content and compaction of subgrade soils should be maintained until foundation, slab, or pavement construction.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable; however, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

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fabric or geogrid until one full lift of aggregate base is placed above it. The maximum particle size of granular material placed over geotextile fabric or geogrid should meet the manufacturer's specifications.

- **Chemical Stabilization** - Improvement of subgrades with Portland cement or quicklime could be considered for improving unstable soils. Chemical stabilization should be performed by a pre-qualified contractor having experience with successfully stabilizing subgrades in the project area on similar sized projects with similar soil conditions. The hazards of chemicals blowing across the site or onto adjacent property should also be considered. Additional testing would be needed to develop specific recommendations to improve subgrade stability by blending chemicals with the site soils. Additional testing could include, but not be limited to, determining the most suitable stabilizing agent, the optimum amounts required, and the presence of sulfates in the soil. If this method is chosen to stabilize subgrade soils the actual amount of high calcium quicklime/Portland cement to be used should be determined by Terracon and by laboratory testing at least three weeks prior to the start of grading operations.

Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

## Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 5 feet of structures, hardscapes, and pavements. General fill is material used to achieve grade outside of these areas.

**Reuse of On-Site Soil:** Excavated on-site soil may be selectively reused as general or structural fill, provided the fill criteria in the follow table is met. The near surface on-site soils are not suitable for use as granular structural fill below floor slabs and hardscapes. Portions of the on-site soil have an elevated fines content and will be sensitive to moisture conditions (particularly during seasonally wet periods) and may not be suitable for reuse when above optimum moisture content.

Material property requirements for on-site soil for use as general fill and structural fill are noted in the table below:

Property	General Fill	Structural Fill
Composition	Free of deleterious material	Free of deleterious material
Maximum particle size	6 inches (or 2/3 of the lift thickness)	3 inches

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## Fill Placement and Compaction Requirements

Compacted native soil and structural and general fill should meet the following compaction requirements.

Item	Structural Fill	General Fill
<b>Maximum Lift Thickness</b>	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used	Same as structural fill
<b>Minimum Compaction Requirements</b> <sup>1,2</sup>	95% of max. for structural fill below slabs, within 1 foot of finished pavement subgrade, for aggregate base and chemically treated soil, and for fills thicker than 5 feet 90% of max. for all other locations	90% of max.
<b>Water Content Range</b> <sup>1</sup>	Low plasticity cohesive: +1% to +3% above optimum Medium plasticity cohesive: +2% to +4% above optimum Granular: -2% to +2% of optimum	As required to achieve min. compaction requirements

1. Maximum density and optimum water content as determined by the Modified Proctor test (ASTM D 1557).
2. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D 4253 and D 4254). Materials not amenable to density testing should be placed and compacted to a stable condition observed full time by the Geotechnical Engineer or representative.

## Utility Trench Backfill

Any soft or unsuitable materials encountered at the bottom of utility trench excavations should be removed and replaced with structural fill or bedding material in accordance with public works specifications for the utility to be supported. This recommendation is particularly applicable to utility work requiring grade control and/or in areas where subsequent grade raising could cause settlement in the subgrade supporting the utility. Trench excavation should not be conducted below a downward 1:1 projection from

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treated soil should not be backfilled with aggregate base, native soil, or disturbed chemically treated soil.

## Grading and Drainage

All grades must provide effective drainage away from buildings during and after construction and should be maintained throughout the life of the structures. Water retained next to the buildings can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks. The roof should have gutters/drains with downspouts that discharge onto splash blocks a distance of at least 10 feet from the buildings, onto pavements, or are tied to tight lines that discharge into a storm drain system.

Exposed ground should be sloped and maintained at a minimum 5 percent away from the building for at least 10 feet beyond the perimeter of the building. If a minimum 5 percent slope cannot be achieved due to site grades, a minimum 2½ percent slope could be used provided pavement or hardscape surrounds and extends to the buildings, or a subdrain could be installed around the perimeter of the foundations that carries water away from the buildings. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structures' maintenance program. Where paving or flatwork abuts the structures, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Any planters and bio-swales located within 10 feet of the buildings should be self-contained or lined with an impermeable membrane to prevent water from accessing subgrade soils below the buildings. Sprinkler mains and spray heads should be located a minimum of 5 feet away from the foundation lines.

No vegetation over six feet in height shall be planted within 20 feet of the buildings' perimeters unless a root barrier is provided between the structures and tree to limit roots within 10 feet of buildings. Roots can draw additional moisture from the soils and cause excessive volume changes in the soil resulting in building movement.

Implementation of adequate drainage for this project can affect the surrounding developments. Consequently, in addition to designing and constructing drainage for this project, the effects of site drainage should be taken into consideration for the planned structures on this property, the undeveloped portions of this property, and surrounding sites. Extra care should be taken to ensure irrigation and drainage from adjacent areas do not drain onto the project site or saturate the construction area.

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instrumented for potential ground movements that could negatively affect adjoining property and/or structures.

## Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil, debris, and pavements), as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 1,500 square feet of compacted fill in the building areas and 4,000 square feet in pavement areas. Where not specified by local ordinance, one density and water content test should be performed for every 50 linear feet of compacted utility trench backfill and a minimum of one test performed for every 12 vertical inches of compacted backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

## Shallow Foundations

The proposed buildings may be supported by spread footings. If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

### Design Parameters – Compressive Loads

Item	Description
<b>Maximum Net Allowable Bearing Pressure</b> <sup>1, 2</sup>	2,500 psf
<b>Required Bearing Stratum</b> <sup>3</sup>	Firm undisturbed native soil
<b>Minimum Foundation Dimensions</b>	Per CBC 1809.7

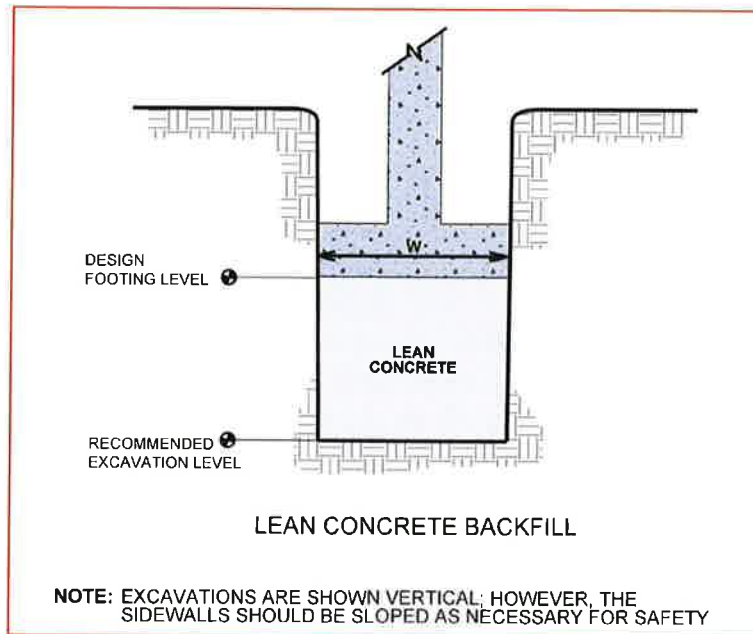


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material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

If unsuitable bearing soils are observed at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The lean concrete replacement zone is illustrated on the following sketch.



To ensure foundations have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footings should be at least 1 foot below an imaginary plane with an inclination of 1.5 horizontal to 1.0 vertical extending upward from the nearest edge of the adjacent trench.

## Deep Foundations

### Drilled Shaft Design Parameters

The proposed shade and solar canopy structures may be supported by a deep foundation system consisting of drilled shafts. The design shaft capacities and lengths should be determined by the Geotechnical and Structural Engineers during final design. We recommend that the deep foundation system be designed to develop axial compression through skin friction only, and end-bearing should be neglected. Shaft uplift capacity should also be derived from skin friction only. Design recommendations for a drilled shaft foundation system are presented in the following table.

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### Drilled Shaft Soil Design Parameters<sup>1</sup>

Depth (feet)	Stratigraphy <sup>2</sup>		Allowable Skin Friction (psf) <sup>3</sup>
	Geomodel No.	Material	

1. The design capacities of drilled shafts are dependent upon the method of installation and quality control parameters and should be evaluate further during final design.
2. See Subsurface Profile in **Geotechnical Characterization** for more details on stratigraphy.
3. Applicable for compressive loading only. Reduce to 2/3 of values shown for uplift. The effective weight of the shaft can be added to uplift load resistance to the extent permitted by CBC.
4. Skin friction should not be used along the upper 3 feet of the shaft.

Shafts should be adequately reinforced as designed by the Structural Engineer for both tension and shear to sufficient depths.

Post-construction settlements of drilled shafts designed and constructed as described in this report are estimated to range from about ½ to ¾ inch. Differential settlement between individual shafts is expected to be ½ to ⅔ of the total settlement. The settlement of shaft should be evaluated further during final design.

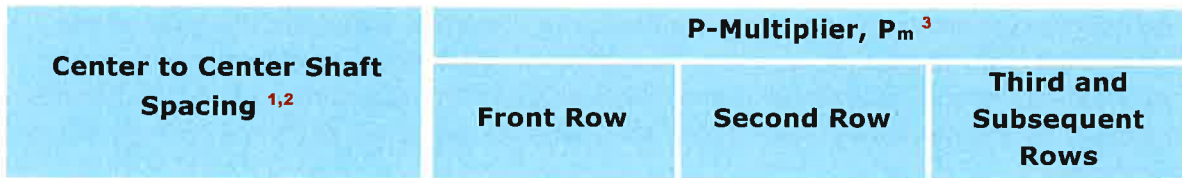
### Drilled Shaft Lateral Loading

The formulas provided in CBC Section 1807 and the allowance in Section 1806.3.4 may be used to for the lateral design of drilled shafts where lateral loads are less than 10 kips. The required embedment depth of drilled shaft foundation elements to resist lateral loading can be calculated using the formulas in CBC Section 1807 with an allowable lateral soil bearing pressure of 150 pounds per square foot per foot (psf/ft) of depth. This value may be doubled as indicated in CBC Section 1806.3.4 provided the supported element is not adversely affected by a ½ inch motion at the ground surface. For depth of embedment, the ground surface should be taken as 3 feet below existing ground surface elevations.

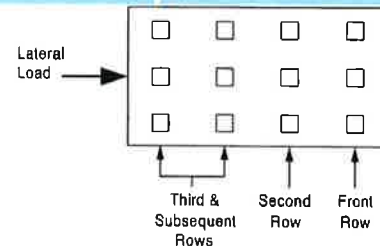
Lateral analysis using the LPILE software should be used if lateral loads exceed 10 kips. The following table lists input values for use in LPILE analyses. Modern versions of LPILE provide estimated default values of  $k_h$  and  $E_{50}$  based on strength and are recommended for the project. Since deflection or a service limit criterion will most likely control lateral capacity design, no safety/resistance factor is included with the parameters.

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1. Spacing in the direction of loading.  $B$  = shaft diameter
2. For the case of a single row of shafts supporting a laterally loaded grade beam, group action for lateral resistance of shafts would need be considered when spacing is less than three shaft diameters (measured center-to-center).
3. See adjacent figure for definition of front, second and third rows.



Spacing closer than  $3D$  (where  $D$  is the diameter of the shaft) is not recommended without additional geotechnical consultation due to potential for the installation of a new shaft disturbing an adjacent installed shaft likely resulting in axial capacity reduction.

The structural capacity of the shafts should be checked to assure they can safely accommodate the combined stresses induced by axial and lateral forces. Lateral deflections of shafts should be evaluated using an appropriate analysis method, and will depend upon the shaft's diameter, length, configuration, stiffness and "fixed head" or "free head" condition. We can provide additional analyses and estimates of lateral deflections for specific loading conditions upon request. The load-carrying capacity of shafts may be improved by increasing the diameter and possibly the length.

## Drilled Shaft Construction Considerations

The drilling contractor should be experienced in the subsurface conditions observed at the site, and the excavations should be performed with equipment capable of providing a clean bearing surface. The drilled straight-shaft foundation system should be installed in general accordance with the procedures presented in "Standard Specification for the Construction of Drilled Piers", ACI Publication No. 336.1-01.

The contractor is generally expected to use conventional "dry" techniques for installation of the drilled shaft. Subsurface water was not encountered in our borings during drilling activities. Subsurface water levels are influenced by seasonal and climatic conditions, which result in fluctuations in subsurface water elevations. Additionally, it is common for water to be present after periods of significant rainfall. Casing or slurry drilling procedures could be required in soils zones of higher sand content (such as was observed in Model Layer 3 of the borings) to reduce the potential for excavation sidewall collapse.

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immediately prior to placement of additional fill or floor slabs. In chemically treated areas, this can be accomplished by having the grading contractor excavate several test pits within the proposed construction areas prior to the start of grading operations to determine the moisture condition of the subgrade soils. A representative of the Geotechnical Engineer should be present during the excavation of these test pits and samples of the subgrade soils should be obtained for moisture content testing. Soils below the specified water contents within this zone should be moisture conditioned or replaced with structural fill as stated in our **Earthwork** section.

## Floor Slab Design Parameters

Item	Description
<b>Floor Slab Support<sup>1</sup></b>	Minimum 4 inches of $\frac{3}{4}$ inch free draining crushed aggregate <sup>3</sup> overlying at least 18 inches of granular structural fill or chemically treated material. The subgrade should be compacted to the recommendations in <b>Earthwork</b> .
<b>Estimated Modulus of Subgrade Reaction<sup>2</sup></b>	150 pounds per square inch per inch (psi/in) for point loads
	<ol style="list-style-type: none"><li>1. Floor slabs should be structurally independent of building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.</li><li>2. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in <b>Earthwork</b>, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.</li><li>3. Free-draining granular material should have less than 5% fines (material passing the No. 200 sieve). Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.</li></ol>

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, when the project includes humidity-controlled areas, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut contraction joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations, refer to the ACI Design Manual. Joints or cracks should be sealed with a waterproof, non-extruding compressible

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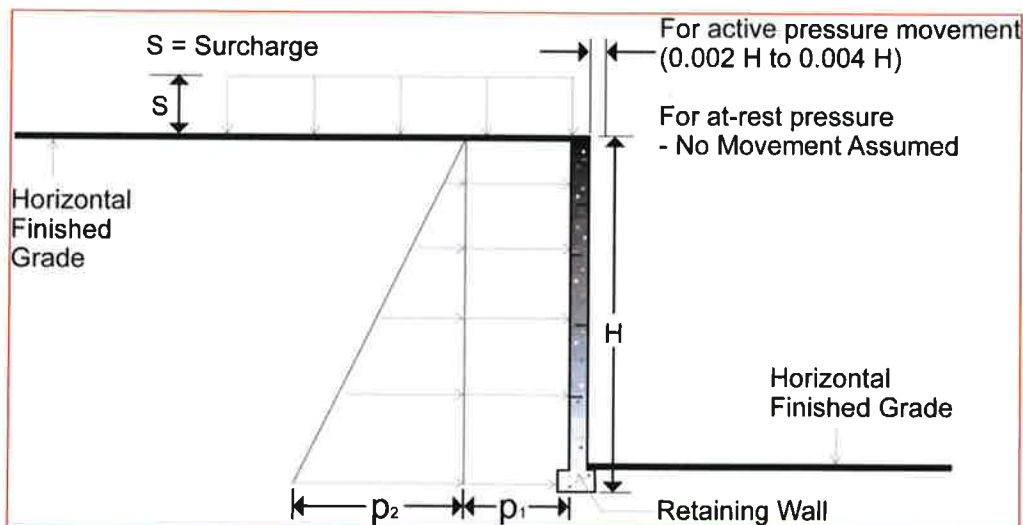
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- Using designs which allow vertical movement between the exterior features and adjoining structural elements;
- Placing effective control joints on relatively close centers.
- Ensure clay subgrade soils are in a moist condition prior to slab construction.
- Reinforce exterior slabs and flatwork with a minimum No. 4 bars at 12 inches on center.

## Lateral Earth Pressures

### Design Parameters

Below-grade construction is expected to be limited to building elevator pits and utility vaults. We have assumed the pits/vaults will be 5 feet deep or less. Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction, and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown in the following diagram. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



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Heavy equipment should not operate within a distance closer than the exposed height of below-grade walls to prevent lateral pressures more than those provided. Compaction of each lift adjacent to wall should be accomplished with hand-operated tampers for other lightweight compactors. Over-compaction may cause excessive lateral earth pressures which could result in wall movement.

Footings, floor slabs or other loads bearing on backfill behind walls may have a significant influence on the lateral earth pressure. Placing footings within wall backfill and in the zone of active soil influence on the wall should be avoided unless structural analyses indicate the wall can safely withstand the increased pressure.

The lateral earth pressure recommendations given in this section are applicable to the design of rigid retaining walls subject to slight rotation, such as cantilever, or gravity type concrete walls. These recommendations are not applicable to the design of modular block - geogrid reinforced backfill walls (also termed MSE walls). Recommendations covering these types of wall systems are beyond the scope of services for this assignment. However, we would be pleased to develop a proposal for evaluation and design of such wall systems upon request.

### Subsurface Drainage for Below-Grade Walls

A perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5% passing the No. 200 sieve, such as No. 57 aggregate. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 1 foot of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.

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February 13, 2023 | Terracon Project No. NB225139

areas, heavy traffic from concrete trucks and other delivery vehicles disturbs the subgrade and many surface irregularities are filled in with loose soils to improve trafficability temporarily. As a result, the pavement subgrades, initially prepared early in the project, should be carefully evaluated as the time for pavement construction approaches.

We recommend the moisture content and density of the top 12 inches of the subgrade be evaluated and the pavement subgrades be proofrolled within two days prior to commencement of actual paving operations. Areas not in compliance with the required ranges of moisture or density should be moisture conditioned and recompacted. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills.

If a significant precipitation event occurs after the evaluation or if the surface becomes disturbed, the subgrade should be reviewed by qualified personnel immediately prior to paving. The subgrade should be in its finished form at the time of the final review.

## Pavement Design Parameters

Design of Asphaltic Concrete (AC) pavement sections were calculated using the Caltrans Highway Design Manual, latest edition, and a 20-year design life. Design of Portland Cement Concrete (PCC) pavement sections were designed using ACI 330R-21, "Guide for the Design and Construction of Concrete Parking Lots."

Bulk samples of the near surface native soils were collected to perform Hveem Stabilometer (R-Value) testing. Representative bulk samples from Borings B12, B13 and HA1 were selected for testing. The testing resulted in R-Values of 8, 40 & 19 respectfully. Subsequently, an R-Value of 8 was used for the subgrade for the asphaltic concrete (AC) pavement designs. Additional R-Value testing may be performed following rough grading of the site on the subgrade soils that will ultimately support proposed pavements in order to determine if a more favorable R-Value result may be used in design reducing planning pavement sections. A modulus of subgrade reaction of 50 pci was used for the Portland cement concrete (PCC) pavement designs. The value was empirically derived based upon our experience with the sandy lean clay subgrade soils and our expectation of the quality of the subgrade as prescribed by the **Site Preparation** conditions as outlined in **Earthwork**. A modulus of rupture of 550 psi was used in design for the concrete (based on correlations with a minimum 28-day compressive strength of 4,500 psi).

Based on this relatively low R-value the conventional pavement sections will be relatively thick. The deeper pavement sections will require more off haul of material on site if the same grades are kept. As an alternative to conventional pavement sections,

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**Asphaltic Concrete Design with Chemically Treated Subgrade**

Layer	Thickness (inches)			
	Auto Parking Areas (TI=5.0) <sup>1</sup>	Auto Road (TI=5.5) <sup>1</sup>	Truck Parking Areas (TI=6.0) <sup>1</sup>	Truck Ramp and Road (TI=8.0) <sup>1</sup>
AC <sup>2, 3</sup>	3.0	3.5	3.5	5.0
Aggregate Base <sup>2</sup>	5.0	5.5	6.0	8.0
Chemically Treated Subgrade <sup>4</sup>	12.0	12.0	12.0	12.0

1. See **Project Description** for more specifics regarding traffic assumptions.
2. All materials should meet the current Caltrans Highway Design Manual specifications.
  - Base – Caltrans Class 2 aggregate base
3. A minimum 1.5-inch surface course should be used on ACC pavements.
4. Chemically treated material shall have a minimum unconfined compressive strength of 300 psi.

The following table provides our estimated minimum thickness of PCC pavements.

**Portland Cement Concrete Design**

Layer	Thickness (inches)			
	Traffic Category A <sup>1</sup>	Traffic Category B <sup>1</sup>	Traffic Category C <sup>1</sup>	Traffic Category E <sup>1</sup>
PCC <sup>2</sup>	6.0	6.5	8.5	7.25
Aggregate Base	6.0	6.0	6.0	6.0

1. See **Project Description** for more specifics regarding traffic classifications.
2. All materials should meet the current Caltrans Highway Design Manual specifications.

Areas for parking of heavy vehicles, concentrated turn areas, and start/stop maneuvers could require thicker pavement sections. Edge restraints (i.e. concrete curbs or aggregate shoulders) should be planned along curves and areas of maneuvering vehicles.



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### Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic upkeep should be anticipated. Preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Pavement care consists of both localized (e.g., crack, and joint sealing and patching) and global maintenance (e.g., surface sealing). Additional engineering consultation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

### General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.



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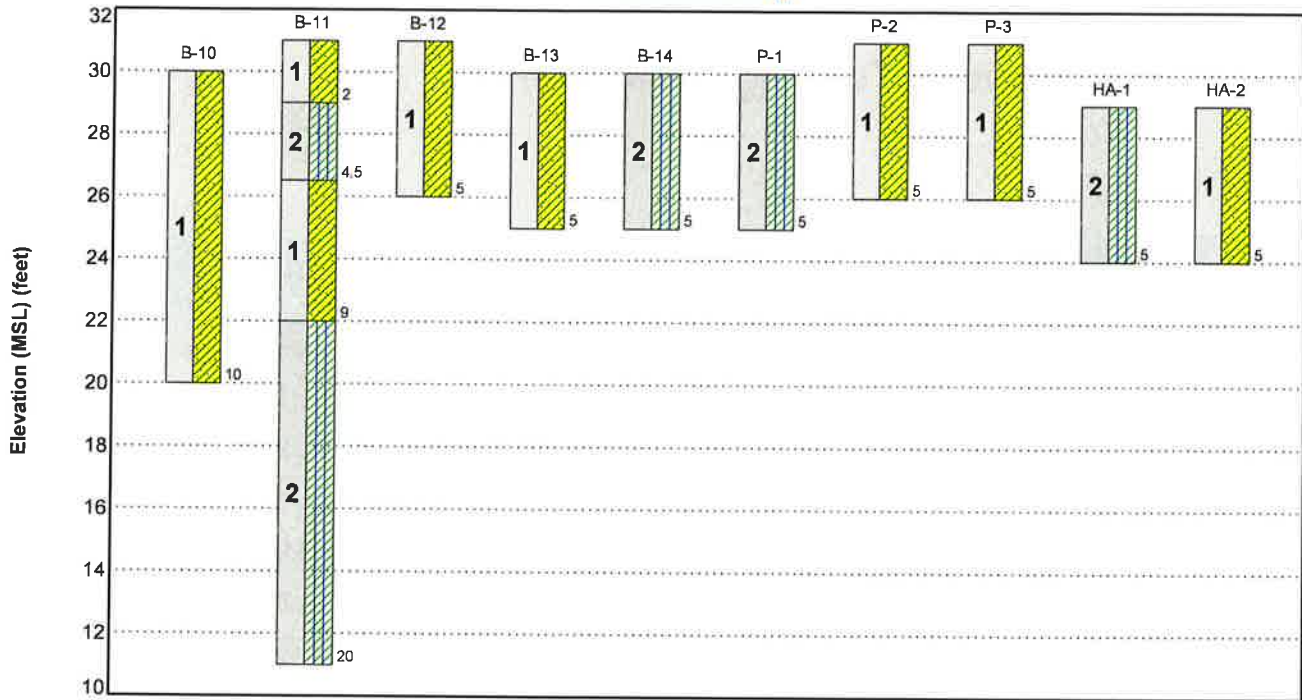
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# **Figures**

## **Contents:**

GeoModel

## Geomodel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	<b>Sandy Lean Clay</b>	Soft to hard sandy lean clay.
2	<b>Silty Clay</b>	Medium stiff to hard silty clay.
3	<b>Clayey Sand</b>	Medium dense to very dense clayey sand.
4	<b>Poorly Graded Sand with Gravel</b>	Very dense poorly graded sand with gravel.

### LEGEND

- Sandy Lean Clay
- Silty Clay

- First Water Observation
- Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.  
 Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

**NOTES:**

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.



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The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

## Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content
- Dry Unit Weight
- Atterberg Limits
- Expansion Index
- Grain Size Analysis
- Unconfined Compression
- Chemical Analysis – pH, Sulfate, Chloride Ion, Electrical Resistivity
- Hveem Stabilometer (R-value)

The laboratory testing program often included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

### Aerial Site Location



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

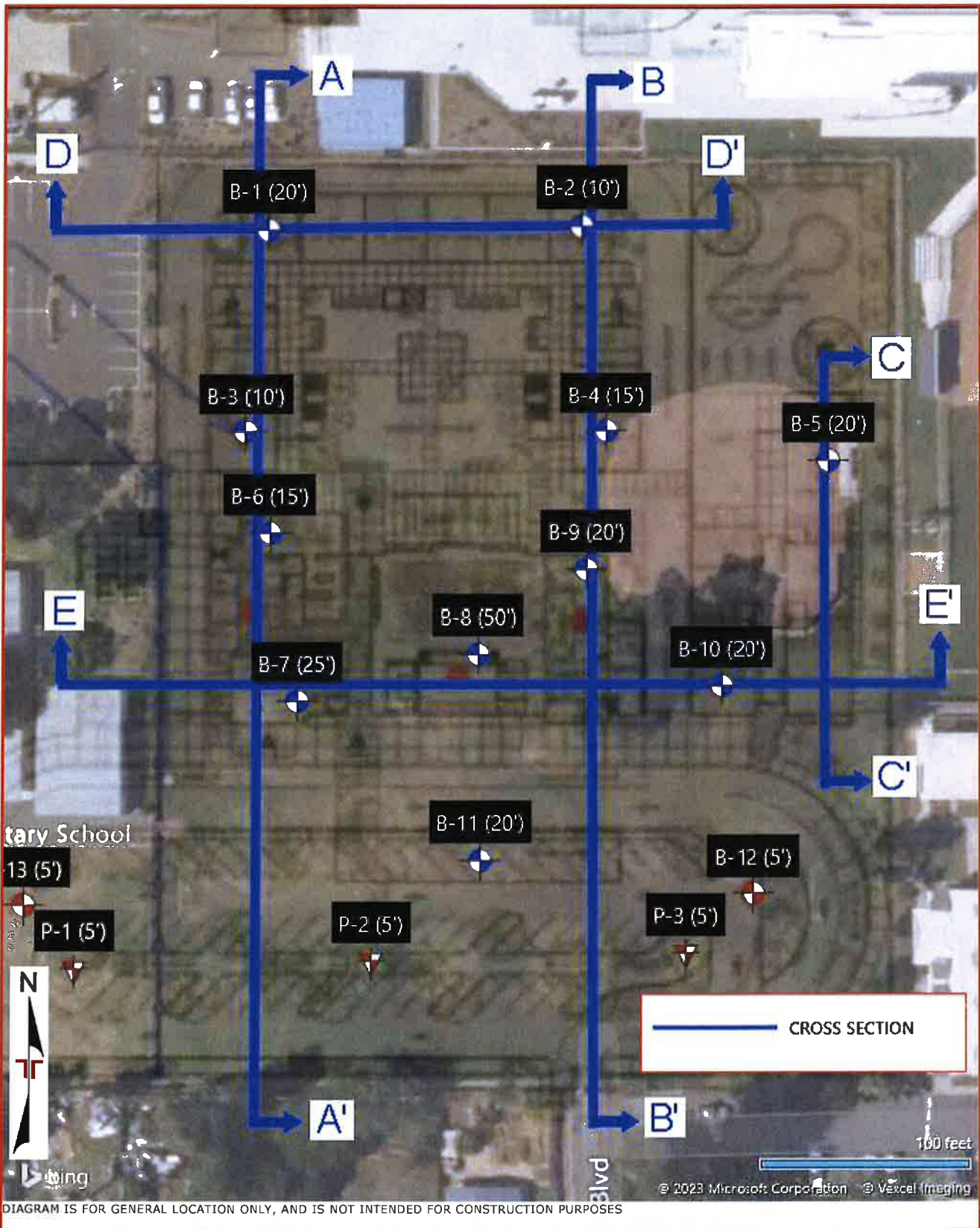
MAP PROVIDED BY MICROSOFT BING MAPS

**Geotechnical Engineering Report**

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February 13, 2023 | Terracon Project No. NB225139

**Exploration Plan with Cross Section Locations**

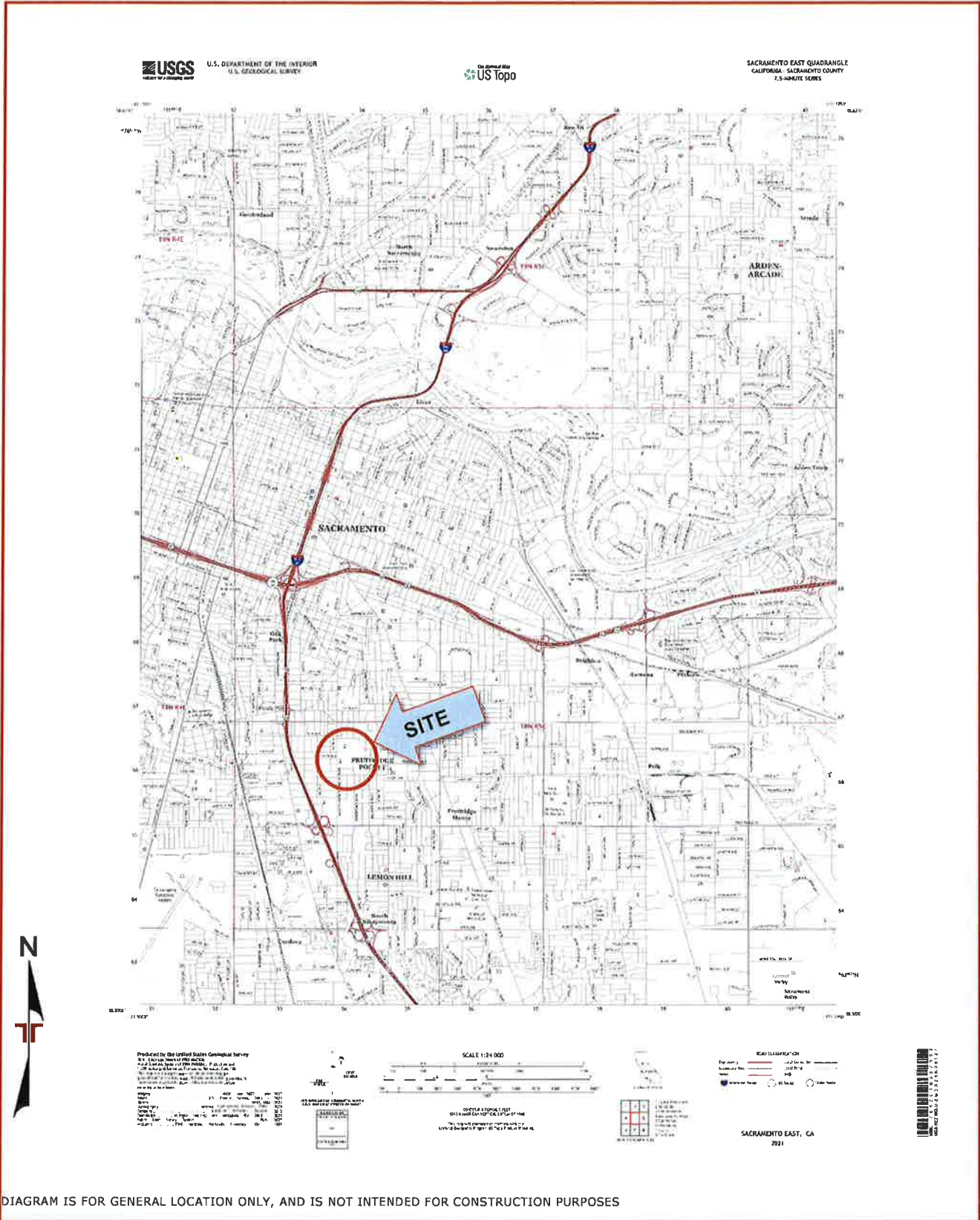


# Geotechnical Engineering Report

Oak Ridge Elementary School Improvements | Sacramento, CA 95820

February 13, 2023 | Terracon Project No. NB225139

## Site Location



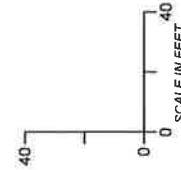
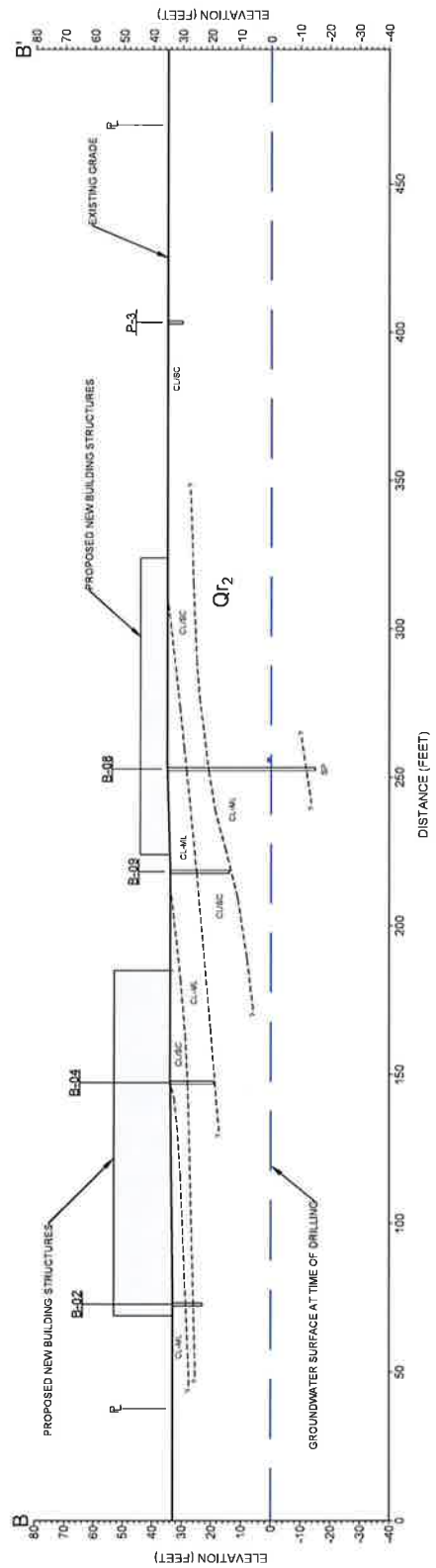
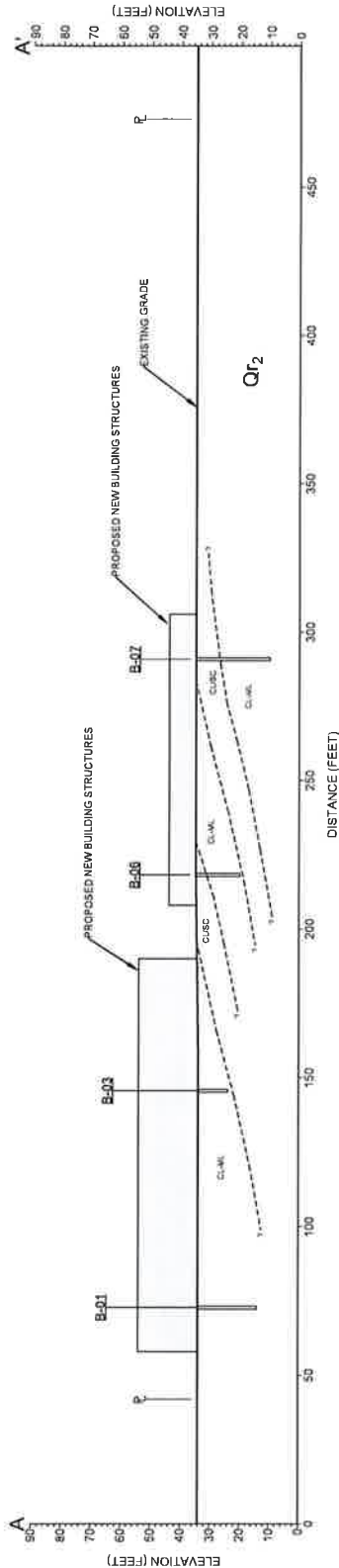




OAK RIDGE ELEMENTARY SCHOOL IMPROVEMENTS  
 4501 Martin Luther King Jr. Boulevard  
 Sacramento, CA 95820



PROJECT NO.	18225139
DATE	02/20/23
APPROVED BY	QSSM
CHECKED BY	QSSM
SCALE	AS SHOWN
CROSS SECTIONS	
FILE NAME	
PROJECT NAME	
PROJECT NO.	18225139



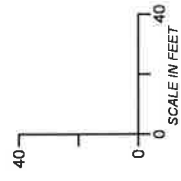
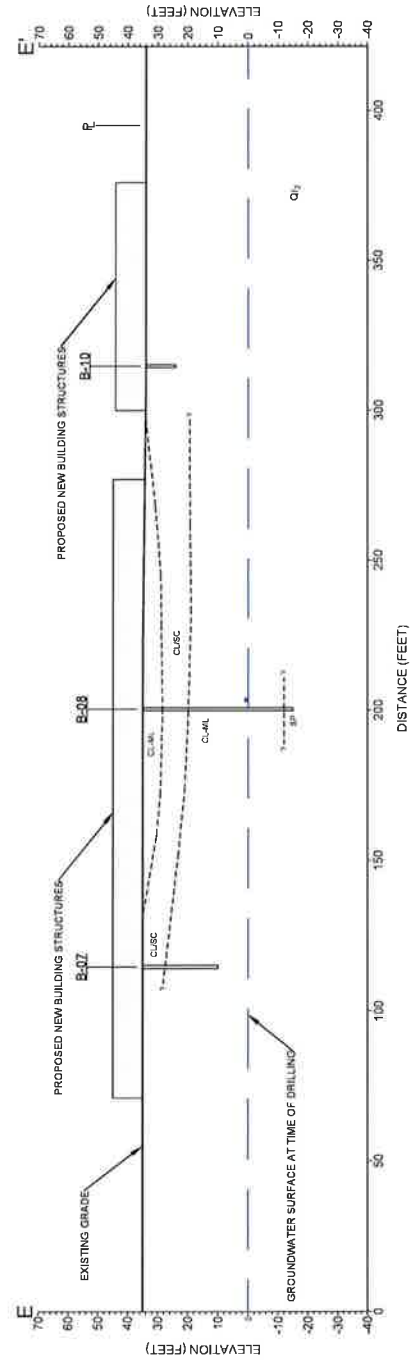
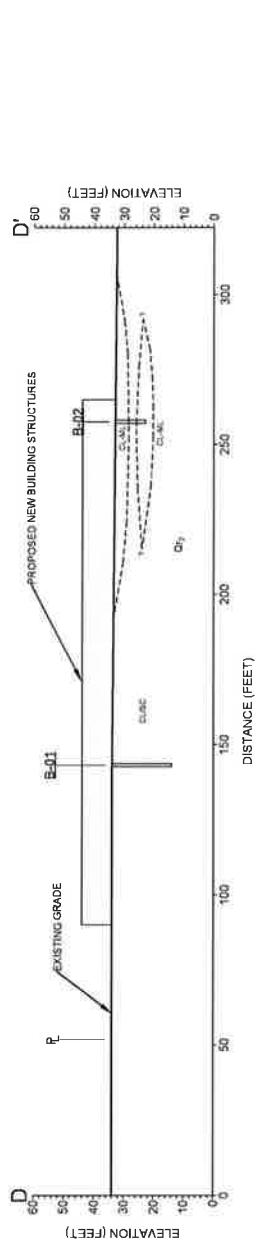
**EXPLANATION**

- ALL LOCATIONS ARE APPROXIMATE
- B-04 Boring (Terracon, 2023)
  - CL-ML Silty CLAY
  - CL-JSC Sandy Lean CLAY/Clayey SAND
  - Q2 Riverbank Formation, Middle Unit

DIAGRAM IS FOR GENERAL LOCATION ONLY AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SECTION A-A' & SECTION B-B'

PROJECT NO.	18225179
DRAWN BY	AS SHOWN
CHECKED BY	CSSH
DATE	2/20/23
PROJECT MANAGER	ESS



**EXPLANATION**  
 ALL LOCATIONS ARE APPROXIMATE  
 B-01 Boring (Terracon, 2023)  
 Q12 Riverbank Formation, Middle Unit  
 CL/SC Sandy Lean CLAY/Clayey SAND  
 CL-ML Silty CLAY

## Boring Log No. B-1

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.5346° Longitude: -121.4622°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits		Percent Fines	
											LL-PL-PI			
1		Depth (Ft.)	Elevation: 30 (Ft.) +/-											
		<b>SANDY LEAN CLAY (CL)</b> , brown, stiff												75
						5-8-12				14.3	113			
						6-8-12			1.74	15.6	110			
					5		3-6-9			19.1				
							4-7-7	3.25 (HP)		23.2	73			
			medium stiff		10		2-2-3	1.25 (HP)		32.7	83			
							5-8-5			29.0	82			
	stiff		15		2-6-7			35.7	72					
			20.0											
<b>Boring Terminated at 20 Feet</b>														

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).  
 See [Supporting Information](#) for explanation of symbols and abbreviations.

**Notes**  
 Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**  
 Not encountered

**Advancement Method**  
 6" Hollow Stem Auger

**Abandonment Method**  
 Boring backfilled with bentonite grout upon completion

**Drill Rig**  
 D-50 track

**Hammer Type**  
 Automatic

**Driller**  
 Terracon Lodi

**Logged by**  
 Brian Turner

**Boring Started**  
 01-03-2023

**Boring Completed**  
 01-03-2023

## Boring Log No. B-3

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.5344° Longitude: -121.4623° Depth (Ft.) <span style="float: right;">Elevation: 30 (Ft.) +/-</span>	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines	
3		<p><b>CLAYEY SAND (SC)</b>, fine grained, brown, very dense</p> <p style="text-align: center;">dense</p>	5		X	14-22-50			16.7	117			
			5		X	17-34-37			18.8				47
			5		X	7-14-32			22.3	103			
			10		X	5-11-23 N=34			20.7				
			10.0		<b>Boring Terminated at 10 Feet</b>								

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).  
 See [Supporting Information](#) for explanation of symbols and abbreviations.

**Notes**

Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**  
 Not encountered

**Advancement Method**  
 6" Hollow Stem Auger

**Abandonment Method**  
 Boring backfilled with bentonite grout upon completion

**Drill Rig**  
 D-50 track

**Hammer Type**  
 Automatic

**Driller**  
 Terracon Lodi

**Logged by**  
 Brian Turner

**Boring Started**  
 01-05-2023

**Boring Completed**  
 01-05-2023

## Boring Log No. B-5

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.5344° Longitude: -121.4614°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	
											LL-PL-PI	Percent Fines
		Depth (Ft.) <span style="float: right;">Elevation: 30 (Ft.) +/-</span>										
1		<b>SANDY LEAN CLAY (CL)</b> , brown, very stiff	2.0			4-7-19	4.5 (HP)		13.8	122		69
2		<b>SILTY CLAY (CL-ML)</b> , brown, hard	6.5			7-19-40	4.5 (HP)		14.3			
			5			4-23-45	4.5 (HP)		13.8	109		
1		<b>SANDY LEAN CLAY (CL)</b> , light brown to brown, very stiff  medium stiff  very stiff	23.5			9-15-10	4.5 (HP)		27.5	92		
			10			2-3-4						
			15			7-9-12	3.25 (HP)		35.5	85		
			20.0			6-9-14	4.5 (HP)		41.7	78		
		<b>Boring Terminated at 20 Feet</b>	20									

See **Exploration and Testing Procedures** for a description of field and laboratory procedures used and additional data (If any).  
 See **Supporting Information** for explanation of symbols and abbreviations.

**Notes**  
 Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**  
 Not encountered

**Advancement Method**  
 6" Hollow Stem Auger

**Abandonment Method**  
 Boring backfilled with bentonite grout upon completion

**Drill Rig**  
 D-50 track

**Hammer Type**  
 Automatic

**Driller**  
 Terracon Lodi

**Logged by**  
 Brian Turner

**Boring Started**  
 01-03-2023

**Boring Completed**  
 01-03-2023

## Boring Log No. B-7

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.5340° Longitude: -121.4622°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	
											LL-PL-PI	Percent Fines
1	SANDY LEAN CLAY (CL), brown, hard		7.0			22-33-50/5"	4.5 (HP)		16.8	112		
			24			7-20-25	4.5 (HP)		14.5	108		55
			5			12-11-13	4.5 (HP)		23.2	103		
2	SILTY CLAY (CL-ML), trace sand, brown, hard		7.0			12-22-44	4.5 (HP)		16.8	107		
			10			6-5-8			25.9	77		
			15			5-7-12			19.7	87		
			20			4-7-9			39.6	80		
			25			3-4-12			36.7	85		
		25.0	<b>Boring Terminated at 25 Feet</b>									

See **Exploration and Testing Procedures** for a description of field and laboratory procedures used and additional data (If any).  
 See **Supporting Information** for explanation of symbols and abbreviations.

**Notes**  
 Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**  
 Not encountered

**Advancement Method**  
 6" Hollow Stem Auger

**Abandonment Method**  
 Boring backfilled with bentonite grout upon completion

**Drill Rig**  
 D-50 track

**Hammer Type**  
 Automatic

**Driller**  
 Terracon Lodi

**Logged by**  
 Brian Turner

**Boring Started**  
 01-05-2023

**Boring Completed**  
 01-05-2023

## Boring Log No. B-8

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.5341° Longitude: -121.4619° Depth (Ft.) Elevation: 31 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	
											LL-PL-PI	Percent Fines
2		<b>SILTY CLAY (CL-ML), brown, stiff (continued)</b>	30	▽	X	2-5-7	2.0 (HP)		41.3	80		65
			35	▽	X	4-7-12	2.75 (HP)		39.0	83		
			40		X	3-6-7	3.0 (HP)		37.0	85		78
			45		X	3-4-7	1.0 (HP)		36.1			
4		<b>POORLY GRADED SAND WITH GRAVEL (SP), fine grained, brown, very dense</b>	47.0									
			50.0		X	19-45-50						7
		<b>Boring Terminated at 50 Feet</b>	50									

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).  
 See [Supporting Information](#) for explanation of symbols and abbreviations.

**Notes**  
 Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**  
 ▽ While drilling  
 ▽ At completion of drilling

**Advancement Method**  
 6" Hollow Stem Auger

**Abandonment Method**  
 Boring backfilled with bentonite grout upon completion

**Drill Rig**  
 D-50 track  
**Hammer Type**  
 Automatic  
**Driller**  
 Terracon Lodi

**Logged by**  
 Brian Turner

**Boring Started**  
 01-04-2023

**Boring Completed**  
 01-04-2023

## Boring Log No. B-10

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.5340° Longitude: -121.4615° Depth (Ft.) _____ Elevation: 30 (Ft.) +/- _____	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		<b>SANDY LEAN CLAY (CL)</b> , brown, medium stiff  hard	10.0			1-4-5		0.66	18.7	102	40-15-25	
			5			6-20-50/5"						
			7-31-50			4.0 (HP)			14.9			
			20-50/5"			4.5 (HP)			19.2			
		<b>Boring Terminated at 10 Feet</b>	10									

See **Exploration and Testing Procedures** for a description of field and laboratory procedures used and additional data (If any).  
 See **Supporting Information** for explanation of symbols and abbreviations.

**Notes**  
 Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**  
 Not encountered

**Advancement Method**  
 6" Hollow Stem Auger

**Abandonment Method**  
 Boring backfilled with bentonite grout upon completion

**Drill Rig**  
 D-50 track

**Hammer Type**  
 Automatic

**Driller**  
 Terracon Lodi

**Logged by**  
 Brian Turner

**Boring Started**  
 01-04-2023

**Boring Completed**  
 01-04-2023



## Boring Log No. B-12

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.5338° Longitude: -121.4615° Depth (Ft.) _____ Elevation: 31 (Ft.) +/- _____	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
1		<p><b>SANDY LEAN CLAY (CL)</b>, brown, hard</p> <p>very stiff</p> <p>5.0 _____ 26</p>	<p>5</p>	<p>—</p> <p>—</p> <p>—</p> <p>—</p>	<p>—</p> <p>—</p> <p>—</p> <p>—</p>	<p>17-18-29</p> <p>13-18-23</p>	<p>4.5 (HP)</p> <p>4.5 (HP)</p>	<p>19.5</p> <p>17.5</p>	<p>108</p> <p>114</p>			
		<b>Boring Terminated at 5 Feet</b>										

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).  
 See [Supporting Information](#) for explanation of symbols and abbreviations.

**Notes**  
 Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**  
 Not encountered

**Advancement Method**  
 6" Hollow Stem Auger

**Abandonment Method**  
 Boring backfilled with auger cuttings upon completion.

**Drill Rig**  
 D-50 track

**Hammer Type**  
 Automatic


**Driller**  
 Terracon Lodi

**Logged by**  
 Brian Turner

**Boring Started**  
 01-04-2023

**Boring Completed**  
 01-04-2023

## Boring Log No. B-14

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.5338° Longitude: -121.4631° Depth (Ft.) _____ Elevation: 30 (Ft.) +/- _____	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
2		<p><b>SILTY CLAY (CL-ML)</b>, brown, medium stiff</p> <p style="margin-top: 20px;">stiff</p>	<p>5.0</p> <p style="margin-top: 20px;">25</p>			<p>1-3-4</p> <p style="margin-top: 20px;">3-4-7</p>	<p>1.75 (HP)</p> <p style="margin-top: 20px;">1.75 (HP)</p>		<p>18.2</p> <p style="margin-top: 20px;">14.5</p>	<p>106</p> <p style="margin-top: 20px;">117</p>	<p>20-16-4</p>	
		<b>Boring Terminated at 5 Feet</b>	5									

See **Exploration and Testing Procedures** for a description of field and laboratory procedures used and additional data (if any).  
 See **Supporting Information** for explanation of symbols and abbreviations.

**Notes**  
 Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**  
 Not encountered

**Advancement Method**  
 6" Hollow Stem Auger

**Abandonment Method**  
 Boring backfilled with Auger Cuttings  
 Surface capped with asphalt

**Drill Rig**  
 D-50 track  
**Hammer Type**  
 Automatic

**Driller**  
 Terracon Lodi

**Logged by**  
 Brian Turner

**Boring Started**  
 01-05-2023

**Boring Completed**  
 01-05-2023

## Boring Log No. P-2

Model Layer	Graphic Log	Location: See <a href="#">Exploration Plan</a> Latitude: 38.5337° Longitude: -121.4261° Depth (Ft.) _____ Elevation: 31 (Ft.) +/- _____	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	
											LL-PL-PI	Percent Fines
1		<b>SANDY LEAN CLAY (CL)</b> , brown, soft  stiff	5	X	X	1-1-1	1.0 (HP)		17.7	112		77
		<b>Boring Terminated at 5 Feet</b>	5			1-4-8	1.5 (HP)		11.6	93		

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

See [Supporting Information](#) for explanation of symbols and abbreviations.

**Notes**

Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**

Not encountered

**Advancement Method**

6" Hollow Stem Auger

**Abandonment Method**

Boring backfilled with auger cuttings upon completion.

**Drill Rig**

D-50 track

**Hammer Type**

Automatic

**Driller**

Terracon Lodi

**Logged by**

Brian Turner

**Boring Started**

01-04-2023

**Boring Completed**

01-04-2023

## Boring Log No. HA-1

Model Layer	Graphic Log	Location: See <a href="#">Exploration Plan</a> Latitude: 38.5336° Longitude: -121.4645°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	HP (tsf)	Unconfined Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	
											LL-PL-PI	Percent Fines
2		Depth (Ft.) <span style="float: right;">Elevation: 29 (Ft.) +/-</span>  <b>SILTY CLAY (CL-ML), brown</b>         5.0 <span style="float: right;">24</span>	5		☞							
		<b>Boring Terminated at 5 Feet</b>										

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).  
 See [Supporting Information](#) for explanation of symbols and abbreviations.

**Notes**

Elevation Reference: Elevations estimated from Google Earth Pro

**Water Level Observations**  
 Not encountered

**Advancement Method**  
 6" Hollow Stem Auger

**Abandonment Method**  
 Boring backfilled with auger cuttings upon completion.

**Drill Rig**  
 D-50 track

**Hammer Type**  
 Automatic

**Driller**  
 Terracon Lodi

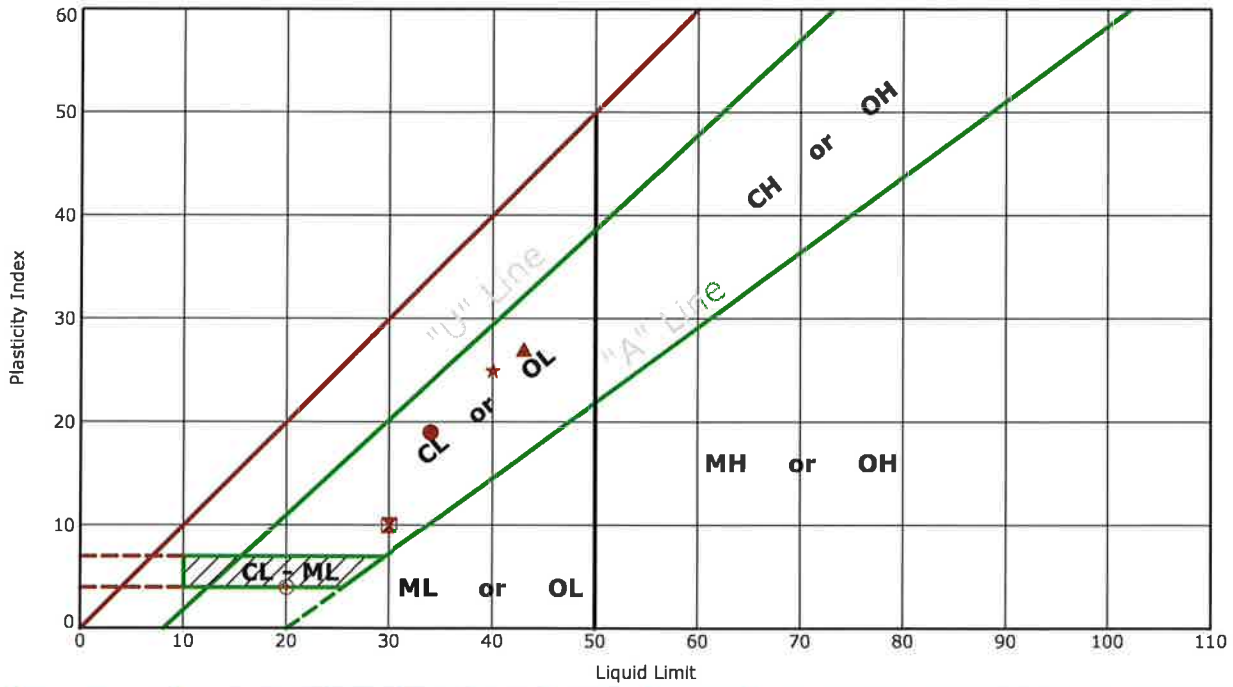
**Logged by**  
 Brian Turner

**Boring Started**  
 01-05-2023

**Boring Completed**  
 01-05-2023

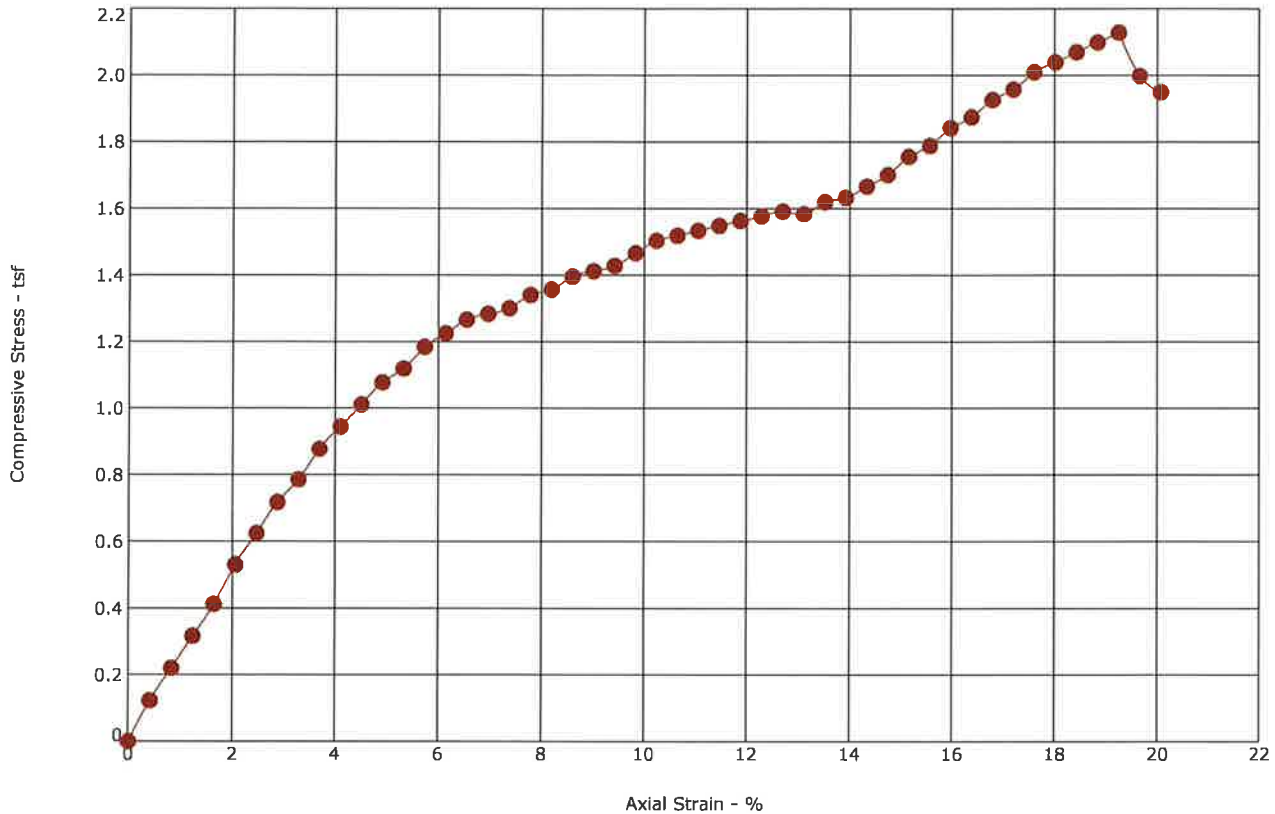
## Atterberg Limit Results

### ASTM D4318



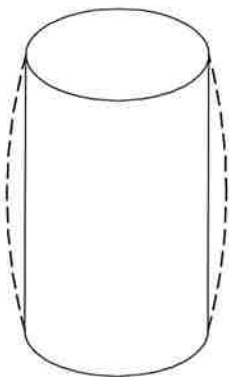
	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-4	2.5 - 4	34	15	19		CL	SANDY LEAN CLAY
⊠	B-6	1 - 2.5	30	20	10		CL	SANDY LEAN CLAY
▲	B-8	1 - 2.5	43	16	27		CL	SANDY LEAN CLAY
★	B-10	1 - 2.5	40	15	25		CL	SANDY LEAN CLAY
⊙	B-14	1 - 2.5	20	16	4		CL-ML	SILTY CLAY

## Unconfined Compression Test ASTM D2166



Boring ID	Depth (Ft)	Sample type	LL	PL	PI	Fines (%)	Description
B-1	2.5 - 4	CARS					SANDY LEAN CLAY

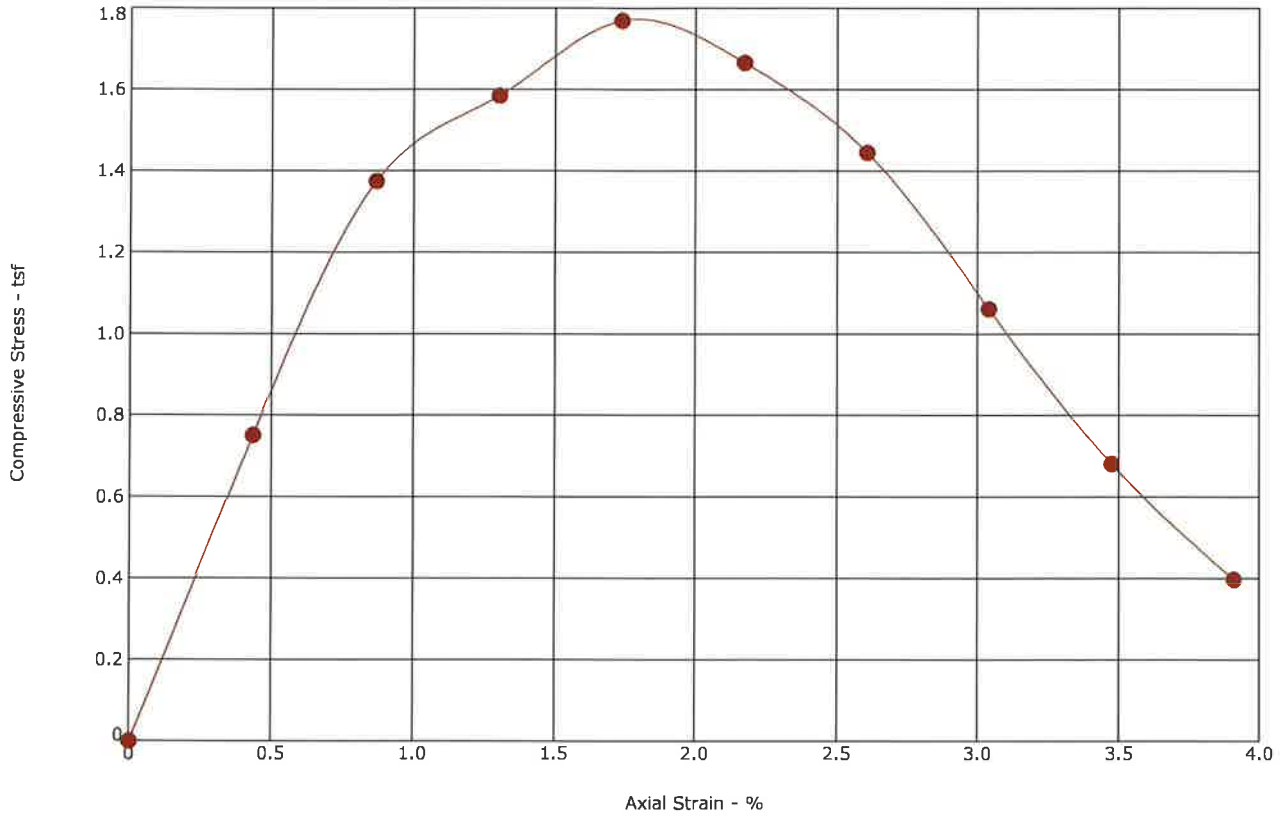
Specimen Failure Mode	Specimen Test Data
-----------------------	--------------------



Failure Mode: Bulge (dashed)

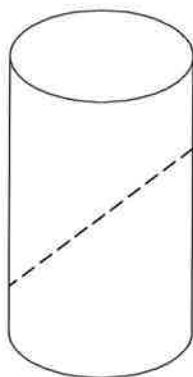
Moisture Content (%):	15.6
Dry Density (pcf):	110
Diameter (in.):	1.93
Height (in.):	4.89
Height / Diameter Ratio:	2.53
Calculated Saturation (%):	78.74
Calculated Void Ratio:	0.54
Assumed Specific Gravity:	2.7
Failure Strain (%):	15.00
Unconfined Compressive Strength (tsf):	1.74
Undrained Shear Strength (tsf):	0.87
Strain Rate (in/min):	
Remarks:	

## Unconfined Compression Test ASTM D2166



Boring ID	Depth (Ft)	Sample type	LL	PL	PI	Fines (%)	Description
B-6	2.5 - 4	CARS					SANDY LEAN CLAY

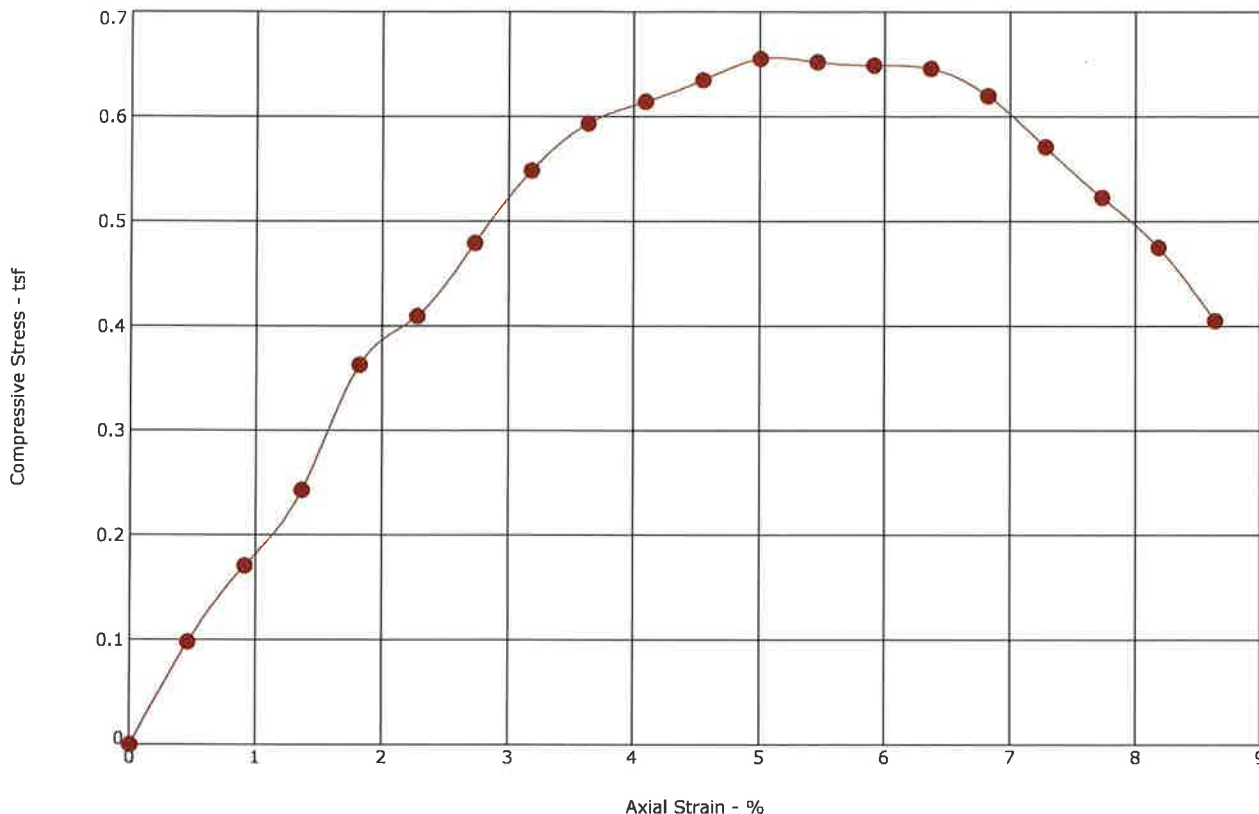
Specimen Failure Mode	Specimen Test Data
-----------------------	--------------------



Failure Mode: Shear (dashed)

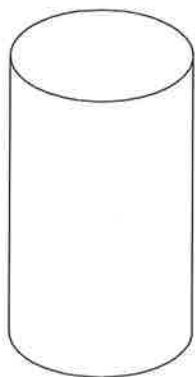
Moisture Content (%):	13.7
Dry Density (pcf):	105
Diameter (in.):	1.94
Height (in.):	4.61
Height / Diameter Ratio:	2.37
Calculated Saturation (%):	61.34
Calculated Void Ratio:	0.60
Assumed Specific Gravity:	2.7
Failure Strain (%):	1.74
Unconfined Compressive Strength (tsf):	1.77
Undrained Shear Strength (tsf):	0.88
Strain Rate (in/min):	
Remarks:	

## Unconfined Compression Test ASTM D2166



Boring ID	Depth (Ft)	Sample type	LL	PL	PI	Fines (%)	Description
B-10	1 - 2.5	CARS	40	15	25		SANDY LEAN CLAY

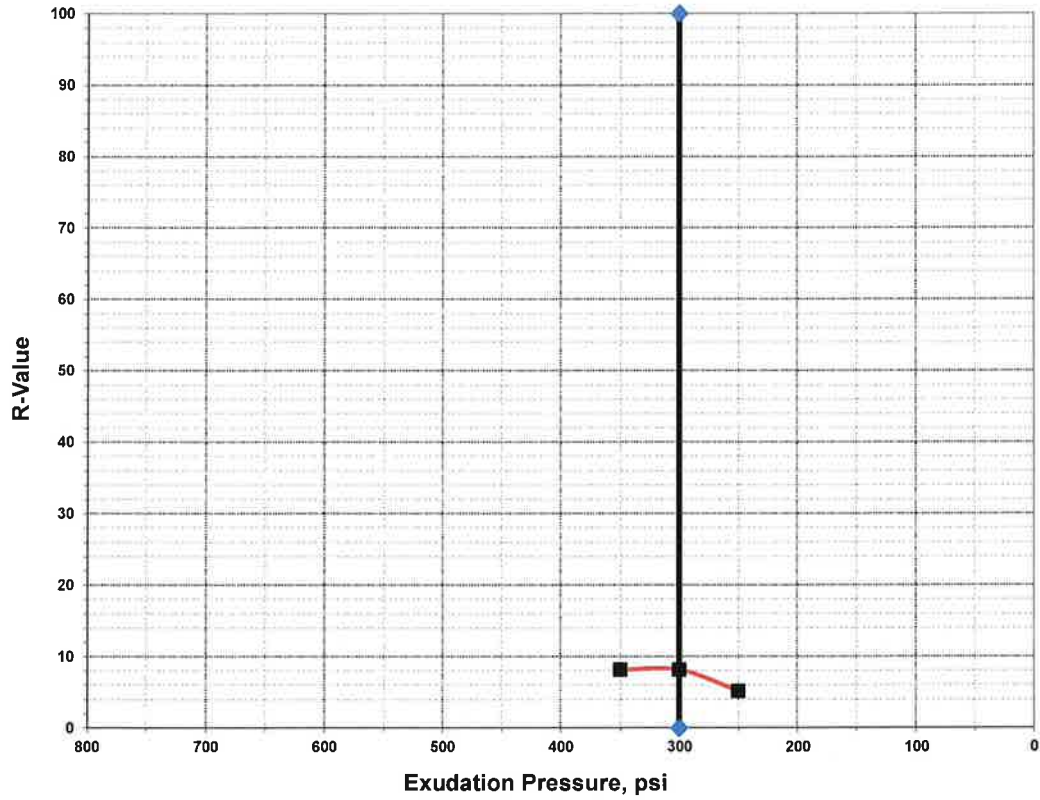
Specimen Failure Mode	Specimen Test Data
-----------------------	--------------------



Moisture Content (%):	18.7
Dry Density (pcf):	102
Diameter (in.):	1.93
Height (in.):	4.40
Height / Diameter Ratio:	2.28
Calculated Saturation (%):	77.06
Calculated Void Ratio:	0.65
Assumed Specific Gravity:	2.7
Failure Strain (%):	5.00
Unconfined Compressive Strength (tsf):	0.66
Undrained Shear Strength (tsf):	0.33
Strain Rate (in/min):	
Remarks:	

Failure Mode: (dashed)

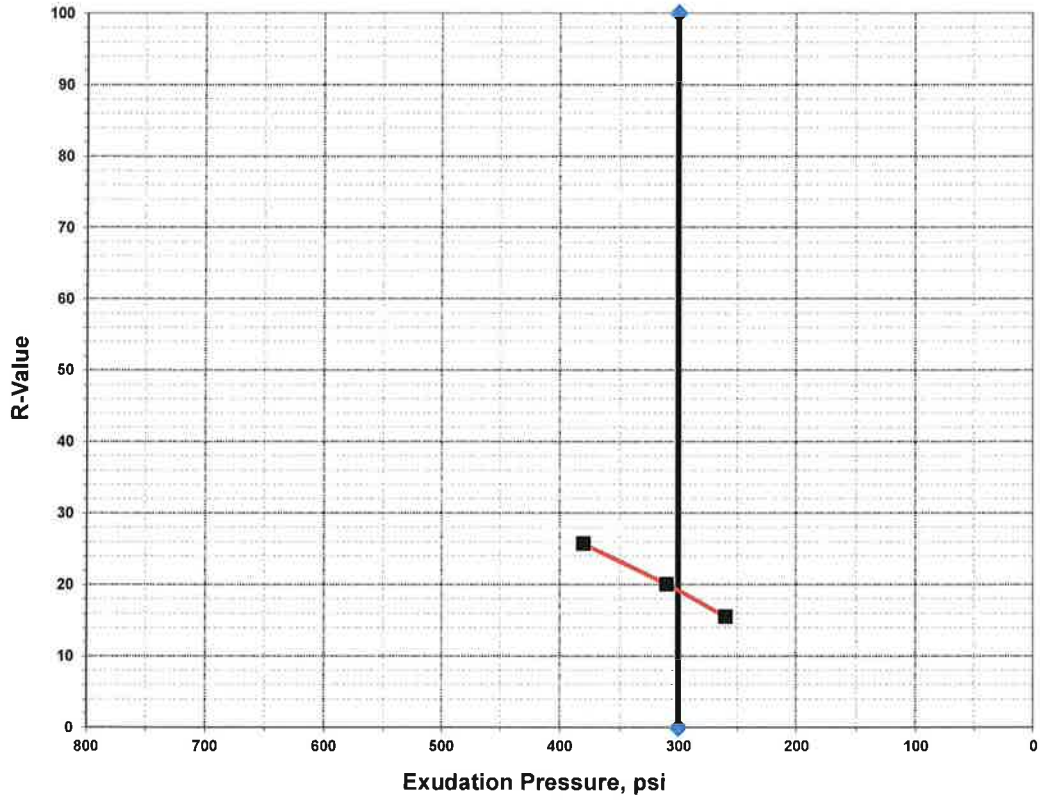




Specimen Identification	Compaction Pressure (psi)	R-Value at 300 psi
B-12 @ 1-4'	160.0	8

### R-Value Test

**Client:** Sacramento City Unified School District  
**Project:** Oak Ridge Elementary School  
**Site:** Sacramento, CA  
**Project No.:** NB225139



Specimen Identification	Compaction Pressure (psi)	R-Value at 300 psi
HA-1 @ 1-4'	223.3	19

### R-Value Test

**Client:** Sacramento City Unified School District  
**Project:** Oak Ridge Elementary School  
**Site:** Sacramento, CA  
**Project No.:** NB225139

## **Supporting Information**

### **Contents:**

General Notes

Unified Soil Classification System

Liquefaction Analysis Graph

Liquefaction Analysis Summary (21)

SEAOC/OSHPD Seismic Design Maps Seismic Parameters (2)

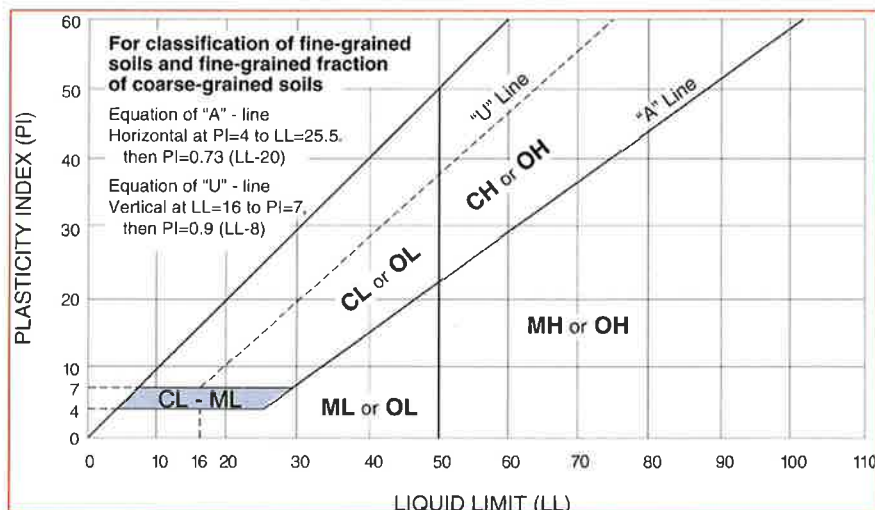
USGS Unified Hazard Tool Deaggregations (6)

Note: All attachments are one page unless noted above.

## Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests <sup>A</sup>				Soil Classification		
				Group Symbol	Group Name <sup>B</sup>	
<b>Coarse-Grained Soils:</b> More than 50% retained on No. 200 sieve	<b>Gravels:</b> More than 50% of coarse fraction retained on No. 4 sieve	<b>Clean Gravels:</b> Less than 5% fines <sup>C</sup>	$Cu \geq 4$ and $1 \leq Cc \leq 3$ <sup>E</sup>	GW	Well-graded gravel <sup>F</sup>	
			$Cu < 4$ and/or $[Cc < 1$ or $Cc > 3.0]$ <sup>E</sup>	GP	Poorly graded gravel <sup>F</sup>	
		<b>Gravels with Fines:</b> More than 12% fines <sup>C</sup>	Fines classify as ML or MH	GM	Silty gravel <sup>F, G, H</sup>	
			Fines classify as CL or CH	GC	Clayey gravel <sup>F, G, H</sup>	
		<b>Clean Sands:</b> Less than 5% fines <sup>D</sup>	$Cu \geq 6$ and $1 \leq Cc \leq 3$ <sup>E</sup>	SW	Well-graded sand <sup>I</sup>	
			$Cu < 6$ and/or $[Cc < 1$ or $Cc > 3.0]$ <sup>E</sup>	SP	Poorly graded sand <sup>I</sup>	
		<b>Sands with Fines:</b> More than 12% fines <sup>D</sup>	Fines classify as ML or MH	SM	Silty sand <sup>G, H, I</sup>	
			Fines classify as CL or CH	SC	Clayey sand <sup>G, H, I</sup>	
	<b>Fine-Grained Soils:</b> 50% or more passes the No. 200 sieve	<b>Silts and Clays:</b> Liquid limit less than 50	<b>Inorganic:</b>	$PI > 7$ and plots above "A" line <sup>J</sup>	CL	Lean clay <sup>K, L, M</sup>
				$PI < 4$ or plots below "A" line <sup>J</sup>	ML	Silt <sup>K, L, M</sup>
		<b>Organic:</b>	$\frac{LL_{oven\ dried}}{LL_{not\ dried}} < 0.75$	OL	Organic clay <sup>K, L, M, N</sup>	
					Organic silt <sup>K, L, M, O</sup>	
		<b>Inorganic:</b>	PI plots on or above "A" line	CH	Fat clay <sup>K, L, M</sup>	
			PI plots below "A" line	MH	Elastic silt <sup>K, L, M</sup>	
		<b>Organic:</b>	$\frac{LL_{oven\ dried}}{LL_{not\ dried}} < 0.75$	OH	Organic clay <sup>K, L, M, P</sup>	
					Organic silt <sup>K, L, M, Q</sup>	
				PT	Peat	
			Primarily organic matter, dark in color, and organic odor			

- <sup>A</sup> Based on the material passing the 3-inch (75-mm) sieve.
- <sup>B</sup> If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
- <sup>C</sup> Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
- <sup>D</sup> Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
- <sup>E</sup>  $Cu = D_{60}/D_{10}$      $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
- <sup>F</sup> If soil contains  $\geq 15\%$  sand, add "with sand" to group name.
- <sup>G</sup> If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
- <sup>H</sup> If fines are organic, add "with organic fines" to group name.
- <sup>I</sup> If soil contains  $\geq 15\%$  gravel, add "with gravel" to group name.
- <sup>J</sup> If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
- <sup>K</sup> If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
- <sup>L</sup> If soil contains  $\geq 30\%$  plus No. 200 predominantly sand, add "sandy" to group name.
- <sup>M</sup> If soil contains  $\geq 30\%$  plus No. 200, predominantly gravel, add "gravelly" to group name.
- <sup>N</sup>  $PI \geq 4$  and plots on or above "A" line.
- <sup>O</sup>  $PI < 4$  or plots below "A" line.
- <sup>P</sup>  $PI$  plots on or above "A" line.
- <sup>Q</sup>  $PI$  plots below "A" line.



\*\*\*\*\*  
\*\*\*\*\*

LIQUEFACTION ANALYSIS SUMMARY

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Font: Courier New, Regular, Size 8 is recommended for this report.  
Licensed to , 2/9/2023 12:07:55 PM

Input File Name: C:\Users\ntsmith\OneDrive - Terracon Consultants  
Inc\Desktop\REVIEWING\B-8.liq  
Title: Oak Ridge E.S.  
Subtitle: New School Facility

Surface Elev.=30  
Hole No.=B-8  
Depth of Hole= 50.00 ft  
Water Table during Earthquake= 23.00 ft  
Water Table during In-Situ Testing= 30.00 ft  
Max. Acceleration= 0.32 g  
Earthquake Magnitude= 6.51

Input Data:

Surface Elev.=30  
Hole No.=B-8  
Depth of Hole=50.00 ft  
Water Table during Earthquake= 23.00 ft  
Water Table during In-Situ Testing= 30.00 ft  
Max. Acceleration=0.32 g  
Earthquake Magnitude=6.51  
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. SPT or BPT Calculation.
  2. Settlement Analysis Method: Ishihara / Yoshimine
  3. Fines Correction for Liquefaction: Stark/Olson et al.\*
  4. Fine Correction for Settlement: During Liquefaction\*
  5. Settlement Calculation in: Liq. zone only
  6. Hammer Energy Ratio, Ce = 1.5
  7. Borehole Diameter, Cb= 1.05
  8. Sampling Method, Cs= 1
  9. User request factor of safety (apply to CSR) , User= 1.3  
Plot two CSR (fs1=1, fs2=User)
  10. Use Curve Smoothing: Yes\*
- \* Recommended Options

In-Situ Test Data:  
Depth SPT gamma Fines

3.80	2.00	0.21	5.00	0.00	0.00	0.00
3.85	2.00	0.21	5.00	0.00	0.00	0.00
3.90	2.00	0.21	5.00	0.00	0.00	0.00
3.95	2.00	0.21	5.00	0.00	0.00	0.00
4.00	2.00	0.21	5.00	0.00	0.00	0.00
4.05	2.00	0.21	5.00	0.00	0.00	0.00
4.10	2.00	0.21	5.00	0.00	0.00	0.00
4.15	2.00	0.21	5.00	0.00	0.00	0.00
4.20	2.00	0.21	5.00	0.00	0.00	0.00
4.25	2.00	0.21	5.00	0.00	0.00	0.00
4.30	2.00	0.21	5.00	0.00	0.00	0.00
4.35	2.00	0.21	5.00	0.00	0.00	0.00
4.40	2.00	0.21	5.00	0.00	0.00	0.00
4.45	2.00	0.21	5.00	0.00	0.00	0.00
4.50	2.00	0.21	5.00	0.00	0.00	0.00
4.55	2.00	0.21	5.00	0.00	0.00	0.00
4.60	2.00	0.21	5.00	0.00	0.00	0.00
4.65	2.00	0.21	5.00	0.00	0.00	0.00
4.70	2.00	0.21	5.00	0.00	0.00	0.00
4.75	2.00	0.21	5.00	0.00	0.00	0.00
4.80	2.00	0.21	5.00	0.00	0.00	0.00
4.85	2.00	0.21	5.00	0.00	0.00	0.00
4.90	2.00	0.21	5.00	0.00	0.00	0.00
4.95	2.00	0.21	5.00	0.00	0.00	0.00
5.00	2.00	0.21	5.00	0.00	0.00	0.00
5.05	2.00	0.21	5.00	0.00	0.00	0.00
5.10	2.00	0.21	5.00	0.00	0.00	0.00
5.15	2.00	0.21	5.00	0.00	0.00	0.00
5.20	2.00	0.21	5.00	0.00	0.00	0.00
5.25	2.00	0.21	5.00	0.00	0.00	0.00
5.30	2.00	0.21	5.00	0.00	0.00	0.00
5.35	2.00	0.21	5.00	0.00	0.00	0.00
5.40	2.00	0.21	5.00	0.00	0.00	0.00
5.45	2.00	0.21	5.00	0.00	0.00	0.00
5.50	2.00	0.21	5.00	0.00	0.00	0.00
5.55	2.00	0.21	5.00	0.00	0.00	0.00
5.60	2.00	0.21	5.00	0.00	0.00	0.00
5.65	2.00	0.21	5.00	0.00	0.00	0.00
5.70	2.00	0.21	5.00	0.00	0.00	0.00
5.75	2.00	0.21	5.00	0.00	0.00	0.00
5.80	2.00	0.21	5.00	0.00	0.00	0.00
5.85	2.00	0.21	5.00	0.00	0.00	0.00
5.90	2.00	0.21	5.00	0.00	0.00	0.00
5.95	2.00	0.21	5.00	0.00	0.00	0.00
6.00	2.00	0.21	5.00	0.00	0.00	0.00
6.05	2.00	0.21	5.00	0.00	0.00	0.00
6.10	2.00	0.21	5.00	0.00	0.00	0.00
6.15	2.00	0.21	5.00	0.00	0.00	0.00
6.20	2.00	0.20	5.00	0.00	0.00	0.00
6.25	2.00	0.20	5.00	0.00	0.00	0.00
6.30	2.00	0.20	5.00	0.00	0.00	0.00

8.90	0.72	0.20	5.00	0.00	0.00	0.00
8.95	0.72	0.20	5.00	0.00	0.00	0.00
9.00	0.72	0.20	5.00	0.00	0.00	0.00
9.05	0.72	0.20	5.00	0.00	0.00	0.00
9.10	0.72	0.20	5.00	0.00	0.00	0.00
9.15	0.72	0.20	5.00	0.00	0.00	0.00
9.20	0.72	0.20	5.00	0.00	0.00	0.00
9.25	0.72	0.20	5.00	0.00	0.00	0.00
9.30	0.72	0.20	5.00	0.00	0.00	0.00
9.35	0.72	0.20	5.00	0.00	0.00	0.00
9.40	0.72	0.20	5.00	0.00	0.00	0.00
9.45	0.72	0.20	5.00	0.00	0.00	0.00
9.50	0.72	0.20	5.00	0.00	0.00	0.00
9.55	0.72	0.20	5.00	0.00	0.00	0.00
9.60	0.72	0.20	5.00	0.00	0.00	0.00
9.65	0.72	0.20	5.00	0.00	0.00	0.00
9.70	0.72	0.20	5.00	0.00	0.00	0.00
9.75	0.72	0.20	5.00	0.00	0.00	0.00
9.80	0.72	0.20	5.00	0.00	0.00	0.00
9.85	0.72	0.20	5.00	0.00	0.00	0.00
9.90	0.72	0.20	5.00	0.00	0.00	0.00
9.95	0.72	0.20	5.00	0.00	0.00	0.00
10.00	0.72	0.20	5.00	0.00	0.00	0.00
10.05	0.72	0.20	5.00	0.00	0.00	0.00
10.10	0.72	0.20	5.00	0.00	0.00	0.00
10.15	0.72	0.20	5.00	0.00	0.00	0.00
10.20	0.72	0.20	5.00	0.00	0.00	0.00
10.25	0.72	0.20	5.00	0.00	0.00	0.00
10.30	0.72	0.20	5.00	0.00	0.00	0.00
10.35	0.72	0.20	5.00	0.00	0.00	0.00
10.40	0.72	0.20	5.00	0.00	0.00	0.00
10.45	0.72	0.20	5.00	0.00	0.00	0.00
10.50	0.72	0.20	5.00	0.00	0.00	0.00
10.55	0.72	0.20	5.00	0.00	0.00	0.00
10.60	0.72	0.20	5.00	0.00	0.00	0.00
10.65	0.72	0.20	5.00	0.00	0.00	0.00
10.70	0.72	0.20	5.00	0.00	0.00	0.00
10.75	0.72	0.20	5.00	0.00	0.00	0.00
10.80	0.72	0.20	5.00	0.00	0.00	0.00
10.85	0.72	0.20	5.00	0.00	0.00	0.00
10.90	0.72	0.20	5.00	0.00	0.00	0.00
10.95	0.72	0.20	5.00	0.00	0.00	0.00
11.00	0.72	0.20	5.00	0.00	0.00	0.00
11.05	0.72	0.20	5.00	0.00	0.00	0.00
11.10	0.72	0.20	5.00	0.00	0.00	0.00
11.15	0.72	0.20	5.00	0.00	0.00	0.00
11.20	0.72	0.20	5.00	0.00	0.00	0.00
11.25	0.72	0.20	5.00	0.00	0.00	0.00
11.30	0.72	0.20	5.00	0.00	0.00	0.00
11.35	0.72	0.20	5.00	0.00	0.00	0.00
11.40	0.72	0.20	5.00	0.00	0.00	0.00















44.60	2.00	0.23	5.00	0.00	0.00	0.00
44.65	2.00	0.23	5.00	0.00	0.00	0.00
44.70	2.00	0.23	5.00	0.00	0.00	0.00
44.75	2.00	0.23	5.00	0.00	0.00	0.00
44.80	2.00	0.23	5.00	0.00	0.00	0.00
44.85	2.00	0.23	5.00	0.00	0.00	0.00
44.90	2.00	0.23	5.00	0.00	0.00	0.00
44.95	2.00	0.23	5.00	0.00	0.00	0.00
45.00	2.00	0.23	5.00	0.00	0.00	0.00
45.05	2.00	0.23	5.00	0.00	0.00	0.00
45.10	2.00	0.23	5.00	0.00	0.00	0.00
45.15	2.00	0.23	5.00	0.00	0.00	0.00
45.20	2.00	0.23	5.00	0.00	0.00	0.00
45.25	2.00	0.23	5.00	0.00	0.00	0.00
45.30	2.00	0.23	5.00	0.00	0.00	0.00
45.35	2.00	0.23	5.00	0.00	0.00	0.00
45.40	2.00	0.23	5.00	0.00	0.00	0.00
45.45	2.00	0.23	5.00	0.00	0.00	0.00
45.50	2.00	0.23	5.00	0.00	0.00	0.00
45.55	2.00	0.23	5.00	0.00	0.00	0.00
45.60	2.00	0.23	5.00	0.00	0.00	0.00
45.65	2.00	0.23	5.00	0.00	0.00	0.00
45.70	2.00	0.23	5.00	0.00	0.00	0.00
45.75	2.00	0.23	5.00	0.00	0.00	0.00
45.80	2.00	0.23	5.00	0.00	0.00	0.00
45.85	2.00	0.23	5.00	0.00	0.00	0.00
45.90	2.00	0.23	5.00	0.00	0.00	0.00
45.95	2.00	0.23	5.00	0.00	0.00	0.00
46.00	2.00	0.23	5.00	0.00	0.00	0.00
46.05	2.00	0.23	5.00	0.00	0.00	0.00
46.10	2.00	0.23	5.00	0.00	0.00	0.00
46.15	2.00	0.23	5.00	0.00	0.00	0.00
46.20	2.00	0.23	5.00	0.00	0.00	0.00
46.25	2.00	0.23	5.00	0.00	0.00	0.00
46.30	2.00	0.23	5.00	0.00	0.00	0.00
46.35	2.00	0.23	5.00	0.00	0.00	0.00
46.40	2.00	0.23	5.00	0.00	0.00	0.00
46.45	2.00	0.23	5.00	0.00	0.00	0.00
46.50	2.00	0.23	5.00	0.00	0.00	0.00
46.55	2.00	0.23	5.00	0.00	0.00	0.00
46.60	2.00	0.23	5.00	0.00	0.00	0.00
46.65	2.00	0.23	5.00	0.00	0.00	0.00
46.70	2.00	0.23	5.00	0.00	0.00	0.00
46.75	2.00	0.23	5.00	0.00	0.00	0.00
46.80	2.00	0.23	5.00	0.00	0.00	0.00
46.85	2.00	0.23	5.00	0.00	0.00	0.00
46.90	2.00	0.23	5.00	0.00	0.00	0.00
46.95	2.00	0.23	5.00	0.00	0.00	0.00
47.00	2.00	0.23	5.00	0.00	0.00	0.00
47.05	0.69	0.23	3.00	0.00	0.00	0.00
47.10	0.69	0.23	3.00	0.00	0.00	0.00

49.70	0.69	0.23	3.00	0.00	0.00	0.00
49.75	0.69	0.23	3.00	0.00	0.00	0.00
49.80	0.69	0.23	3.00	0.00	0.00	0.00
49.85	0.69	0.23	3.00	0.00	0.00	0.00
49.90	0.69	0.23	3.00	0.00	0.00	0.00
49.95	0.69	0.23	3.00	0.00	0.00	0.00
50.00	0.69	0.23	3.00	0.00	0.00	0.00

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\* F.S.<1, Liquefaction Potential Zone  
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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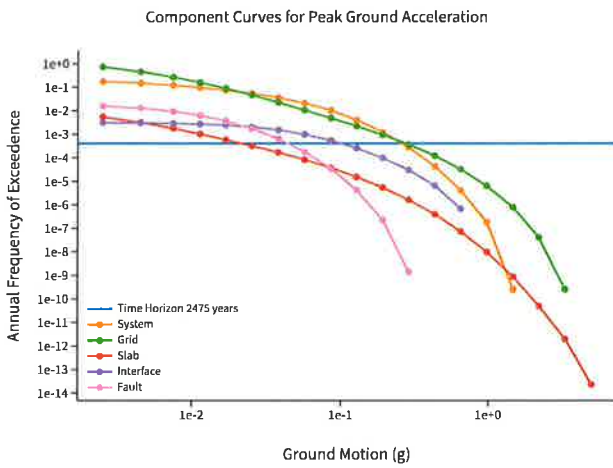
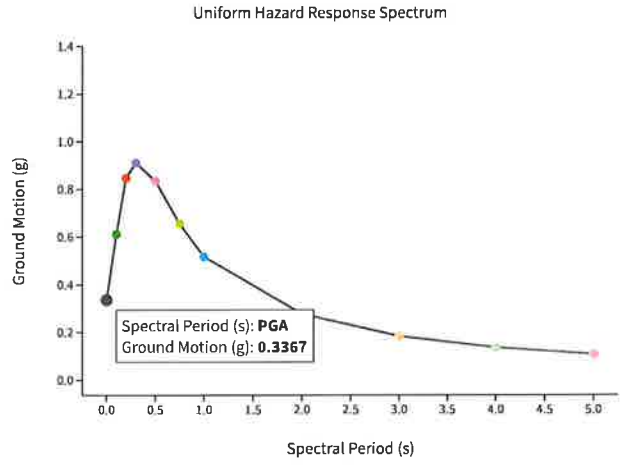
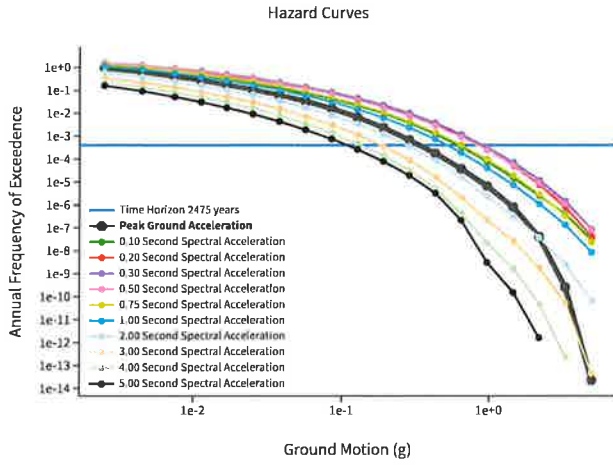
1 atm (atmosphere) = 1 tsf (ton/ft<sup>2</sup>)  
CRRm                   Cyclic resistance ratio from soils  
CSRsf                   Cyclic stress ratio induced by a given earthquake (with user  
request factor of safety)  
F.S.                    Factor of Safety against liquefaction, F.S.=CRRm/CSRsf  
S\_sat                   Settlement from saturated sands  
S\_dry                   Settlement from Unsaturated Sands  
S\_all                    Total Settlement from Saturated and Unsaturated Sands  
NoLiq                   No-Liquefy Soils

**DISCLAIMER**

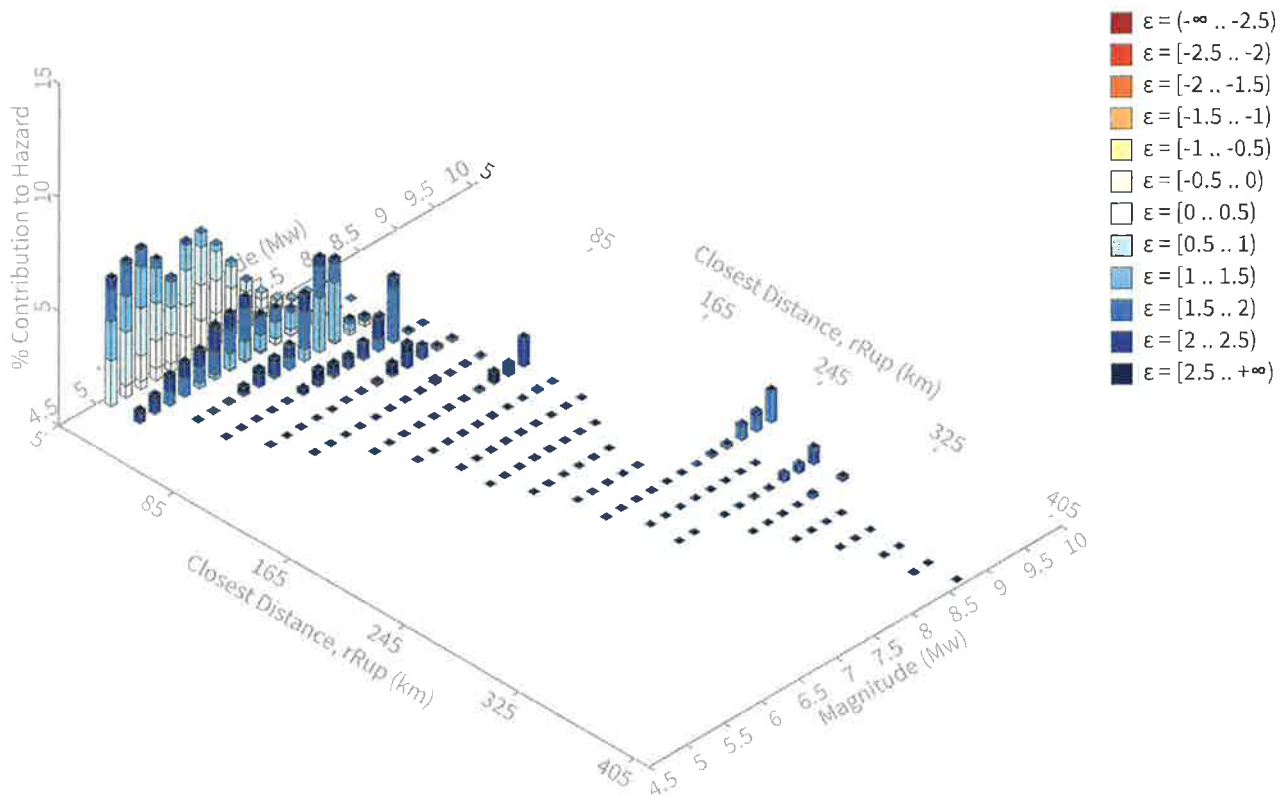
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### ^ Hazard Curve



[View Raw Data](#)



## Deaggregation Contributors

Source Set	Source	Type	r	m	$\epsilon_0$	lon	lat	az	%
UC33brAvg_FM32 (opt)		Grid							32.72
	PointSourceFinite: -121.464, 38.574		6.70	5.68	0.30	121.464°W	38.574°N	0.00	2.64
	PointSourceFinite: -121.464, 38.574		6.70	5.68	0.30	121.464°W	38.574°N	0.00	2.64
	PointSourceFinite: -121.464, 38.592		7.95	5.74	0.46	121.464°W	38.592°N	0.00	1.63
	PointSourceFinite: -121.464, 38.592		7.95	5.74	0.46	121.464°W	38.592°N	0.00	1.62
	PointSourceFinite: -121.464, 38.610		9.31	5.79	0.61	121.464°W	38.610°N	0.00	1.34
	PointSourceFinite: -121.464, 38.610		9.31	5.79	0.61	121.464°W	38.610°N	0.00	1.33
	PointSourceFinite: -121.464, 38.673		14.49	6.00	1.04	121.464°W	38.673°N	0.00	1.28
	PointSourceFinite: -121.464, 38.673		14.49	6.00	1.04	121.464°W	38.673°N	0.00	1.28
	PointSourceFinite: -121.464, 38.646		12.21	5.91	0.87	121.464°W	38.646°N	0.00	1.16
	PointSourceFinite: -121.464, 38.646		12.21	5.91	0.87	121.464°W	38.646°N	0.00	1.16
UC33brAvg_FM31 (opt)		Grid							32.53
	PointSourceFinite: -121.464, 38.574		6.69	5.68	0.30	121.464°W	38.574°N	0.00	2.64
	PointSourceFinite: -121.464, 38.574		6.69	5.68	0.30	121.464°W	38.574°N	0.00	2.64
	PointSourceFinite: -121.464, 38.592		7.95	5.74	0.46	121.464°W	38.592°N	0.00	1.63
	PointSourceFinite: -121.464, 38.592		7.95	5.74	0.46	121.464°W	38.592°N	0.00	1.62
	PointSourceFinite: -121.464, 38.610		9.31	5.79	0.60	121.464°W	38.610°N	0.00	1.34
	PointSourceFinite: -121.464, 38.610		9.31	5.79	0.60	121.464°W	38.610°N	0.00	1.33
	PointSourceFinite: -121.464, 38.673		14.49	6.00	1.04	121.464°W	38.673°N	0.00	1.28
	PointSourceFinite: -121.464, 38.673		14.49	6.00	1.04	121.464°W	38.673°N	0.00	1.28
	PointSourceFinite: -121.464, 38.646		12.21	5.91	0.87	121.464°W	38.646°N	0.00	1.16
	PointSourceFinite: -121.464, 38.646		12.21	5.91	0.87	121.464°W	38.646°N	0.00	1.16
UC33brAvg_FM31		System							15.35
	Great Valley 04a Trout Creek [2]		48.75	7.11	1.49	122.013°W	38.526°N	269.18	4.15
	Hunting Creek - Berryessa [0]		67.51	7.43	2.06	122.223°W	38.415°N	258.97	1.75
	Great Valley 06 (Midland) alt1 [0]		34.21	6.85	1.65	121.809°W	38.388°N	241.79	1.46
UC33brAvg_FM32		System							14.13
	Great Valley 04a Trout Creek [2]		48.75	7.22	1.38	122.013°W	38.526°N	269.18	4.32
	Hunting Creek - Berryessa [0]		67.51	7.43	2.05	122.223°W	38.415°N	258.97	1.70
sub0_ch_bot.in		Interface							2.73
	Cascadia Megathrust - whole CSZ Characteristic		245.89	9.14	1.83	122.945°W	40.376°N	328.63	2.73
sub0_ch_mid.in		Interface							1.34
	Cascadia Megathrust - whole CSZ Characteristic		287.71	8.95	2.16	123.829°W	40.347°N	315.53	1.34

# OAK RIDGE ELEMENTARY SCHOOL CAMPUS REPLACEMENT INCREMENT NO. 1

4501 MARTIN LUTHER KING JR. BLVD.  
SACRAMENTO, CA 95820

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

INCREMENT No. 1  
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

OAK RIDGE ELEMENTARY  
CAMPUS REPLACEMENT  
INCREMENT NO. 1  
4501 Martin Luther King Jr. Blvd.  
Sacramento, CA 95820  
SACRAMENTO UNIFIED SCHOOL DISTRICT



REVISIONS	NO.	DATE	BY	APP. BY
DATE: 5/26/2023			JOB NO.: Y2235 00	
SHEET TITLE				
COVER SHEET				
SHEET NO.				
G000				

ONE INCH = TWENTY FEET  
ONE QUARTER INCH = ONE FOOT  
ONE HALF INCH = TWO FEET  
ONE INCH = FOUR FEET  
ONE AND A HALF INCH = SIX FEET  
TWO INCH = EIGHT FEET  
THREE INCH = TEN FEET  
FOUR INCH = TWELVE FEET  
FIVE INCH = FIFTEEN FEET  
SIX INCH = TWENTY FEET  
EIGHT INCH = TWENTY-SEVEN FEET  
TEN INCH = THIRTY FEET  
TWELVE INCH = THIRTY-SIX FEET  
FOURTEEN INCH = FORTY-TWO FEET  
SIXTEEN INCH = FORTY-EIGHT FEET  
EIGHTEEN INCH = FIFTY-FOUR FEET  
TWO FEET = SEVENTY-TWO FEET  
THREE FEET = NINETY FEET  
FOUR FEET = ONE HUNDRED TWENTY FEET  
FIVE FEET = ONE HUNDRED FIFTY FEET  
SIX FEET = ONE HUNDRED EIGHTY FEET  
EIGHT FEET = ONE HUNDRED TWENTY FEET  
TEN FEET = ONE HUNDRED FIFTY FEET  
TWELVE FEET = ONE HUNDRED EIGHTY FEET  
FOURTEEN FEET = TWO HUNDRED TEN FEET  
SIXTEEN FEET = TWO HUNDRED FORTY FEET  
EIGHTEEN FEET = TWO HUNDRED SEVENTY FEET  
TWO FEET = SEVENTY-TWO FEET  
THREE FEET = NINETY FEET  
FOUR FEET = ONE HUNDRED TWENTY FEET  
FIVE FEET = ONE HUNDRED FIFTY FEET  
SIX FEET = ONE HUNDRED EIGHTY FEET

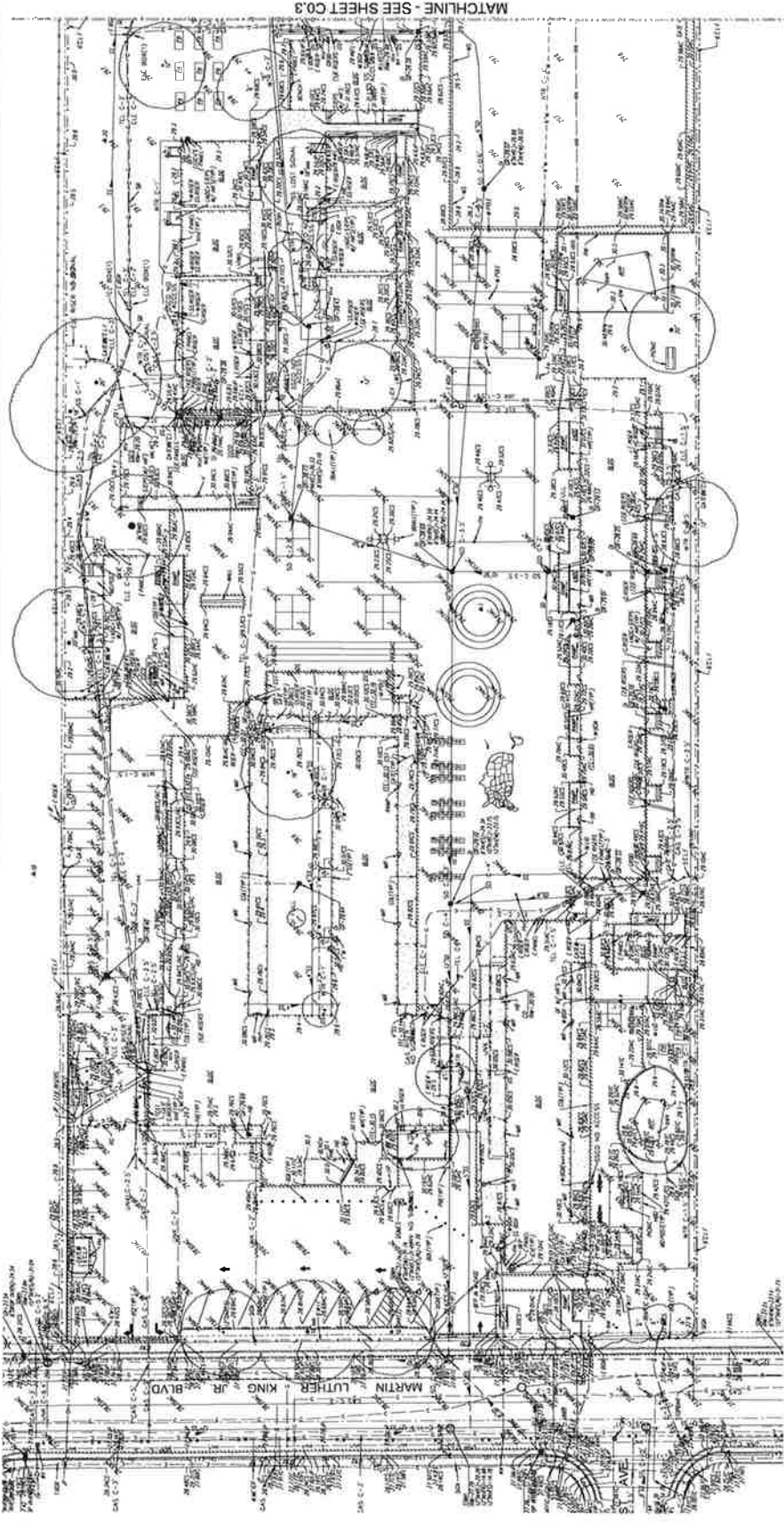
<p><b>FEMA FLOOD HAZARD MAP</b></p> <p><small>SITE IS NOT WITHIN AN SPECIAL FLOOD-HAZARD AREA.</small></p>	<p><b>GENERAL NOTES</b></p> <ol style="list-style-type: none"> <li>CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE SITE AND SHALL REPORT ANY DISCREPANCIES IN WRITING TO THE ARCHITECT FOR APPROVAL BEFORE PROCEEDING WITH THE CONSTRUCTION.</li> <li>SPECIFIC ITEMS NOTED TO BE VERIFIED ON FIELD VERIFIED ARE REQUIRED TO BE VERIFIED PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH THE WORK.</li> <li>CONTRACTOR IS RESPONSIBLE FOR ALL INCIDENTAL WORK NECESSARY TO COMPLETE THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING: OBTAINING AND OBTAINING NECESSARY PERMITS, OBTAINING NECESSARY PERMITS, AND OBTAINING NECESSARY PERMITS.</li> <li>THE EXISTING FACILITY HAS LEAD CONTAMINATING MATERIAL IN VARIOUS LOCATIONS. CONTRACTOR SHALL NOTIFY ALL PERSONNEL OF THESE LOCATIONS AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THESE LOCATIONS AND THE PROTECTION OF ALL PERSONNEL FROM THESE LOCATIONS. CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS AND PROCEDURES FOR LEAD ABATEMENT AND PROTECTION.</li> <li>ALL WORK MATERIALS, METHODS, ETC. SHALL CONFORM TO ALL GOVERNING BUILDING CODES AND REGULATIONS.</li> <li>ANY CONFLICT BETWEEN THESE PLANS AND EXISTING CONDITIONS SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION IMMEDIATELY.</li> <li>WORK SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME. WORK SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.</li> <li>USE OF ANY NEW MATERIALS CONTAINING LEAD OR ASBESTOS IS PROHIBITED.</li> <li>DETAILS, MATERIALS AND SCOPE OF WORK SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS UNLESS SPECIFICALLY NOTED OTHERWISE.</li> <li>THE TEMPORARY OR TEMPORARY SHALL BE CONSIDERED TO BEAN APPLICANT TO ALL LIKE OR SIMILAR CONDITIONS IN THE PROJECT UNLESS SPECIFICALLY NOTED OTHERWISE.</li> </ol>
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<p><b>GENERAL SCOPE OF WORK</b></p> <ul style="list-style-type: none"> <li>DEMOLITION OF ALL EXISTING BUILDINGS, PAVING, LANDSCAPING ABOVE AND BELOW GRADE UTILITIES AND REJECT PERMETER FENCING.</li> <li>ROUGH GRADING AND SUBGRADE OF EARTH BUILDING PADS.</li> <li>CONSTRUCTION OF PARTITIONS OF NEW SITE UTILITIES, CURB &amp; CUTTERS, WALKWAYS, PAVING AND FENCING.</li> <li>CONSTRUCTION OF SITE DEVELOPMENT WORK.</li> <li>COMPLETION OF ALL BUILDINGS.</li> <li>COMPLETION OF PAVING AROUND BUILDINGS.</li> <li>COMPLETION OF LANDSCAPING AND FENCING.</li> <li>CONSTRUCTION OF THE WATER SUPPLY AND BUILDING FIRE SPRINKLER SYSTEM.</li> </ul>	<p><b>APPLICABLE CODES</b></p> <p>ALL WORK SHALL CONFORM TO THE FOLLOWING AND ALL OTHER APPLICABLE CODES AND ORDINANCES:</p> <ul style="list-style-type: none"> <li>2022 CALIFORNIA BUILDING STANDARDS COMPREHENSIVE CODE PART 1, TITLE 24, C.C.R.</li> <li>2022 CALIFORNIA ELECTRICAL CODE (C.E.C.) PART 7, TITLE 24, C.C.R.</li> <li>2022 CALIFORNIA PLUMBING CODE (C.P.C.) PART 7, TITLE 24, C.C.R.</li> <li>2022 CALIFORNIA FIRE CODE (C.F.C.) PART 7, TITLE 24, C.C.R.</li> <li>2022 CALIFORNIA OVERHEAD TRANSMISSION AND DISTRIBUTION CODE (C.O.T.D.C.) PART 7, TITLE 24, C.C.R.</li> <li>2018 ELEVATOR SAFETY CODES, PART 8, CHAPTER 2, SUBCHAPTER 1, TITLE 24, C.C.R.</li> <li>2022 NFPA 13 THE INSTALLATION OF AUTOMATIC SPRINKLER SYSTEMS AS AMENDED.</li> <li>2018 NFPA 25 CALIFORNIA EDITION INSP., TEST &amp; MAINT. OF WATERBASED FIRE FIGHTING SYSTEMS.</li> <li>2018 NFPA 22 INSTALLATION OF PRIVATE FIRE SMOKE ALARMS AND THEIR PART EXCHANGES.</li> <li>2018 NFPA 25 CALIFORNIA EDITION INSP., TEST &amp; MAINT. OF WATERBASED FIRE FIGHTING SYSTEMS.</li> <li>2018 NFPA 22 INSTALLATION OF STATIONARY RAINMATS FOR FIRE PROTECTION.</li> </ul> <p>CONTRACTOR SHALL COMPLY WITH CITY CHAPTER 33 - FIRE SAFETY DURING DEMOLITION &amp; CONSTRUCTION.</p>
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<p><b>GENERAL</b></p> <p>COVER SHEET GENERAL NOTES &amp; ABBREVIATIONS TOPOGRAPHIC SURVEY DEMOLITION PLAN GRADING PLAN LANDSCAPE IRIGATION PLAN DOMESTIC WATER &amp; FIRE PROTECTION PLAN PAVING PLAN STRIPING &amp; SIGNAGE PLAN FENCING PLAN EROSION CONTROL PLAN DETAILS &amp; SECTIONS DETAILS &amp; SECTIONS DETAILS &amp; SECTIONS LANDSCAPING LANDSCAPE IRIGATION PLAN LANDSCAPE IRIGATION PLAN LANDSCAPE IRIGATION PLAN</p>	<p><b>VICINITY MAP</b></p>	<p><b>PROJECT TEAM</b></p> <p>MECHANICAL ENGINEER SACRAMENTO, CA 95816 CONTACT: JASON MCKEAN MECHANICAL ENGINEER SACRAMENTO, CA 95816 CONTACT: KYLE DAVIS MECHANICAL ENGINEER SACRAMENTO, CA 95816 CONTACT: KYLE DAVIS MECHANICAL ENGINEER SACRAMENTO, CA 95816 CONTACT: KYLE DAVIS MECHANICAL ENGINEER SACRAMENTO, CA 95816 CONTACT: KYLE DAVIS MECHANICAL ENGINEER SACRAMENTO, CA 95816 CONTACT: KYLE DAVIS</p>
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<p><b>DEFERRED APPROVAL ITEMS</b></p> <p>INSTALLATION OF REFERRED APPROVAL ITEMS SHALL NOT BE STARTED UNTIL CONTRACTOR'S SUBMITTALS FOR REFERRED APPROVAL ITEMS HAVE BEEN ACCEPTED AND SIGNED BY THE ARCHITECT OR ENGINEER, AND APPROVED BY THE APPROPRIATE APPROVING JURISDICTION. THE FOLLOWING ARE DEFERRED APPROVAL ITEMS FOR PART OF THIS SUBAPPLICATION.</p> <p>1. NONE</p>	<p><b>CONTRACTOR SHALL COMPLY WITH CITY CHAPTER 33 - FIRE SAFETY DURING DEMOLITION &amp; CONSTRUCTION.</b></p>
---	--



DATE: 02/25/23  
 DRAWN BY: J. J. JONES  
 CHECKED BY: J. J. JONES  
 APP. 02-252023 INC. 01  
 SACRAMENTO, CALIFORNIA

INCREMENT No. 1  
 SACRAMENTO UNIFIED SCHOOL DISTRICT  
 4501 Martin Luther King Jr. Boulevard  
 Sacramento, CA 95820  
**CAMPUS REPLACEMENT  
 INCREMENT No. 1**



**nacht & lewis**  
 ARCHITECTS  
 600 S Street, Suite 100  
 Sacramento, CA 95811  
 www.nachtandlewis.com  
 916.442.4000



REVISIONS

NO.	DESCRIPTION	DATE

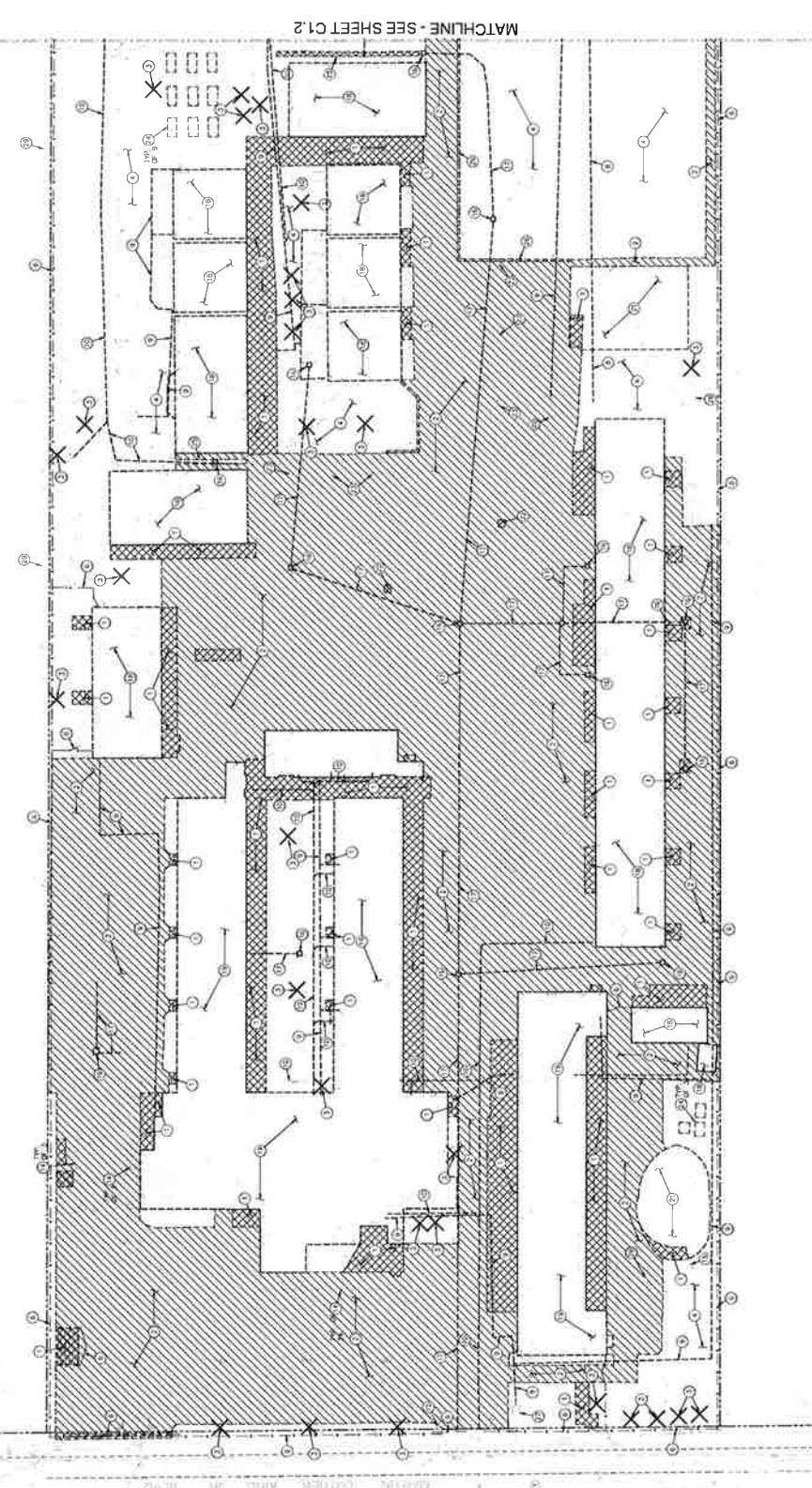
DATE: 5/28/2023  
 JOB NO.: Y225100  
 SHEET TITLE

TOPOGRAPHIC SURVEY

SHEET NO. **C0.2**



FILE NAME: 1133-119300-CA-UMCC-23-101-001-C02-002.DWG



MATCHLINE - SEE SHEET C1.2

APPROPRIATE FOR THE PROJECT  
 DATE: 11/20/18  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]

INCREMNT No. 1

OAK RIDE ELEMENTARY  
 CAMPUS REPLACEMENT  
 INCREMNT No. 1  
 4501 Martha Luther King Jr. Boulevard  
 Sacramento, CA 95820  
 SACRAMENTO UNIFIED SCHOOL DISTRICT



nacht & lewis  
 800 Q Street, Suite 100  
 Sacramento, CA 95811  
 916.442.4000

REVISIONS	DATE
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	5/26/2023

JOB NO.: Y22355.DD  
 SHEET TITLE  
 DEMOLITION PLAN

SHEET NO.  
 C1.1

- #### DEMOLITION NOTES
1. REMOVE AND DISPOSE OF EXISTING CONCRETE SLAB AS A RAY STRAIGHT LINE, MAINTAIN CLEAN STRAIGHT CUT EDGE. (SEE PAVING SCHEDULE)
  2. REMOVE AND DISPOSE OF EXISTING FLOORING, FLOORING STRIPS AND UNDERLAYMENT (SEE PAVING SCHEDULE) TO 2" BELOW FINISH FLOOR AND ASSOCIATED CONCRETE BASE, SLOTTED JOINTS SHALL BE REPAIRED WITH MATCHING CONCRETE. (SEE PAVING SCHEDULE)
  3. REMOVE AND DISPOSE OF EXISTING TIE BEAM AND ASSOCIATED CONCRETE.
  4. REMOVE AND DISPOSE OF EXISTING LIP AND ASSOCIATED CONCRETE. (SEE PAVING SCHEDULE)
  5. REMOVE AND DISPOSE OF EXISTING SHANK LAM FENCING, POSTS AND ASSOCIATED FOOTINGS.
  6. REMOVE AND DISPOSE OF EXISTING IRRIGATION PIPE AND ASSOCIATED SPRINKLER.
  7. REMOVE AND DISPOSE OF EXISTING WATER PIPE TO EXISTING SINK.
  8. REMOVE AND DISPOSE OF EXISTING SINK AND ASSOCIATED FOOTINGS.
  9. REMOVE AND DISPOSE OF EXISTING BOLLARD AND ASSOCIATED FOOTINGS.
  10. REMOVE AND DISPOSE OF EXISTING SIGN, POST AND ASSOCIATED FOOTINGS.
  11. REMOVE AND DISPOSE OF EXISTING DRAINAGE INLET.
  12. REMOVE AND DISPOSE OF EXISTING STORM DRAIN PIPE TO EXISTING SHOW.
  13. REMOVE AND DISPOSE OF EXISTING OBSERVATION ELEVATOR FOUNDATIONS STAND AND MAINTAIN EXISTING UTILITIES BLACK TO SERVICE POINT AT TO SOIL LIMITS OF WORK.
  14. REMOVE AND DISPOSE OF EXISTING CONCRETE WALEWAYS, COLUMNS AND ASSOCIATED TOWER JACKING.
  15. REMOVE AND DISPOSE OF EXISTING FIRE HYDRANT.
  16. REMOVE AND DISPOSE OF EXISTING FLY APPARATUS, FOOTINGS, BARK AND CURB.
  17. REMOVE AND DISPOSE OF EXISTING BASKETBALL STANDARD, POST AND ASSOCIATED FOOTINGS.
  18. REMOVE AND DISPOSE OF EXISTING PULL AND ASSOCIATED FOOTINGS.
  19. REMOVE AND DISPOSE OF EXISTING PLASTER BBS.
  20. REMOVE AND DISPOSE OF EXISTING CONCRETE WALLS CUTTING.
  21. REMOVE AND DISPOSE OF EXISTING CONCRETE VIBRA STW.
  22. EXISTING WATER METER SPACES TO REMAIN.
  23. REMOVE AND DISPOSE OF EXISTING WALL.
  24. EXISTING ORNAMENTAL FENCING TO REMAIN.







INCREMENT No. 1

OAK RIDGE ELEMENTARY  
 CAMPUIS REPLACEMENT  
 INCREMENT NO. 1  
 4501 Martin Luther King Jr. Boulevard  
 Sacramento, CA 95820  
 SACRAMENTO UNIFIED SCHOOL DISTRICT



nacht & lewis  
 500 O Street, Suite 100  
 Sacramento, CA 95811  
 916.229.4000



NO.	REVISIONS	DATE

DATE: 5/26/2023  
 JCR NO.: Y2235-00  
 SHEET TITLE

GRADING PLAN

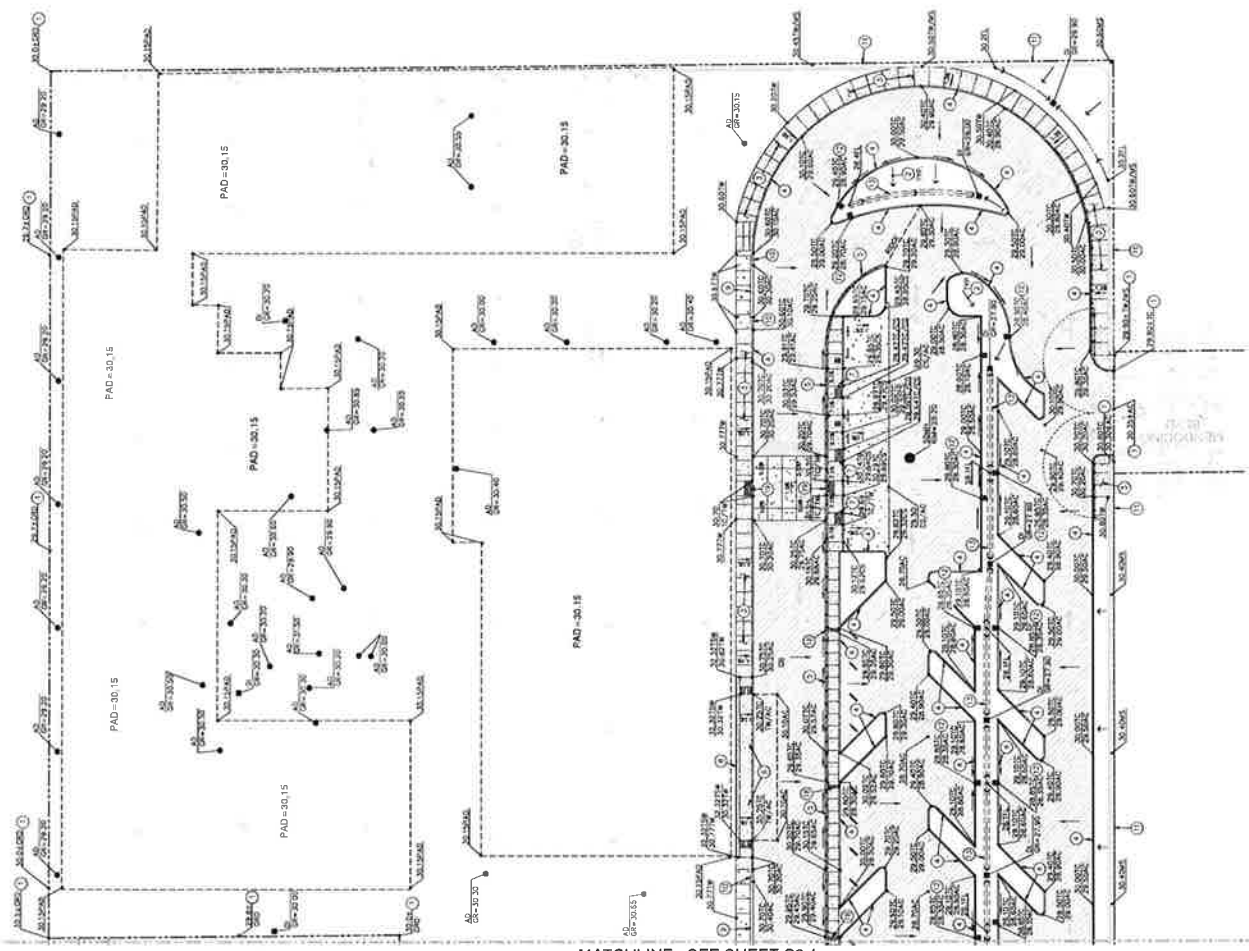
SHEET NO.

C2.2



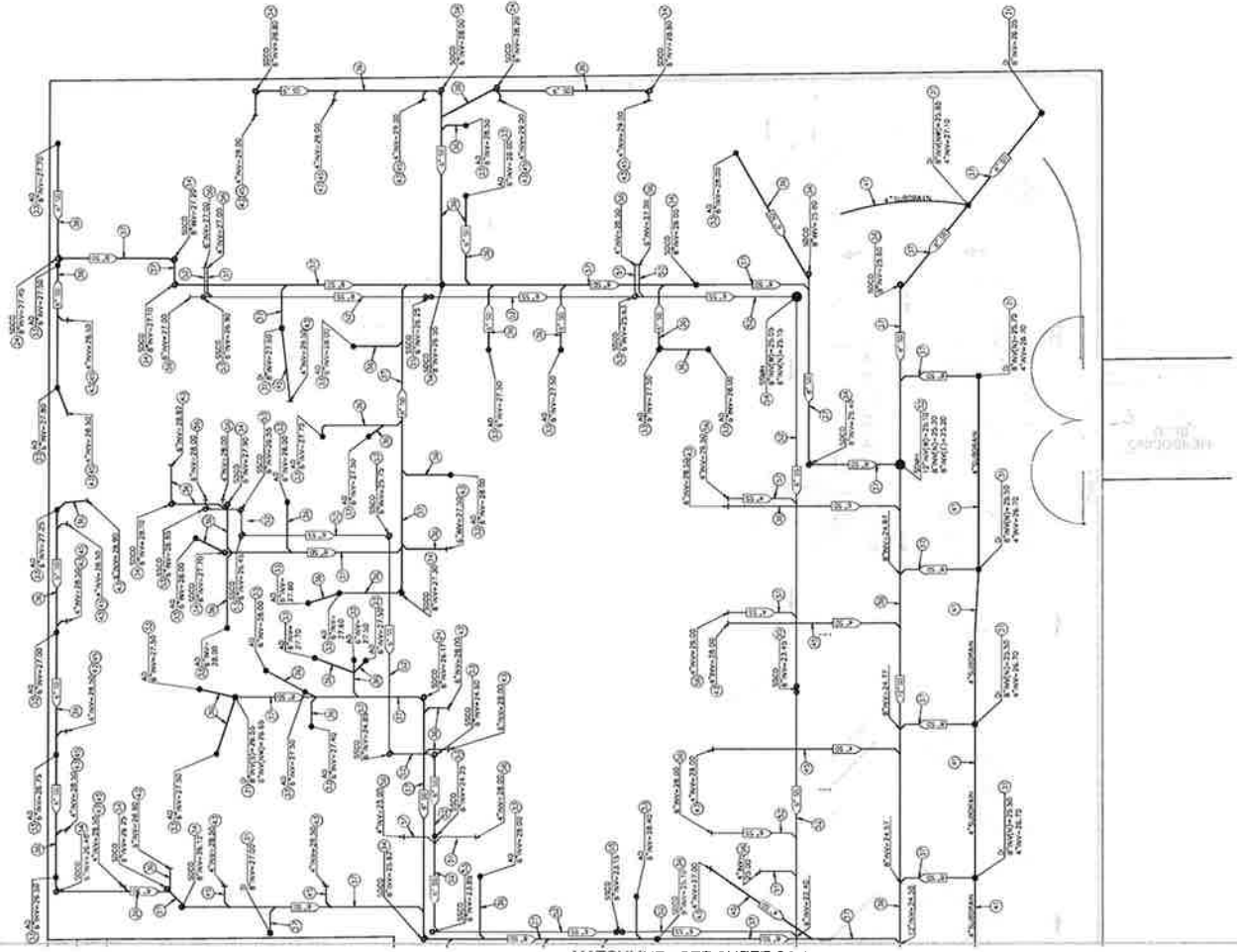
FILE NAME: \A:\P\10000\CAMPUIS\23\100-C2.1-GRD.DWG

- GRADING NOTES**
1. MATCH EXISTING GRAB/ELEVATION.
  2. GRADE UNIFORM TO INLET AND/OR SHALE.
  3. CONSTRUCT CONCRETE SIDEWALK PER 100' MINIMUM.
  4. CONSTRUCT CONCRETE CURB PER 100' MINIMUM.
  5. CONSTRUCT 12" WIDE CONCRETE CURB WITH 2" FINISH.
  6. CONSTRUCT 40' WIDE ACCESSIBLE (LOADING/UNLOADING) FORK LIFT.
  7. CONSTRUCT ACCESSIBLE CURB RAMP PER 100' MINIMUM.
  8. CONSTRUCT CONCRETE SEAT WALL PER 100' MINIMUM.
  9. CONSTRUCT ROLLS CURB AT SIDEWALK PER 100' MINIMUM.
  10. TRANSITION FROM VERTICAL TO ROLLED CURB.
  11. CONSTRUCT 12" WIDE CONCRETE WALK PER 100' MINIMUM.
  12. CONSTRUCT SLOTTED CURB PER 100' MINIMUM.
  13. CONSTRUCT 12" WIDE GRASS LINED SHALE WITH 2" FINISH.
  14. CONSTRUCT 12" WIDE OPENING IN CURB TO ALLOW DRAINAGE.
  15. CONSTRUCT MOUNT SIDEWALK CURB PER 100' MINIMUM.
  16. PLACE TYPED/STAMPED POINTS PER 100' MINIMUM.





ONE INCH = TWENTY FEET  
 ONE SIXTEEN INCH = ONE FOOT  
 ONE EIGHT INCH = ONE FOOT  
 ONE QUARTER INCH = ONE FOOT  
 ONE HALF INCH = ONE FOOT  
 THREE QUARTERS INCH = ONE FOOT  
 ONE AND ONE HALF INCH = ONE FOOT



MATCHLINE - SEE SHEET C3.1

- DRAINAGE NOTES**
1. CONSTRUCT 8\"/>
- SEWER NOTES**
1. PLACE 4\"/>



INCREMENT No. 1  
 SEWER REPLACEMENT  
 OAK RIDGE ELEMENTARY

OAK RIDGE ELEMENTARY  
 CAMPUIS REPLACEMENT  
 INCREMENT No. 1  
 4501 MainLander Court, Berkeley  
 SACRAMENTO UNIFIED SCHOOL DISTRICT  
 CA 95820



nacht lewis  
 500 O Street, Suite 100  
 Sacramento, CA 95811  
 (916) 442-4000



NO.	REVISIONS	DATE	BY

DATE: 5/28/2023  
 JOB NO.: Y2235.00  
 SHEET TITLE: DRAINAGE AND SEWER PLAN  
 SHEET NO.: C3.2

GRAPHIC SCALE  
 1" = 10' (VERTICAL)  
 1" = 10' (HORIZONTAL)  
 THE DIMENSIONS AND TOLERANCES SHALL BE AS NOTED



INCREMNT NO. 1  
 OAK RIDGE ELEMENTARY  
 CAMPUS REPLACEMENT

OAK RIDGE ELEMENTARY  
 CAMPUS REPLACEMENT  
 INCREMNT NO. 1  
 4501 Martin Luther King Jr. Boulevard  
 Sacramento, CA 95820  
 SACRAMENTO UNIFIED SCHOOL DISTRICT



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 500 O Street, Suite 100  
 Sacramento, CA 95811  
 916.452.4000



REVISIONS	DATE	DESCRIPTION

DATE: 5/26/2023  
 JOB NO.: Y2235.00  
 SHEET TITLE:

DOMESTIC WATER AND  
 FIRE PROTECTION PLAN

SHEET NO.

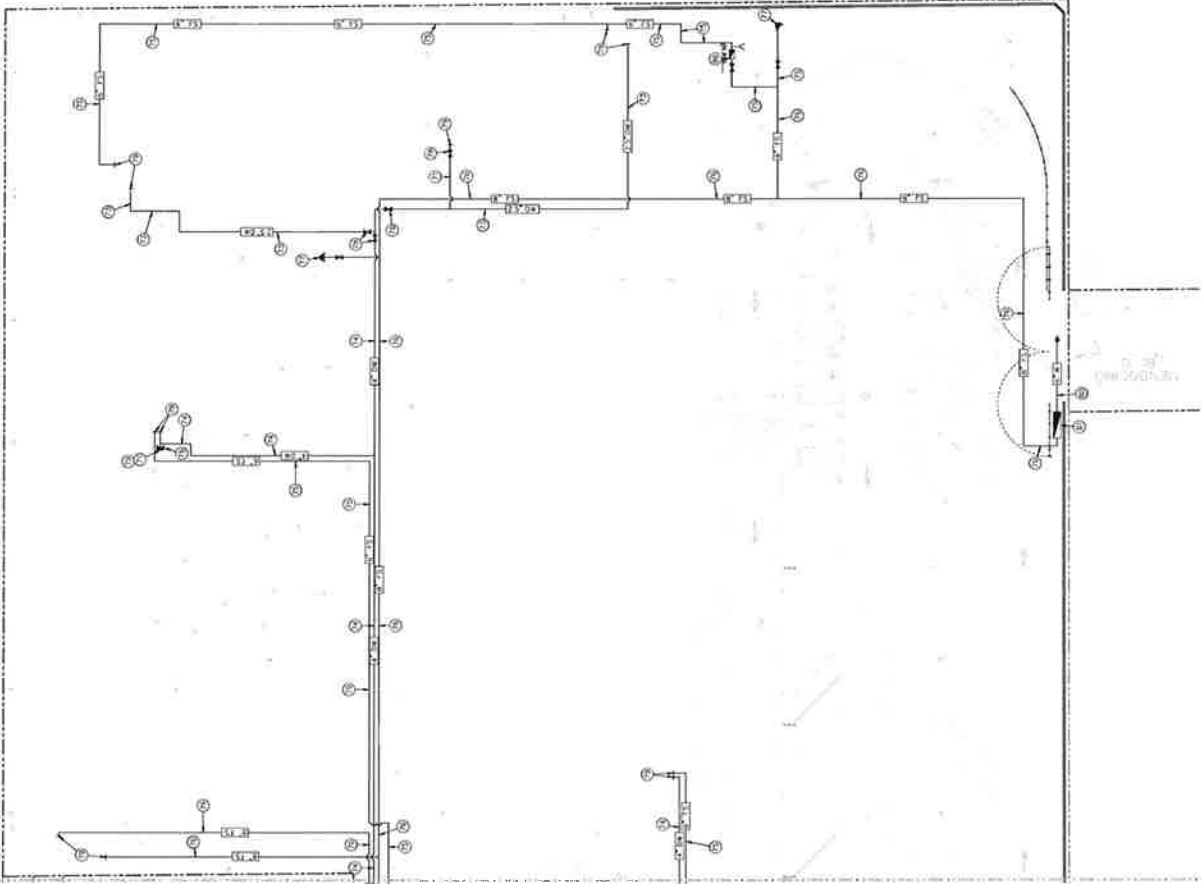
C4.2

GENERAL THRUST BLOCK NOTE

1. ALL JOINTS AND BENDS ON WATER MAINS 4" OR LARGER SHALL BE PROTECTED WITH THURST BLOCKS PER DETAIL.

○ WATER NOTES

1. PLACE 1" WATER PEX
2. PLACE 3" WATER PEX
3. PLACE 3" WATER PEX
4. PLACE 4" WATER PEX
5. PLACE 4" WATER PEX
6. PLACE 6" WATER PEX
7. PLACE 6" WATER PEX
76. PLACE SATE VALVE AND FAUCET BOX SIZE TO MATCH LINE SIZE.
79. CAP END AND MARK FOR FUTURE CONNECTION.
80. INSTALL 3/4" SITE IMPROVEMENT PLANS FOR CONTINUATION.
81. CONTRACTOR SHALL FINISH, INSTALL AND TEST AN 8" FIRE DEPARTMENT CONNECTION. POST FIRE DEPARTMENT CONNECTION SHALL BE IDENTIFIED WITH FAUCET PROTECTION AND PER CITY OF SACRAMENTO PER SEC. 16C.110.000 80-510.
82. CONNECT TO EXISTING EXTERIOR DOMESTIC WATER CONNECTION. PROVIDE ALL FITTINGS NECESSARY TO MAKE CONNECTION.
83. CONSULT FIRE DEPARTMENT CONNECTION POST VALVE. COORDINATE FAUCET SWITCH CONNECTION TO FIRE ALARM WITH ELECTRICAL PLANS.



MATCHLINE - SEE SHEET C4.2



FILENAME: Y2235.00-DWG-196629-116-C4.2-C4.2.rvt



STATE OF CALIFORNIA  
 DIVISION OF WATER RESOURCES  
 WATER CONTROL DIVISION  
 1801 WILSON AVENUE, SUITE 200  
 SACRAMENTO, CALIFORNIA 95811  
 TEL: 916/227-2200

CAMP ROSE ELEMENTARY  
 CAMPUS REPLACEMENT  
 INCREMENT NO. 1  
 4501 Main Street, Sacramento, CA 95820

CAMPUS REPLACEMENT  
 INCREMENT NO. 1  
 4501 Main Street, Sacramento, CA 95820  
 SACRAMENTO UNIFIED SCHOOL DISTRICT

WATER CONTROL DIVISION  
 SACRAMENTO  
 DIVISION OF WATER RESOURCES  
 STATE OF CALIFORNIA

W.C. Nacht & Lewis  
 800 O Street, Suite 1300  
 Sacramento, CA 95811  
 (916) 339-0000

DATE: 5/26/2023  
 JOB NO.: Y2353.00  
 SHEET TITLE:  
 EROSION CONTROL PLAN  
 SHEET NO. \_\_\_\_\_

PROJECT INFORMATION  
 438 ACRES  
 10% DISTURBED AREA  
 6.58% REQUIRED

RSK LEVEL 2

PROJECT INFORMATION

438 ACRES  
 10% DISTURBED AREA  
 6.58% REQUIRED

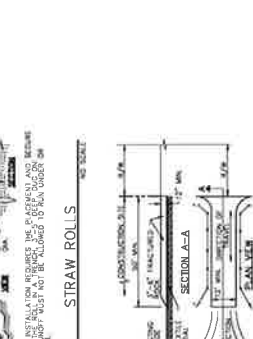
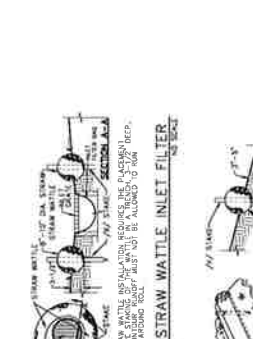
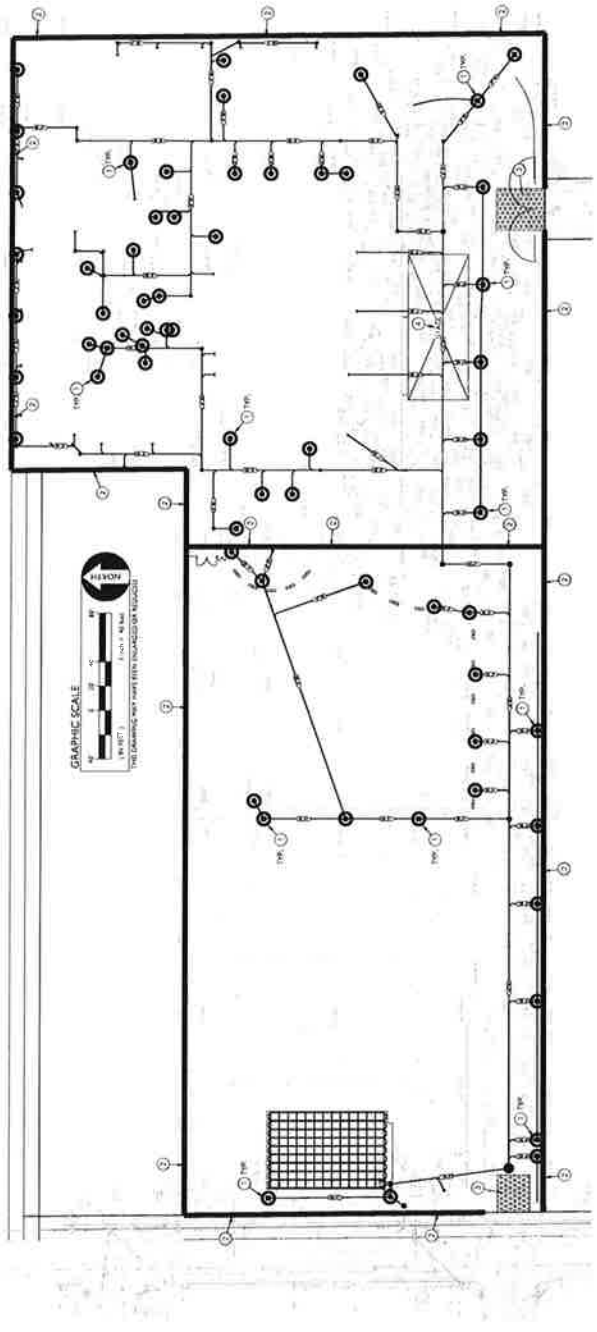
**EROSION CONTROL NOTES:**  
 1. CONTRACTOR SHALL PROVIDE STRAW BATTLE BARRIERS AT ALL EXPOSED SOIL AREAS. STRAW BATTLE BARRIERS SHALL BE IN PLACE PRIOR TO ANY EROSION CONTROL MEASURES.  
 2. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW BATTLE BARRIERS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
 3. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW BATTLE BARRIERS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
 4. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW BATTLE BARRIERS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

**EROSION AND SEDIMENT CONTROL GENERAL NOTES**  
 1. CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS IN SECTION 8 AND 9 OF THE EROSION CONTROL PLAN.  
 2. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW BATTLE BARRIERS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
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**STRAW BATTLE BARRIERS**  
 1. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW BATTLE BARRIERS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
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 4. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW BATTLE BARRIERS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

**STRAW ROLL INSTALLATION**  
 1. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW ROLLS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
 2. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW ROLLS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
 3. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW ROLLS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
 4. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW ROLLS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

**CONSTRUCTION SCHEDULE**  
 1. WEEKLY INSPECTIONS  
 2. WEEKLY INSPECTIONS  
 3. WEEKLY INSPECTIONS  
 4. WEEKLY INSPECTIONS  
 5. WEEKLY INSPECTIONS



**NOTES:**  
 1. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW BATTLE BARRIERS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
 2. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW BATTLE BARRIERS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
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**EROSION CONTROL PLAN**  
 1. CONTRACTOR SHALL MAINTAIN ALL EXPOSED SOIL AREAS COVERED AT ALL TIMES. STRAW BATTLE BARRIERS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.  
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DATE	BY	REVISIONS
01/15/23	WCL	ISSUED FOR PERMIT
02/15/23	WCL	ISSUED FOR PERMIT
03/15/23	WCL	ISSUED FOR PERMIT
04/15/23	WCL	ISSUED FOR PERMIT
05/15/23	WCL	ISSUED FOR PERMIT
06/15/23	WCL	ISSUED FOR PERMIT
07/15/23	WCL	ISSUED FOR PERMIT
08/15/23	WCL	ISSUED FOR PERMIT
09/15/23	WCL	ISSUED FOR PERMIT
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11/15/23	WCL	ISSUED FOR PERMIT
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10/15/24	WCL	ISSUED FOR PERMIT
11/15/24	WCL	ISSUED FOR PERMIT
12/15/24	WCL	ISSUED FOR PERMIT
01/15/25	WCL	ISSUED FOR PERMIT

APPROVED FOR THE CITY OF SACRAMENTO  
 DATE: 11/15/2023  
 BY: [Signature]

INCREMENT No. 1

OAK RIDGE ELEMENTARY  
 CAMPUIS REPLACEMENT  
 INCREMENT No. 1  
 4501 Main Luther King Jr. Boulevard  
 Sacramento, CA 95820  
 SACRAMENTO UNIFIED SCHOOL DISTRICT



nacht-lewis  
 800 O Street, Suite 100  
 Sacramento, CA 95811  
 916.328.6000



NO.	REVISIONS	DATE
1	ISSUED FOR PERMITS	11/15/2023
2	REVISED PER COMMENTS	11/15/2023
3	REVISED PER COMMENTS	11/15/2023
4	REVISED PER COMMENTS	11/15/2023
5	REVISED PER COMMENTS	11/15/2023
6	REVISED PER COMMENTS	11/15/2023
7	REVISED PER COMMENTS	11/15/2023
8	REVISED PER COMMENTS	11/15/2023
9	REVISED PER COMMENTS	11/15/2023
10	REVISED PER COMMENTS	11/15/2023
11	REVISED PER COMMENTS	11/15/2023
12	REVISED PER COMMENTS	11/15/2023
13	REVISED PER COMMENTS	11/15/2023
14	REVISED PER COMMENTS	11/15/2023

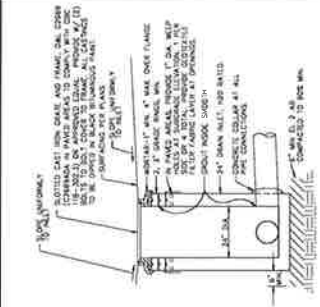
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 JOB NO. - Y2235 DD  
 SHEET TITLE

DETAILS AND SECTIONS

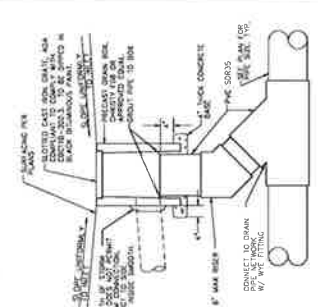
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C8.2

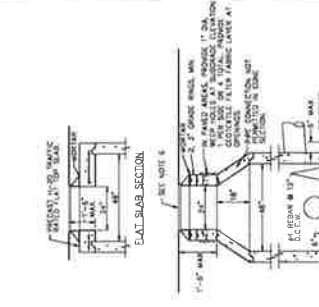
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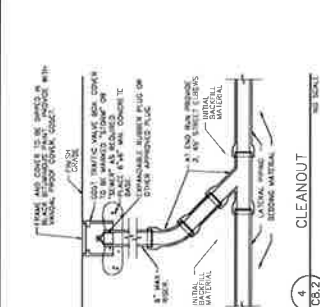
1 DROP INLET NO SCALE



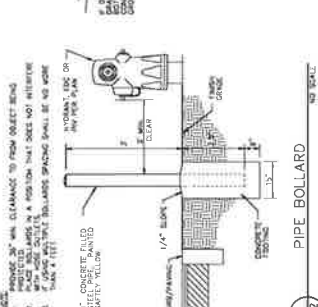
2 AREA DRAIN NO SCALE



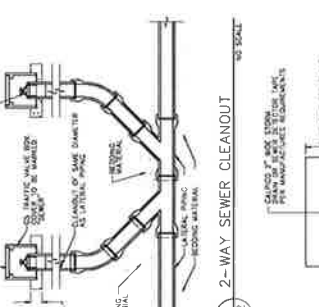
3 STORM DRAIN MANHOLE NO SCALE



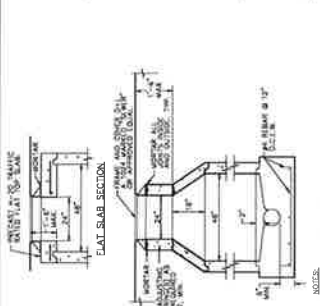
4 CLEANOUT NO SCALE



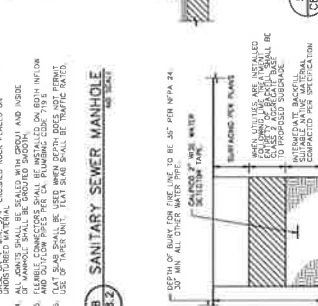
5 PIPE BOLLARD NO SCALE



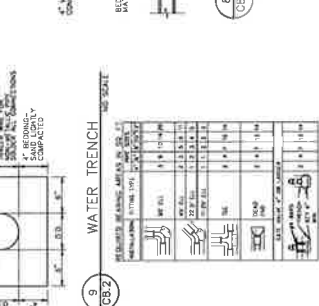
6 2-WAY SEWER CLEANOUT NO SCALE



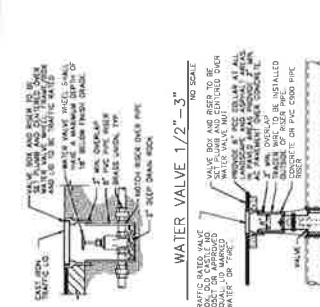
7 STORM DRAIN TRENCH NO SCALE



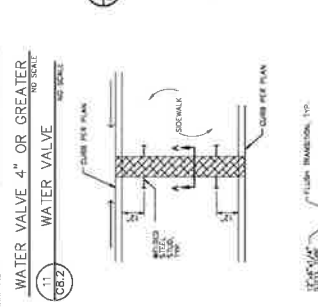
8 SANITARY SEWER MANHOLE NO SCALE



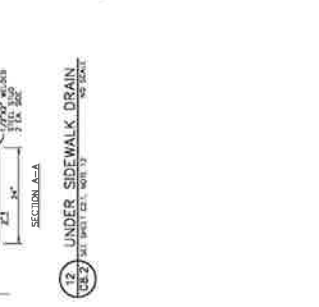
9 WATER TRENCH NO SCALE



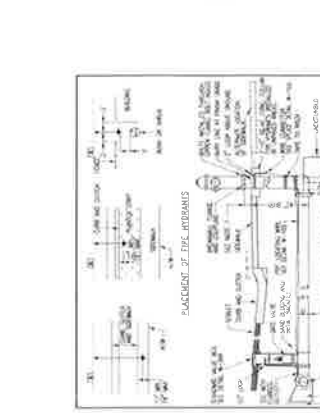
10 THRUST BLOCKS NO SCALE



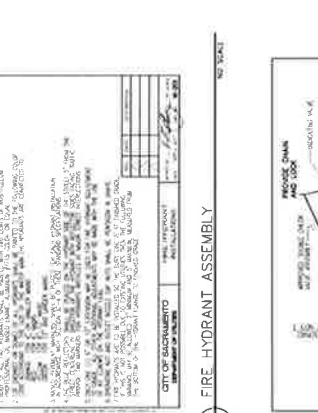
11 WATER VALVE 1/2" OR GREATER NO SCALE



12 UNDER SIDEWALK DRAIN NO SCALE



13 FIRE HYDRANT ASSEMBLY NO SCALE



14 DOUBLE CHECK ASSEMBLY NO SCALE

NO.	DESCRIPTION	UNIT	QUANTITY
1	CONCRETE	CU YD	1.00
2	STEEL	LB	100.00
3	PIPE	LINEAL FT	100.00
4	MANHOLE	NO	1.00
5	INLET	NO	1.00
6	AREA DRAIN	NO	1.00
7	STORM DRAIN MANHOLE	NO	1.00
8	CLEANOUT	NO	1.00
9	PIPE BOLLARD	NO	1.00
10	2-WAY SEWER CLEANOUT	NO	1.00
11	SANITARY SEWER MANHOLE	NO	1.00
12	WATER TRENCH	NO	1.00
13	THRUST BLOCKS	NO	1.00
14	WATER VALVE	NO	1.00
15	UNDER SIDEWALK DRAIN	NO	1.00
16	FIRE HYDRANT ASSEMBLY	NO	1.00
17	DOUBLE CHECK ASSEMBLY	NO	1.00





INCREMENT No. 1

OAK RIDGE ELEMENTARY  
CAMPUS REPLACEMENT  
INCREMENT No. 1  
4501 Martin Luther King Jr. Boulevard  
Sacramento, CA 95820  
SACRAMENTO UNIFIED SCHOOL DISTRICT



nacht & lewis  
800 O Street, Suite 100  
Sacramento, CA 95811  
www.nachtandlewis.com  
916.200.4000

REVISIONS	DATE	BY	CHK

DATE: 5/28/2023  
JOB NO.: Y2235-00  
SHEET TITLE  
LANDSCAPE  
IRRIGATION PLAN

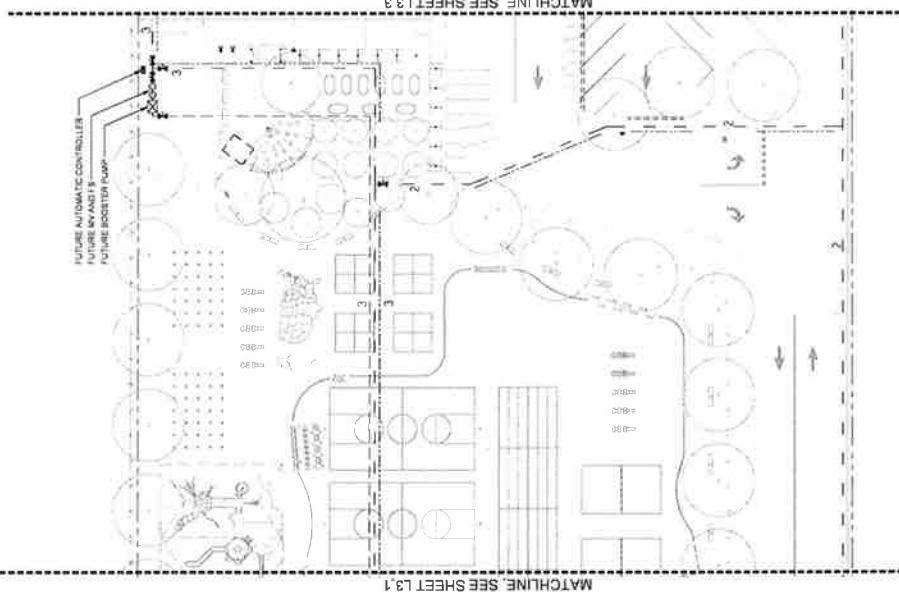
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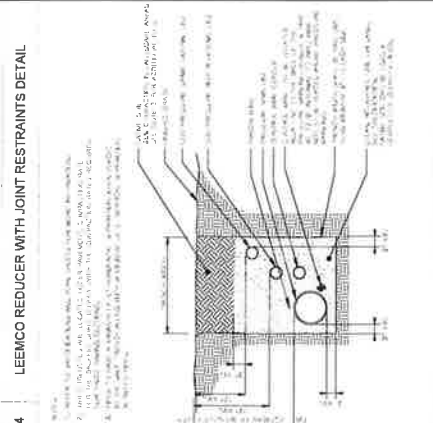
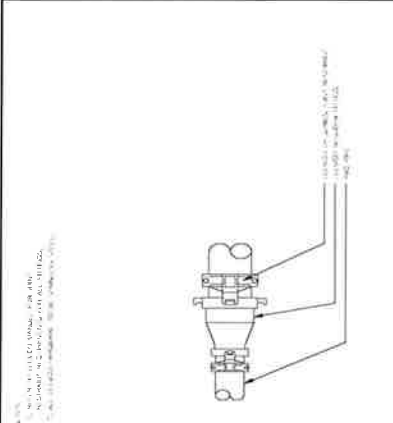
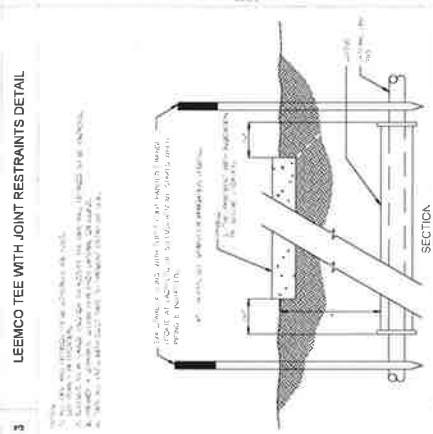
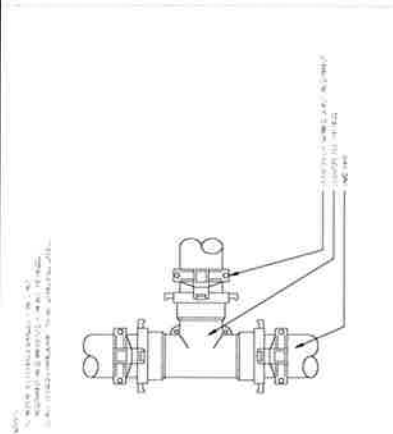
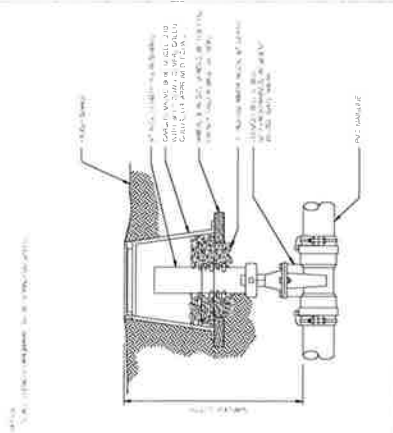
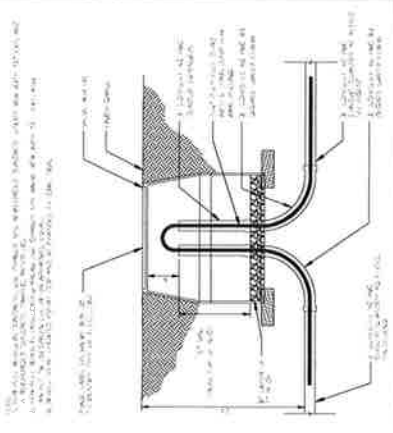
KEY

- SPRINKLER IRRIGATION LEGEND**
- FUTURE AUTOMATIC CONTROLLER
  - POINT OF CONNECTION
  - FUTURE BOOSTER PUMP
  - FUTURE MASTER VALVE/LOW SENSOR ASSEMBLY
  - GATE VALVE
  - PRESSURE MAIN LINE
  - CONTROL WIRE CONDUIT WITH PULL BOXES
  - PROPOSED TREE LOCATION FOR REFERENCE

SPRINKLER IRRIGATION NOTES

1. THE SHOWN SPRINKLER IRRIGATION SYSTEM IS BASED ON THE ASSUMPTION THAT THE EXISTING UTILITY RECORDS ARE COMPLETE AND ACCURATE.
2. THE IRRIGATION SYSTEM IS DESIGNED TO SERVE THE PROPOSED LANDSCAPE AND TO BE COMPATIBLE WITH THE EXISTING UTILITY RECORDS.
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10. THE IRRIGATION SYSTEM IS DESIGNED TO SERVE THE PROPOSED LANDSCAPE AND TO BE COMPATIBLE WITH THE EXISTING UTILITY RECORDS.





APPRECIATION FOR THE CITY OF SACRAMENTO  
 DATE: 05/13/2023  
 BY: [Signature]

INCREMENT No. 1  
 CLAMP No. 232847  
 60000-00000

SACRAMENTO UNIFIED SCHOOL DISTRICT  
 4501 Markin Lakeshore King St. Sacramento  
 Sacramento, CA 95820  
**CAMPUS REPLACEMENT  
 INCREMENT No. 1  
 OAK RIDGE ELEMENTARY**

M.T.W. Group  
 LANDSCAPE ARCHITECTURE  
 2000 J Street, Suite 100  
 Sacramento, CA 95811  
 916.433.4000  
 www.mtwgroup.com

nacht&lewis  
 800 O Street, Suite 100  
 Sacramento, CA 95811  
 916.433.4000  
 www.nachtandlewis.com



NO.	DATE	DESCRIPTION

DATE: 5/24/2023  
 JOB NO.: Y2235.00  
 SHEET TITLE:  
 LANDSCAPE  
 IRRIGATION  
 DETAILS

SHEET NO.



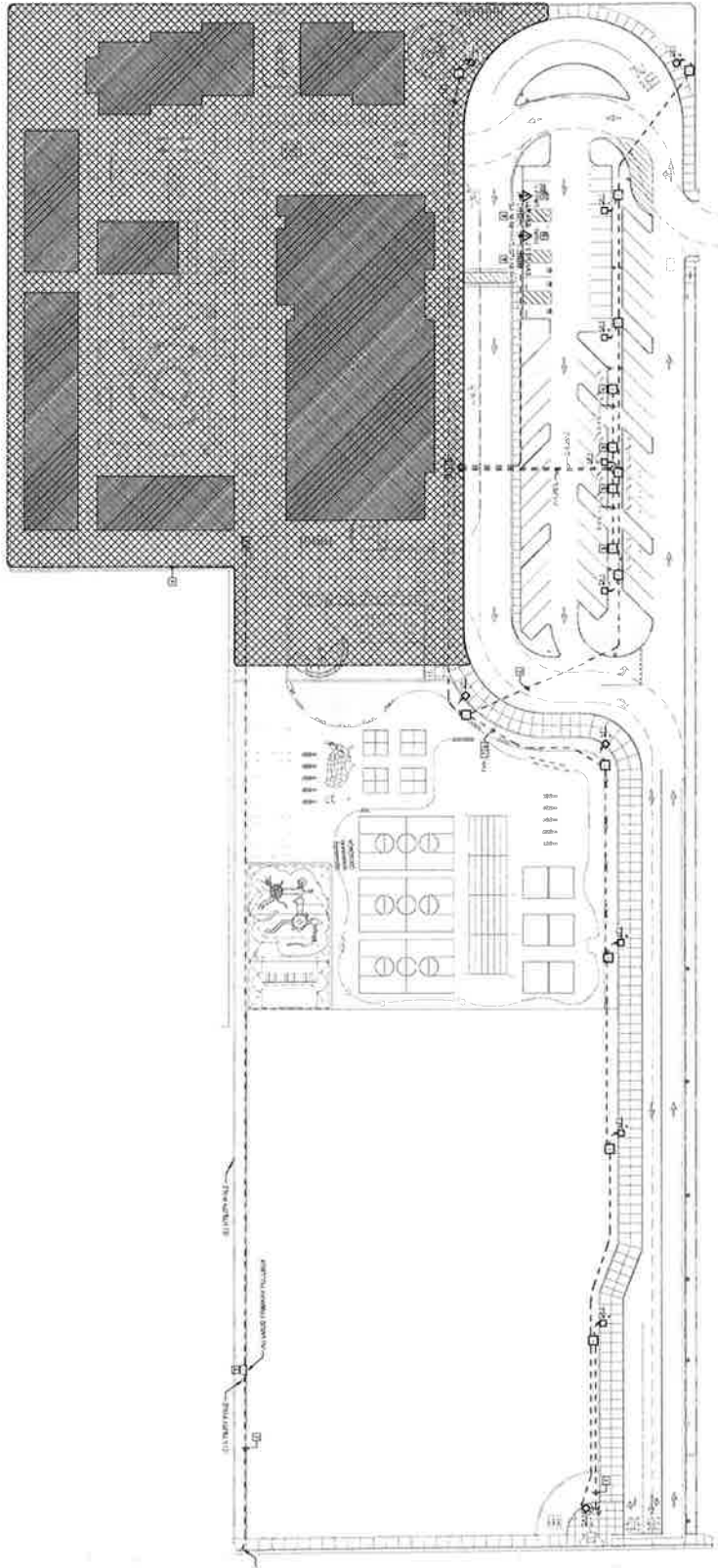






ONE INCH - TWENTY FEET  
 ONE-SIXTEENTH INCH - ONE FOOT  
 ONE-EIGHTH INCH - ONE FOOT  
 ONE-FOURTH INCH - ONE FOOT  
 ONE-HALF INCH - ONE FOOT  
 THREE-QUARTERS INCH - ONE FOOT  
 ONE INCH - ONE FOOT  
 ONE AND ONE-HALF INCH - ONE FOOT

1 ELECTRICAL-SITE PLAN  
 SCALE: 1/8" = 1'-0"



- NUMBERED SHEET NOTES**
- 1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CALIFORNIA ELECTRICAL CODE (CEC) AND ALL APPLICABLE CODES.
  - 2. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE CODES.
  - 3. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE CODES.
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  - 10. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE CODES.

- GENERAL SHEET NOTES**
- 1. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE CODES.
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INCREMENT NO. 1  
 DRAWN BY: AD. BLOOM  
 CHECKED BY: [Signature]  
 DATE: 5/28/2023

OAK RIDGE ELEMENTARY  
 CAMPUIS REPLACEMENT  
 INCREMENT NO. 1  
 4501 Martha Luther King Jr. Blvd.  
 Sacramento, CA 95820  
 SACRAMENTO UNIFIED SCHOOL DISTRICT



madhit lewis  
 800 O Street, Suite 200  
 Sacramento, CA 95811  
 916.332.4022



REVISIONS

NO.	DATE	DESCRIPTION
1	5/28/2023	ISSUED FOR PERMIT

JOB NO.: Y2235.00  
 SHEET TITLE: OVERALL ELECTRICAL SITE PLAN

OVERALL ELECTRICAL SITE PLAN  
 SHEET NO. E110







**OAK RIDGE**  
ROOTED IN ACADEMICS

# PROJECT MANUAL

**OAK RIDGE ELEMENTARY SCHOOL  
CAMPUS REPLACEMENT INCREMENT  
NO. 1 - SITE WORK**

4501 Martin Luther King Jr. Boulevard  
Sacramento, CA 95820

**SACRAMENTO CITY UNIFIED SCHOOL DISTRICT**  
Sacramento, CA

**DSA APPROVAL**  
May 26, 2023

**PREPARED BY:**

**nacht&lewis**

600 Q Street, Suite 100  
Sacramento, California 95811  
Project No. Y2235.00



**Sacramento  
City Unified  
School District**

PROJECT MANUAL AND SPECIFICATIONS  
FOR  
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT  
OAK RIDGE ELEMENTARY SCHOOL  
CAMPUS REPLACEMENT – INCREMENT No. 1

TABLE OF CONTENTS

**EXHIBITS**

EXHIBIT A	RESERVED
EXHIBIT B	RESERVED
EXHIBIT C	RESERVED
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EXHIBIT D-1	Special Conditions

**DIVISIONS 00 AND 01 - BIDDING AND CONTRACT REQUIREMENTS**

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01 01 50	Additional Requirements for DSA Projects
01 11 00	Summary of Work
01 21 00	Allowance
01 22 00	Alternatives and Unit Prices
01 25 13	Product Options and Substitutions
01 26 00	Changes in the Work
01 31 19	Project Meetings
01 32 13	Scheduling of Work
01 33 00	Submittals
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01 41 00	Regulatory Requirements
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01 42 19	References
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01 52 13	Field Offices
01 57 13	Erosion Control (provide swppp)
01 64 00	Owner-Furnished Products
01 66 00	Product Delivery, Storage and Handling
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01 73 29	Cutting and Patching
01 76 00	Alteration Project Procedures
01 77 00	Contract Closeout and Final Cleaning
01 78 23	Operation and Maintenance Data
01 78 36	Warranties



<u>DIVISION 21</u>	<u>FIRE PROTECTION</u> Not Used
<u>DIVISION 22</u>	<u>PLUMBING</u> Not Used
<u>DIVISION 23</u>	<u>HEATING VENTILATING &amp; AIR CONDITIONING</u> Not Used
<u>DIVISION 26</u>	<u>ELECTRICAL</u>
26 00 10	Basic Electrical Requirements
26 00 90	Electrical Demolition
26 05 43	Underground Ducts and Structures
26 50 00	Lighting
<u>DIVISION 27</u>	<u>COMMUNICATIONS</u>
27 00 00	Communication Basic Requirements
27 05 00	Common Work for Communications
<u>DIVISION 28</u>	<u>ELECTRONIC SAFETY &amp; SECURITY</u> Not Used
<u>DIVISION 31</u>	<u>EARTHWORK</u>
31 00 00	Earthwork
31 13 16	Tree Protection
31 23 33	Trenching and Backfilling
31 32 00	Soil Stabilization (lime)
<u>DIVISION 32</u>	<u>EXTERIOR IMPROVEMENTS</u>
32 12 00	Asphalt Paving
32 16 00	Site Concrete
32 80 00	Irrigation
<u>DIVISION 33</u>	<u>UTILITIES</u>
33 00 00	Site Utilities
33 40 00	Site Drainage

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**1.1.10 Construction Change Directive.** A written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work.

**1.1.11 Construction Manager.** The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the District. If no Construction Manager is used on the Project that is the subject of this Contract, then all references to Construction Manager herein shall be read to refer to District.

**1.1.12 Construction Schedule.** The progress schedule of construction of the Project as provided by Developer and approved by District.

**1.1.13 Contingency.** The GMP proposal will contain, as part of the estimated cost of the Work, Project's Contingency, a sum mutually agreed upon, controlled by District, and monitored by District and Developer to cover costs that are properly reimbursable as a cost of the Work, but are not the basis for a Change Order. Project's Developer Contingency will not be used for changes in scope or for any item that would be the basis for an increase in the GMP. Developer will provide District with a monthly accounting of charges against Project's Contingency, if applicable, with each application for payment. Any unused Project Contingency belongs to District.

**1.1.14 Contract.** The agreement between the District and Developer contained in the Contract Documents.

**1.1.15 Contract Documents.** The Contract Documents consist exclusively of the documents evidencing the agreement of the District and Developer. The Contract Documents consist of the following documents:

**1.1.15.1** Non-Collusion Declaration

**1.1.15.2** Iran Contracting Act Certification

**1.1.15.3** Site Lease

**1.1.15.4** Facilities Lease, including Exhibits A-G

**1.1.15.4.1** Iran Contracting Act Certification (if applicable)

**1.1.15.4.2** Federal Debarment Certification (if applicable)

**1.1.15.4.3** Federal Byrd Anti-Lobbying Certification (if applicable)

**1.1.15.4.4** Performance Bond

**1.1.15.4.5** Payment Bond (Developer's Labor & Material Bond)

**1.1.15.4.6** Workers' Compensation Certification

**1.1.15.4.7** Prevailing Wage Certification

**1.1.15.4.8** Criminal Background Investigation/Fingerprinting Certification

**1.1.15.4.9** COVID-19 Vaccination/Testing Certification

**1.1.15.4.10** Drug-Free Workplace Certification

Developer pursuant to the Contract and payment of which is not otherwise expressly provided for or Developer is not otherwise entitled to; or an amount of payment disputed by the District.

**1.1.23 District.** The public agency or the school district for which the Work is performed. The governing board of the District or its designees will act for the District in all matters pertaining to the Contract. The District may, at any time:

**1.1.23.1** Direct Developer to communicate with or provide notice to the Construction Manager or the Architect on matters for which the Contract Documents indicate Developer will communicate with or provide notice to the District; and/or

**1.1.23.2** Direct the Construction Manager or the Architect to communicate with or direct Developer on matters for which the Contract Documents indicate the District will communicate with or direct Developer.

**1.1.24 Drawings (or "Plans").** The graphic and pictorial portions of the Contract Documents showing the design, location, scope and dimensions of the Work, generally including plans, elevations, sections, details, schedules, sequence of operation, and diagrams.

**1.1.25 DSA.** Division of the State Architect.

**1.1.26 Force Account Directive.** A process that may be used when the District and Developer cannot agree on a price for a specific portion of work or before Developer prepares a price for a specific portion of work and whereby Developer performs the work as indicated herein on a time and materials basis.

**1.1.27 Guaranteed Maximum Price.** The total monies payable to Developer under the terms and conditions of the Contract Documents.

**1.1.28 Job Cost Reports.** Any and all reports or records detailing the costs associated with work performed on or related to the Project that Developer shall maintain for the Project. Specifically, Job Cost Reports shall contain, but are not limited by or to, the following information: a description of the work performed or to be performed on the Project; District verified quantity, if applicable, of work performed (hours, square feet, cubic yards, pounds, etc.) for the Project; Project budget; costs for the Project to date; estimated costs to complete the Project; and expected costs at completion. The Job Cost Reports shall also reflect all Contract cost codes, change orders, elements of non-conforming work, back charges, and additional services.

**1.1.29 Labor Commissioner's Office (or "Labor Commissioner").** Also known as the Division of Labor Standards Enforcement ("DLSE"): Division of the DIR responsible for adjudicating wage claims, investigating discrimination and public works complaints, and enforcing Labor Code statutes and Industrial Welfare Commission orders.

**1.1.30 Material Safety Data Sheets (or "MSDS").** A form with data regarding the properties for potentially harmful substances handled in the workplace.

Contract Documents, that reflect all changes made during the performance of the Work, recording differences between the original design of the Work and the Work as constructed upon completion of the Project. See also "**As-Builts.**"

**1.1.44 Request for Information (or "RFI").** A written request prepared by Developer requesting that the Architect provide additional information necessary to clarify or amplify an item in the Contract Documents that Developer believes is not clearly shown or called for in the Drawings or Specifications or other portions of the Contract Documents, or to address problems that have arisen under field conditions.

**1.1.45 Request for Substitution for Specified Item.** A request by Developer to substitute an equal or superior material, product, thing, or service for a specific material, product, thing, or service that has been designated in the Contract Documents by a specific brand or trade name.

**1.1.46 Safety Orders.** Written and/or verbal orders for construction issued by the California Division of Occupational Safety and Health ("Cal/OSHA") or by the United States Occupational Safety and Health Administration ("OSHA").

**1.1.47 Safety Plan.** Developer's safety plan specifically adapted for the Project. Developer's Safety Plan shall comply with all provisions regarding Project safety, including all applicable provisions in these Construction Provisions.

**1.1.48 Samples.** Physical examples that illustrate materials, products, equipment, finishes, colors, or workmanship and that, when approved in accordance with the Contract Documents, establish standards by which portions of the Work will be judged.

**1.1.49 Shop Drawings.** All drawings, prints, diagrams, illustrations, brochures, schedules, and other data that are prepared by Developer, a subcontractor, manufacturer, supplier, or distributor, that illustrate how specific portions of the Work shall be fabricated or installed.

**1.1.50 Site.** The Project site as shown on the Drawings.

**1.1.51 Specifications.** That portion of the Contract Documents, Division 1 through Division 49, and all technical sections, and addenda to all of these, if any, consisting of written descriptions and requirements of a technical nature of materials, equipment, construction methods and systems, standards, and workmanship.

**1.1.52 State.** The State of California.

**1.1.53 Storm Water Pollution Prevention Plan (or "SWPPP").** A document which identifies sources and activities at a particular facility that may contribute pollutants to storm water and contains specific control measures and time frames to prevent or treat such pollutants.

**1.1.54 Subcontractor.** A contractor and/or supplier who is under contract with Developer or with any other subcontractor, regardless of tier, to perform a portion of the Work of the Project.

**1.5.1.1** If notice is given by personal delivery thereof, it shall be considered delivered on the day of delivery.

**1.5.1.2** If notice is given by overnight delivery service, it shall be considered delivered one (1) day after date deposited, as indicated by the delivery service.

**1.5.1.3** If notice is given by depositing same in United States mail, enclosed in a sealed envelope, it shall be considered delivered five (5) days after date deposited, as indicated by the postmarked date.

**1.5.1.4** If notice is given by registered or certified mail with postage prepaid, return receipt requested, it shall be considered delivered on the day the notice is signed for.

## **1.6 No Waiver**

The failure of District in any one or more instances to insist upon strict performance of any of the terms of the Contract Documents or to exercise any option herein conferred shall not be construed as a waiver or relinquishment to any extent of the right to assert or rely upon any such terms or option on any future occasion. No action or failure to act by the District, Architect, or Construction Manager shall constitute a waiver of any right or duty afforded the District under the Contract Documents, nor shall any action or failure to act constitute an approval of or acquiescence on any breach thereunder, except as may be specifically agreed in writing.

## **1.7 Substitutions For Specified Items**

Developer shall not substitute different items for any items identified in the Contract Documents without prior written approval of the District, unless otherwise provided in the Contract Documents.

**1.7.1** Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Developer may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified.

**1.7.1.1** If the material, process, or article offered by Developer is not, in the opinion of the District, substantially equal or better in every respect to that specified, then Developer shall furnish the material, process, or article specified in the Specifications without any additional compensation or change order.

**1.7.1.2** This provision shall not be applicable with respect to any material, product, thing or service for which District made findings and gave notice in accordance with Public Contract Code section 3400(c); therefore, Developer shall not be entitled to request a substitution with respect to those materials, products or services.

**1.7.2** A request for a substitution shall be submitted as follows:

**1.7.4.5** Developer shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, Developer agrees to execute a deductive Change Order to reflect that credit.

**1.7.5** In the event Developer furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Developer.

**1.7.6** In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

**1.7.7** Developer shall be responsible for any costs the District incurs for professional services, DSA fees, or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Developer and/or to accommodate Developer's means and methods. District may deduct those costs from any amounts owing to Developer for the review of the request for substitution, even if the request for substitution is not approved. District, at its sole discretion, shall deduct from the payments due to and/or invoice Developer for all the professional services and/or DSA fees or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Developer and/or to accommodate Developer's means and methods.

## **1.8 Materials and Work**

**1.8.1** Except as otherwise specifically stated in the Contract Documents, Developer shall provide and pay for all materials, labor, tools, equipment, transportation, supervision, temporary constructions of every nature, and all other services, management, and facilities of every nature whatsoever necessary to execute and complete the Work, in a good and workmanlike manner, within the Contract Time.

**1.8.2** Unless otherwise specified, all materials shall be new and of the best quality of their respective kinds and grades as noted or specified, and workmanship shall be of high quality, and Developer shall use all diligence to inform itself fully as to the required manufacturer's instructions and to comply therewith.

**1.8.3** Materials shall be furnished in ample quantities and at such times as to ensure uninterrupted progress of Work and shall be stored properly and protected from the elements, theft, vandalism, or other loss or damage as required.

**1.8.4** For all materials and equipment specified or indicated in the Drawings and Specifications, Developer shall provide all labor, materials, equipment, and services necessary for complete assemblies and complete working systems, functioning as intended. Incidental items not indicated on Drawings, nor mentioned in the Specifications, that can legitimately and reasonably be inferred to belong to the Work described, or be necessary in good practice to

**1.8.10 [Reserved]**

**2. [Reserved]**

**3. Architect**

**3.1** The Architect shall represent the District during the Project and will observe the progress and quality of the Work on behalf of the District. Architect shall have the authority to act on behalf of District to the extent expressly provided in the Contract Documents and to the extent determined by District. Architect shall have authority to reject materials, workmanship, and/or the Work whenever rejection may be necessary, in Architect's reasonable opinion, to ensure the proper execution of the Contract Documents.

**3.2** Architect shall, with the District and on behalf of the District, determine the amount, quality, acceptability, and fitness of all parts of the Work, and interpret the Specifications, Drawings, and shall, with the District, interpret all other Contract Documents.

**3.3** Architect shall have all authority and responsibility established by law, including title 24 of the California Code of Regulations.

**3.4** Developer shall provide District and the Construction Manager with a copy of all written communication between Developer and Architect at the same time as that communication is made to Architect, including, without limitation, all RFIs, correspondence, submittals, claims, change order requests and/or proposed change orders.

**4. Construction Manager**

**4.1** **Innovative Construction Services, Inc. (ICS)** is the Construction Manager used on this Project ("Construction Manager" or "CM"). The Construction Manager will provide administration of the Contract Documents on the District's behalf. After execution of the Contract Documents, all correspondence and/or instructions from Developer and/or District shall be forwarded through the Construction Manager. The Construction Manager will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences, or procedures or for safety precautions in connection with the Work, which shall all remain Developer's responsibility.

**4.2** The Construction Manager, however, will have authority to reject materials and/or workmanship not conforming to the Contract Documents, as determined by the District, the Architect, and/or the Project Inspector. The Construction Manager shall also have the authority to require special inspection or testing of any portion of the Work, whether it has been fabricated, installed, or fully completed. Any decision made by the Construction Manager in good faith, shall not give rise to any duty or responsibility of the Construction Manager to: Developer, any Subcontractor, or their agents, employees, or other persons performing any of the Work. The Construction Manager shall have free access to any or all parts of Work at any time.



notice shall be provided, at a minimum, seventy-two (72) hours prior to the manufacture of the material that needs to be tested.

**5.2.4** Any material shipped by Developer from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said representative that such testing and inspection will not be required, shall not be incorporated into and/or onto the Project. All costs associated rejected or not approved by District shall be the responsibility of the Developer.

**5.2.5** The District will select the testing laboratory and pay for the costs for all tests and inspections, except those inspections performed at Developer's request and expense. Developer shall reimburse the District for any and all laboratory costs or other testing costs for any materials found to be not in compliance with the Contract Documents. At the District's discretion, District may elect to deduct laboratory or other testing costs for noncompliant materials from the Guaranteed Maximum Price, and such deduction shall not constitute a withholding.

### **5.3 Costs for After Hours and/or Off Site Inspections**

If Developer performs Work outside the Inspector's regular working hours without prior authorization from the District, costs of any inspections required outside regular working hours shall be borne by Developer and may be invoiced to Developer by the District or the District may deduct those expenses from the next Tenant Improvement Payment. Regular working hours will be established at Pre-Construction meeting.

## **6. Developer**

Developer shall construct and complete, in a good and workmanlike manner, the Work for the Guaranteed Maximum Price including any adjustment(s) to the Guaranteed Maximum Price pursuant to provisions herein regarding changes to the Guaranteed Maximum Price. Except as otherwise noted, Developer shall provide and pay for all labor, materials, equipment, permits (excluding DSA), fees, licenses, facilities, transportation, taxes, bonds and insurance, and services necessary for the proper execution and completion of the Work, except as indicated herein.

### **6.1 Status of Developer**

**6.1.1** Developer is and shall at all times be deemed to be an independent contractor and shall be wholly responsible for the manner in which it and its Subcontractors perform the services required of it by the Contract Documents. Nothing herein contained shall be construed as creating the relationship of employer and employee, or principal and agent, between the District, or any of the District's employees or agents, and Developer or any of Developer's Subcontractors, agents or employees. Developer assumes exclusively the responsibility for the acts of its agents and employees as they relate to the services to be provided during the course and scope of their employment. Developer, its Subcontractors, and its agents and employees shall not be entitled to any rights or privileges of District employees. District shall be permitted to monitor Developer's activities to determine compliance with the terms of the Contract Documents.

damages, District and Developer have agreed to liquidated damages as described below:

**6.3.3.1** Before commencing the Work herein, Developer shall give written notice to District of Developer's Key Personnel.

**6.3.3.2** Key Personnel shall be the same as those individuals identified in Developer's response to the District's RFQ/P.

**6.3.3.3** For any substitution of any Key Personnel individual before the end of the individual's Project commitment period provided in Developer's Key Personnel staffing schedule, District may assess once, and Developer shall accept, liquidated damages in the amount of six (6) times the gross monthly salary for each substituted Key Personnel.

**6.3.4** Developer's Key Personnel shall not be changed except with prior written notice to, and approval by, District.

**6.3.5** If any of Developer's Key Personnel prove to be unsatisfactory to Developer, or to District, any of the District's employees, agents, the Construction Manager, or the Architect, the unsatisfactory Key Personnel shall be replaced. However, Developer shall immediately notify District in writing before any change occurs, but no less than two (2) business days prior. Any replacement of Key Personnel shall be made promptly and must be satisfactory to the District. Developer's Key Personnel shall each represent Developer, and all directions given to Key Personnel shall be as binding as if given to Developer.

**6.3.6** Developer shall give efficient supervision to Work, using its best skill and attention. Developer shall carefully study and compare all Contract Documents, Drawings, Specifications, and other instructions and shall at once report to District, Construction Manager, and Architect any error, inconsistency, or omission that Developer or its employees and Subcontractors may discover, in writing, with a copy to District's Project Inspector(s). Developer shall have responsibility for discovery of errors, inconsistencies, or omissions.

**6.3.7** All contractors doing work on the Project will provide their workers with identification badges. These badges will be worn by all members of the contractor's staff who are working in a District facility.

**6.3.7.1** Badges must be filled out in full and contain the following information:

**6.3.7.1.1** Name of contractor

**6.3.7.1.2** Name of employee

**6.3.7.1.3** Contractor's address and phone number

**6.3.7.2** Badges are to be worn when Developer or his/her employees are on site and must be visible at all times. Contractors must inform their employees that they are required to allow District employees, the Architect, the Construction Manager, the Program Manager, or the Project Inspector to review the information on the badges upon request.

Inspector(s), and all authorities having jurisdiction. Developer shall be acquainted with and comply with the provisions of these titles as they relate to this Project. (See particularly the duties of Contractor, Title 24, Part 1, California Code of Regulations, Section 4-343.) Developer shall also be acquainted with and comply with all California Code of Regulations provisions relating to conditions on this Project, particularly Titles 8 and 17. Developer shall coordinate with Architect and Construction Manager and shall submit its verified report(s) according to the requirements of Title 24.

## **6.7.2 Daily Job Reports**

**6.7.2.1** Developer shall maintain, at a minimum, at least one (1) set of Daily Job Reports on the Project. These must be prepared by Developer's employee(s) who are present on Site, and must include, at a minimum, the following information:

**6.7.2.1.1** A brief description of all Work performed on that day.

**6.7.2.1.2** A summary of all other pertinent events and/or occurrences on that day.

**6.7.2.1.3** The weather conditions on that day.

**6.7.2.1.4** A list of all Subcontractor(s) working on that day, including DIR registration numbers, Subcontractor employees working, and hours of work.

**6.7.2.1.5** A list of each Developer employee working on that day and the total hours worked for each employee.

**6.7.2.1.6** A complete list of all equipment on Site that day, whether in use or not.

**6.7.2.1.7** A complete list of all materials, supplies, and equipment delivered on that day, and verification that all materials, supplies, and equipment comply with the Contract Documents and are properly stored.

**6.7.2.1.8** A complete list of all inspections and tests performed on that day.

**6.7.2.1.9** Daily verification the Project is properly secured from the public and unauthorized entry.

**6.7.2.2** Each day Developer shall provide a copy of the previous day's Daily Job Report to the District or the District's Construction Manager.

## **6.8 Preservation of Records**

Developer shall maintain, and District shall have the right to inspect, Developer's financial records for the Project, including, without limitation, Job Cost Reports for the Project in compliance with the criteria set forth herein. The District shall have the right to examine and audit all Daily Job Reports or other Project records of Developer's

**6.9.5** Developer shall not endanger any work performed by it or anyone else by cutting, excavating, or otherwise altering work and shall not cut or alter work of any other contractor except with consent of District.

## **6.10 Notifications**

**6.10.1** Developer shall notify the Architect and Project Inspector, in writing, of the commencement of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector. Forms are available on the DSA's website at: <http://www.dgs.ca.gov/dsa/Forms.aspx>.

**6.10.2** Developer shall notify the Architect and Project Inspector, in writing, of the completion of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector.

## **6.11 Obtaining of Permits, Licenses and Registrations**

**6.11.1** Developer shall secure and pay for any permits (except DSA), licenses, registrations, approvals, and certificates necessary for prosecution of Work, including but not limited to those listed in the Special Conditions, **Exhibit D-1**, if any, before the date of the commencement of the Work or before the permits, licenses, registrations, approvals and certificates are legally required to continue the Work without interruption. Developer shall obtain and pay, only when legally required, for all licenses, approvals, registrations, permits, inspections, and inspection certificates required to be obtained from or issued by any authority having jurisdiction over any part of the Work included in the Contract Documents. All final permits, licenses, registrations, approvals and certificates shall be delivered to District before demand is made for final payment. The costs associated with said permits, licenses, registrations, approvals and certificates shall be direct reimbursement items and are not subject to any markup.

### **6.11.2 General Permit For Storm Water Discharges Associated With Construction and Land Disturbance Activities.**

**6.11.2.1** Contractor acknowledges that all California school districts are obligated to develop and implement the following requirements for the discharge of storm water to surface waters from its construction and land disturbance activities pursuant to the Clean Water Act and Porter Cologne Water Quality Act. District has determined that the construction of this Project requires enrollment in the Construction Storm Water Permit. District has filed certain submittals referred to as Permit Registration Documents ("PRDS") with the Regional Water Control Board ("Storm Water Pollution Prevention Plan" or "SWPPP").

**6.11.2.2** Contractor shall comply with any District SWPPP that is approved by the District and applicable to the Project, at no additional cost to the District. Contractor shall pay any fees and any penalties that may imposed by a regulatory agency for its non-compliance with the SWPPP during the course of Work.

and any changes deemed necessary by District shall be made as provided in this **Exhibit D** for changes in Work.

**6.13.1.1** National Electrical Safety Code, U. S. Department of Commerce

**6.13.1.2** National Board of Fire Underwriters' Regulations

**6.13.1.3** 2022 edition of the California Code of Regulations, title 24, and other amendments

**6.13.1.4** Manual of Accident Prevention in Construction, latest edition, published by A.G.C. of America

**6.13.1.5** Industrial Accident Commission's Safety Orders, State of California

**6.13.1.6** Regulations of the State Fire Marshall (title 19, California Code of Regulations) and Pertinent Local Fire Safety Codes

**6.13.1.7** Americans with Disabilities Act

**6.13.1.8** Education Code of the State of California

**6.13.1.9** Government Code of the State of California

**6.13.1.10** Labor Code of the State of California, division 2, part 7, Public Works and Public Agencies

**6.13.1.11** Public Contract Code of the State of California

**6.13.1.12** California Art Preservation Act

**6.13.1.13** U. S. Copyright Act

**6.13.1.14** U. S. Visual Artists Rights Act

**6.13.2** Developer shall comply with all applicable mitigation measures, if any, adopted by any public agency or local utility with respect to this Project pursuant to the California Environmental Quality Act (Public Resources Code section 21000 et seq.).

**6.13.3** If Developer performs any Work that it knew, or through exercise of reasonable care should have known, to be contrary to any applicable laws, ordinance, rules, or regulations, Developer shall bear all costs arising therefrom and arising from the correction of said Work.

**6.13.4** Where Specifications or Drawings state that materials, processes, or procedures must be approved by the DSA, State Fire Marshall, or other body or agency, Developer shall use its best efforts to satisfy the requirements of such bodies or agencies applicable at the time the Work is performed, and as determined by those bodies or agencies.

**6.13.5 [Reserved]**

requirements, and to protect the life, safety, and health of workers. Name and position of person so designated shall be reported to District by Developer.

**6.14.11** Developer shall correct any violations of safety laws, rules, orders, standards, or regulations. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, Developer shall correct such violation promptly.

**6.14.12** Developer shall comply with any District storm water requirements that are approved by the District and applicable to the Project, at no additional cost to the District.

**6.14.13** In an emergency affecting safety of life or of work or of adjoining property, Developer, without special instruction or authorization, shall act, at its discretion, to prevent such threatened loss or injury. Any compensation claimed by Developer on account of emergency work shall be determined by agreement.

**6.14.14** All salvage materials will become the property of Developer and shall be removed from the Site unless otherwise called for in the Contract Documents. However, the District reserves the right to designate certain items of value that shall be turned over to the District unless otherwise directed by District.

**6.14.15** All connections to public utilities and/or existing on-site services, including, without limitation, internet, phone, and data connections, shall be made and maintained in such a manner as to not interfere with the continuing use of same by the District during the entire progress of the Work.

**6.14.16** Developer shall provide such heat, covering, and enclosures as are necessary to protect all Work, materials, equipment, appliances, and tools against damage by weather conditions, such as extreme heat, cold, rain, snow, dry winds, flooding, or dampness.

**6.14.17** Developer shall protect and preserve the Work from all damage or accident, providing any temporary roofs, window and door coverings, boxings, or other construction as required by the Architect. Developer shall be responsible for existing structures, walks, roads, trees, landscaping, and/or improvements in working areas; and shall provide adequate protection therefor. If temporary removal is necessary of any of the above items, or damage occurs due to the Work, Developer shall replace same at his expense with same kind, quality, and size of Work or item damaged. This shall include any adjoining property of the District and others.

**6.14.18** Developer shall take adequate precautions to protect existing roads, sidewalks, curbs, pavements, utilities, adjoining property, and structures (including, without limitation, protection from settlement or loss of lateral support), and to avoid damage thereto, and repair any damage thereto caused by construction operations.

**6.14.19** Developer shall confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits, or directions of Architect, and shall not interfere with the Work or unreasonably

**6.15.3.1** All required visual observations, sampling, analysis, reporting and record keeping, including any Numeric Action Levels (NALs), if applicable;

**6.15.3.2** Rain Event Action Plan (REAP) at least forty eight (48) hours prior to any forecasted rain event requiring implementation of the REAP, including any erosion and sediment control measures needed to protect all exposed portions of the site, if applicable;

**6.15.3.3** Active Treatment System (ATS), if applicable; and

**6.15.3.4** Best management practices (BMPs).

## **6.16 Working Evenings and Weekends**

Developer may be required to work increased hours, evenings, and/or weekends at no additional cost to the District. Developer shall give the District forty-eight (48) hours' notice prior to performing any evening and/or weekend work. Developer shall perform all evening and/or weekend work in compliance with all applicable rules, regulations, laws, and local ordinances including, without limitation, all noise and light limitations. Developer shall reimburse the District for any increased or additional Inspector charges as a result of Developer's increased hours, or evening and/or weekend work.

## **6.17 Cleaning Up**

**6.17.1** Developer shall provide all services, labor, materials, and equipment necessary for protecting and securing the Work, all school occupants, furnishings, equipment, and building structure from damage until its completion and final acceptance by District. Dust barriers shall be provided to isolate dust and dirt from construction operations. At completion of the Work and portions thereof, Developer shall clean to the original state any areas beyond the Work area that become dust laden as a result of the Work. Developer must erect the necessary warning signs and barricades to ensure the safety of all school occupants. Developer at all times must maintain good housekeeping practices to reduce the risk of fire damage and must make a fire extinguisher, fire blanket, and/or fire watch, as applicable, available at each location where cutting, braising, soldering, and/or welding is being performed or where there is an increased risk of fire.

**6.17.2** Developer at all times shall keep Premises, including property immediately adjacent thereto, free from debris such as waste, rubbish (including personal rubbish of workers, e.g., food wrappers, etc.), and excess materials and equipment caused by the Work. Developer shall not leave debris under, in, or about the Premises (or surrounding property or neighborhood), but shall promptly remove same from the Premises on a daily basis. If Developer fails to clean up, District may do so and the cost thereof shall be charged to Developer. If the Contract calls for Work on an existing facility, Developer shall also perform specific clean-up on or about the Premises upon request by the District as it deems necessary for continued operations. Developer shall comply with all related provisions of the Specifications. Any damage caused to personal property as a result of the Developer's failure to properly clean up will be the Developer's responsibility.

**7.6** Developer shall be responsible for the coordination of the trades, Subcontractors, sub-subcontractors, and material or equipment suppliers working on the Project.

**7.6.1** Developer is responsible for ensuring that first-tier Subcontractors holding C-4, C-7, C-10, C-16, C-20, C-34, C-36, C-38, C-42, C-43, and/or C-46 licenses, are prequalified by the District to work on the Project pursuant to Public Contract Code section 20111.6.

**7.6.2** Developer is responsible for ensuring that all Subcontractors are properly registered as public works contractors by the Department of Industrial Relations.

**7.7** Developer is solely responsible for settling any differences between Developer and its Subcontractor(s) or between Subcontractors.

**7.8** Developer must include in all of its subcontracts the assignment provisions indicated in the Termination section of these Construction Provisions.

**8. Other Contracts/Contractors**

**8.1** District reserves the right to let other contracts, and/or to perform work with its own forces, in connection with the Project. Developer shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work and shall properly coordinate and connect Developer's Work with the work of other contractors.

**8.2** Developer shall protect the work of any other contractor that Developer encounters while working on the Project.

**8.3** If any part of Developer's Work depends for proper execution or results upon work of District or any other contractor, Developer shall visually inspect, and with reasonable effort, physically inspect all accessible portions of District's or any other contractor's work and, before proceeding with its Work, promptly report to the District in writing any defects in District's or any other contractor's work that render Developer's Work unsuitable for proper execution and results. Developer shall be held accountable for damages to District for District's or any other contractor's work that Developer failed to inspect or should have inspected. Developer's failure to inspect and report shall constitute Developer's acceptance of all District's or any other contractor's work as fit and proper for reception of Developer's Work, except as to defects that may develop in District's or any other contractor's work after execution of Developer's Work and not caused by execution of Developer's Work.

**8.4** To ensure proper execution of its subsequent Work, Developer shall measure and inspect Work already in place and shall at once report to the District in writing any discrepancy between that executed Work and the Contract Documents.

**8.5** Developer shall ascertain to its own satisfaction the scope of the Project and nature of District's or any other contracts that have been or may be awarded by District in prosecution of the Project to the end that Developer may perform under the Contract in light of the other contracts, if any.



drawings. In no case shall a document calling for lower quality and/or quantity of material or workmanship control. However, in the case of discrepancy or ambiguity solely between and among the Drawings and Specifications, the discrepancy or ambiguity shall be resolved in favor of the interpretation that will provide District with the functionally complete and operable Project described in the Drawings and Specifications.

**9.8** Drawings and Specifications are intended to comply with all laws, ordinances, rules, and regulations of constituted authorities having jurisdiction, and where referred to in the Contract Documents, the laws, ordinances, rules, and regulations shall be considered as a part of the Contract Documents within the limits specified.

**9.9** As required by Section 4-317(c), Part 1, Title 24, CCR: "Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the DSA-approved documents wherein the finished work will not comply with Title 24, California Code of Regulations, a construction change document, or a separate set of plans and specifications, detailing and specifying the required repair work shall be submitted to and approved by DSA before proceeding with the repair work."

#### **9.10 Ownership of Drawings**

All copies of Plans, Drawings, Designs, Specifications, and copies of other incidental architectural and engineering work, or copies of other Contract Documents furnished by District, are the property of District. They are not to be used by Developer in other work and, with the exception of signed sets of Contract Documents, are to be returned to District on request at completion of Work, or may be used by District as it may require without any additional costs to District. Neither Developer nor any Subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect. District hereby grants Developer, Subcontractors, sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings prepared for the Project in the execution of their Work under the Contract Documents.

### **10. Developer's Submittals and Schedules**

Developer's submittals shall comply with the provisions and requirements of the Specifications including, without limitation Submittals.

#### **10.1 Schedule of Work, Schedule of Submittals, and Schedule of Values.**

**10.1.1** Developer shall comply with the construction schedule attached to the Facilities Lease as **Exhibit F** ("Construction Schedule"). [To be attached when available.]

**10.1.2** Developer must provide all schedules both in hard copy and electronically, in a native format (e.g. Microsoft Project or Primavera) approved in advance by the District.

**10.1.3** The District will review the schedules submitted and Developer shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

**10.1.6.2.1.4** Layout

**10.1.6.2.1.5** Mobilization

**10.1.6.2.1.6** Submittals

**10.1.6.2.1.7** Bonds and insurance

**10.1.6.2.1.8** Close-out/Certification documentation

**10.1.6.2.1.9** Demolition

**10.1.6.2.1.10** Installation

**10.1.6.2.1.11** Rough-in

**10.1.6.2.1.12** Finishes

**10.1.6.2.1.13** Testing

**10.1.6.2.1.14** Punch list and District acceptance

**10.1.6.2.2** And also divided by each of the following areas:

**10.1.6.2.2.1** Site work

**10.1.6.2.2.2** By each phase and/or building, as applicable

**10.1.6.2.2.3** By each floor

**10.1.6.2.3** The preliminary schedule of values shall not provide for values any greater than the following percentages of the Contract value:

**10.1.6.2.3.1** Mobilization and layout combined to equal not more than 1%.

**10.1.6.2.3.2** Submittals, samples and shop drawings combined to equal not more than 3%.

**10.1.6.2.3.3** Bonds and insurance combined to equal not more than 2%.

**10.1.6.2.3.4** Closeout documentation shall have a value in the preliminary schedule of not less than 3%.

**10.1.6.2.3.5** Punch list and District Acceptance not less than 3%

**10.1.6.2.4** Notwithstanding any provision of the Contract Documents to the contrary, payment of Developer's overhead, supervision, general conditions costs, and profit, as reflected in

forwarded to the District so as not to delay the Construction Schedule. Developer shall provide an electronic copy of all submittals to the District. All submittals shall be submitted no later than ninety (90) days after the Notice to Proceed with Construction.

#### **10.1.6.5 Safety Plan**

Developer's Safety Plan specifically adapted for the Project shall comply with the following requirements:

**10.1.6.5.1** All applicable requirements of California Division of Occupational Safety and Health ("Cal/OSHA") and/or of the United States Occupational Safety and Health Administration ("OSHA").

**10.1.6.5.2** All provisions regarding Project safety, including all applicable provisions in these Construction Provisions.

**10.1.6.5.3** Developer's Safety Plan shall be in English and in the language(s) of Developer's and its Subcontractors' employees.

#### **10.1.6.6 Complete Registered Subcontractor List**

The name, address, telephone number, facsimile number, California State Contractors License number, classification, DIR registration number, and monetary value of all Subcontracts of any tier for parties furnishing labor, material, or equipment for completion of the Project.

### **10.2 Monthly Progress Schedule(s)**

**10.2.1** Developer shall provide Monthly Progress Schedule(s) to the District. A Monthly Progress Schedule shall update the approved Construction Schedule or the last Monthly Progress Schedule, showing all work completed and to be completed as well as updating the Registered Subcontractors List. The monthly Progress Schedule shall be sent as noted below and, if also requested by District, within the timeframe requested by the District and shall be in a format acceptable to the District and contain a written narrative of the progress of work that month and any changes, delays, or events that may affect the work. The process for District approval of the Monthly Progress Schedule shall be the same as the process for approval of the Construction Schedule.

**10.2.2** Developer shall submit Monthly Progress Schedule(s) with all payment applications.

**10.2.3** Developer must provide all schedules both in hard copy and electronically in a native format (e.g., Microsoft Project or Primavera), approved in advance by District.

**10.2.4** District will review the schedules submitted and Developer shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

be included in the Drawings, Specifications, or other Contract Documents. It is Developer's sole responsibility to thoroughly review all Contract Documents, Drawings, and Specifications.

### **11.3 Access to Work**

District and its representatives shall at all times have access to Work wherever it is in preparation or progress, including storage and fabrication. Developer shall provide safe and proper facilities for such access so that District's representatives may perform their functions. District shall provide Developer adequate advance notice for access to active construction zones such that Developer may provide for safety measures to District and representatives.

### **11.4 Layout and Field Engineering**

**11.4.1** All field engineering required for layout of this Work and establishing grades for earthwork operations shall be furnished by Developer at its expense. This Work shall be done by a qualified, California-registered civil engineer or licensed land surveyor approved in writing by District and Architect. Any required Record and/or As-Built Drawings of Site development shall be prepared by the approved civil engineer or licensed land surveyor.

**11.4.2** Developer shall be responsible for having ascertained pertinent local conditions such as location, accessibility, and general character of the Site and for having satisfied itself as to the conditions under which the Work is to be performed. District shall not be liable for any claim for allowances because of Developer's error or negligence in acquainting itself with the conditions at the Site.

**11.4.3** Developer shall protect and preserve established benchmarks and monuments and shall make no changes in locations without the prior written approval of District. Developer shall replace any benchmarks or monuments that are lost or destroyed subsequent to proper notification of District and with District's approval.

### **11.5 Utilities**

Utilities shall be provided as indicated in the Specifications.

### **11.6 Sanitary Facilities**

Sanitary facilities shall be provided as indicated in the Specifications.

### **11.7 Surveys**

Developer shall provide surveys done by a California-licensed civil engineer or licensed land surveyor to determine locations of construction, grading, and site work as required to perform the Work.

### **11.8 Regional Notification Center**

Developer, except in an emergency, shall contact the appropriate regional notification center at least two (2) days prior to commencing any excavation if the excavation will

of Developer to promptly notify the District in writing, pursuant to these provisions, shall constitute Developer's waiver of any claim for damages or delay incurred as a result of the condition(s).

#### **11.11 Hazardous Materials**

Developer shall comply with all provisions and requirements of the Contract Documents related to hazardous materials including, without limitation, Hazardous Materials Procedures and Requirements.

#### **11.12 No Signs**

Neither Developer nor any other person or entity shall display any signs not required by law or the Contract Documents at the Site, fences, trailers, offices, or elsewhere on the Site without specific prior written approval of the District.

### **12. Trenches**

#### **12.1 Trenches Greater Than Five Feet**

Pursuant to Labor Code section 6705, if the Guaranteed Maximum Price exceeds \$25,000 and involves the excavation of any trench or trenches five (5) feet or more in depth, Developer shall, in advance of excavation, promptly submit to the District and/or a registered civil or structural engineer employed by the District or Architect, a detailed plan showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches.

#### **12.2 Excavation Safety**

If such plan varies from the Shoring System Standards established by the Safety Orders, the plan shall be prepared by a registered civil or structural engineer, but in no case shall such plan be less effective than that required by the Safety Orders. No excavation of such trench or trenches shall be commenced until said plan has been accepted by the District or by the person to whom authority to accept has been delegated by the District.

#### **12.3 No Tort Liability of District**

Pursuant to Labor Code section 6705, nothing in this Article shall impose tort liability upon the District or any of its employees.

#### **12.4 No Excavation without Permits**

Developer shall not commence any excavation Work until it has secured all necessary permits including the required CalOSHA excavation/shoring permit. Any permits shall be prominently displayed on the Site prior to the commencement of any excavation.

#### **12.5 Discovery of Hazardous Waste and/or Unusual Conditions**

**12.5.1** Pursuant to Public Contract Code section 7104, if the Work involves digging trenches or other excavations that extend deeper than four feet below the Surface, Developer shall promptly, and before the following conditions are disturbed, notify the District, in writing, of any:

**13.2.2** Cost of bonds shall be included in the Guaranteed Maximum Price.

**13.2.3** All bonds related to this Project shall be in the forms set forth in these Contract Documents and shall comply with all requirements of the Contract Documents, including, without limitation, the bond forms.

**14. Warranty/Guarantee/Indemnity**

**14.1 Warranty/Guarantee**

**14.1.1** Developer shall obtain and preserve for the benefit of the District, manufacturer's warranties on materials, fixtures, and equipment incorporated into the Work.

**14.1.2** In addition to guarantees and warranties required elsewhere, Developer shall, and hereby does guarantee and warrant all Work furnished on the job against all defects for a period of TWO (2) years after the following date, unless a longer period is provided for in the Contract Documents:

**14.1.2.1** The acceptance of the Notice Of Completion (NOC) by the District's governing board of the Work, subject to these General Conditions.

**14.1.3** If any work is not in compliance with the Drawings and Specifications, Developer shall repair or replace any and all of that Work, together with any other Work that may be displaced in so doing, that may prove defective in workmanship and/or materials within a TWO (2) year period from date of completion as defined above, unless a longer period is provided for in the Contract Documents, without expense whatsoever to District.

**14.1.4** In the event of failure of Developer and/or Surety to commence and pursue with diligence said replacements or repairs within ten (10) days after being notified in writing, Developer and Surety hereby acknowledge and agree that District is authorized to proceed to have defects repaired and made good at expense of Developer and/or Surety who hereby agree to pay costs and charges therefore immediately on demand.

**14.1.5** If any work is not in compliance with the Drawings and Specifications and if in the opinion of District said defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to District or to prevent interruption of District operations, District will attempt to give the notice required above. If Developer or Surety cannot be contacted or neither complies with District's request for correction within a reasonable time as determined by District, District may, notwithstanding the above provision, proceed to make any and all corrections and/or provide attentions the District believes are necessary. The costs of correction or attention shall be charged against Developer and Surety of the guarantees or warranties provided in this Article or elsewhere in this Contract.

**14.1.6** The above provisions do not in any way limit the guarantees or warranties on any items for which a longer guarantee or warranty is specified

the scheduled tasks of Work on the day affected by the Adverse Weather;

**15.2.1.3** Developer's crew is dismissed as a result of the Adverse Weather;

**15.2.1.4** Said delay adversely affect the critical path in the Construction Schedule; and

**15.2.1.5** The number of days of Adverse Weather exceeds the following parameters:

January	7	July	0
February	6	August	0
March	7	September	0
April	4	October	2
May	2	November	5
June	0	December	7

**15.2.2** If the aforementioned conditions are met, a non-compensable day-for-day extension will only be allowed for those days in excess of those indicated herein.

**15.2.3** Developer shall work seven (7) days per week, if necessary, irrespective of inclement weather, to maintain access and the Construction Schedule, and to protect the Work under construction from the effects of Adverse Weather, all at no further cost to the District.

**15.2.4** The Contract Time has been determined with consideration given to the average climate weather conditions prevailing in the County in which the Project is located.

### **15.3 Hours of Work**

#### **15.3.1 Sufficient Forces**

Developer and Subcontractors shall continuously furnish sufficient and competent work forces with the required levels of familiarity with the Project and skill, training and experience to ensure the prosecution of the Work in accordance with the Construction Schedule.

#### **15.3.2 Performance During Working Hours**

Work shall be performed during regular working hours as permitted by the appropriate governmental agency except that in the event of an emergency, or when required to complete the Work in accordance with job progress, Work may be performed outside of regular working hours with the advance written consent of the District and approval of any required governmental agencies.

#### **15.3.3 No Work during State Testing**

**16.2.1** Developer shall not be charged for liquidated damages because of any delays in completion of the Work which are not the fault of Developer or its Subcontractors, including without limitation acts of God as defined in Public Contract Code section 7105, acts of enemy, epidemics, and quarantine restrictions. Developer shall, within five (5) calendar days of beginning of any delay, notify District in writing of causes of delay including documentation and facts explaining the delay and the direct correlation between the cause and effect ("Notice of Delay"). If Developer fails to provide its written Notice of Delay within this timeframe, Developer waives, releases, and discharges any right to assert or claim any entitlement to an adjustment to the Contract Price and/or the Contract Time based on circumstances giving rise to the asserted delay. District shall review the facts and extent of any delay and shall grant extension(s) of time for completing Work when, in its judgment, the findings of fact justify an extension. Extension(s) of time shall apply only to that portion of Work affected by delay, and shall not apply to other portions of Work not so affected. An extension of time may only be granted if Developer has timely submitted the Construction Schedule as required herein.

**16.2.2** Developer's Notice of Delay and request for a time extension pursuant to subparagraph 16.2 is a condition precedent to Developer's submittal of and/or entitlement to a claim pursuant to Article 25 of these Construction Provisions. Developer shall notify the District pursuant to the claims provisions in these Construction Provisions of any anticipated delay and its cause. Following submission of a claim, the District may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the Work might be delayed thereby.

**16.2.3** In the event Developer requests an extension of Contract Time for unavoidable delay as set forth in subparagraph 16.2.1, such request shall be submitted in accordance with the provisions in the Contract Documents governing changes in Work, including without limitation, the time requirements set forth in subsection 17.5, below. When requesting time, requests must be submitted with full justification and documentation. If Developer fails to submit justification, it waives its right to a time extension at a later date. Such justification must be based on the official Construction Schedule as updated at the time of occurrence of the delay or execution of Work related to any changes to the Scope of Work. Any request for a time extension must include the following information as support, without limitation:

**16.2.3.1** The duration of the activity relating to the changes in the Work and the resources (manpower, equipment, material, etc.) required to perform the activities within the stated duration.

**16.2.3.2** Specific logical ties to the Contract Schedule for the proposed changes and/or delay showing the activity/activities in the Construction Schedule that are affected by the change and/or delay. In particular, Developer must show an actual impact to the schedule, after making a good faith effort to mitigate the delay by rescheduling the work, by providing an analysis of the schedule ("Time Impact Analysis"). Such Time Impact Analysis shall describe in detail the cause and effect of the delay and the impact on the critical dates in the Project schedule. (This



**16.3.2.5** Developer timely complies with the claims procedure of the Contract Documents.

**16.3.3** Where a change in the Work extends the Contract Time, Developer may request and recover additional, actual direct costs, provided that Developer can demonstrate such additional costs are:

**16.3.3.1** Actually incurred performing the Work;

**16.3.3.2** Not compensated by the Markup allowed; and

**16.3.3.3** Directly result from the extended Contract Time.

**16.3.4** Contractor shall comply with all required procedures, documentation and time requirements in the Contract Documents. Contractor may not seek or recover such costs using formulas (e.g. Eichleay, labor factors).

#### **16.4 Float or Slack in the Schedule**

Float or slack is the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the schedule. Float or slack is not for the exclusive use of or benefit of either the District or Developer, but its use shall be determined solely by the District.

### **17. Changes in the Work**

#### **17.1 No Changes without Prior Authorization**

**17.1.1** There shall be no change whatsoever in the Drawings, Specifications, or in the Work without an executed Change Order or a written Construction Change Directive authorized by the District as herein provided. District shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the District's governing board has authorized the same and the cost thereof has been approved in writing by Change Order or Construction Change Directive in advance of the changed Work being performed. No extension of time for performance of the Work shall be allowed hereunder unless a request for such extension is made at the time changes in the Work are ordered, and such time duly adjusted and approved in writing in the Change Order or Construction Change Directive. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Drawings and Specifications.

**17.1.2** Developer shall perform immediately all work that has been authorized by a fully executed Change Order or Construction Change Directive. Developer shall be fully responsible for any and all delays and/or expenses caused by Developer's failure to expeditiously perform this Work.

**17.1.3** Should any Change Order result in an increase in the Guaranteed Maximum Price or extend the Contract Time, the cost of or length of extension in that Change Order shall be agreed to, in writing, by the District in advance of the work by Developer. In the event that Developer proceeds with any change in Work without a Change Order executed by the District or

#### **17.4.2 Changes in Guaranteed Maximum Price**

A PCO shall include breakdowns and backup documentation pursuant to the provisions herein and sufficient, in the District's judgment, to validate any change in Guaranteed Maximum Price. In no case shall Developer or any of its Subcontractors be permitted to reserve rights for additional compensation for Change Order Work.

#### **17.4.3 Changes in Time**

A PCO shall also include any changes in time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the critical path in the Construction Schedule as defined in the Contract Documents. Developer shall justify the proposed change in time by submittal of a schedule analysis that accurately shows the actual impact, if known, or the estimated impact if unknown, of the change on the critical path of the Construction Schedule ("Time Impact Analysis"). If Developer fails to request a time extension in a PCO, including the Time Impact Analysis, and/or fails to comply with these Construction Provisions including, without limitation, Articles 15, 16, or 17, then Developer is thereafter precluded from requesting, and waives any right to request, an adjustment to the Contract Time or Contract Price relating to the subject matter of the PCO. In no case shall Developer or any of its Subcontractors be permitted to reserve rights for additional time for Change Order Work. A PCO that leaves the amount of time requested blank, or states that such time requested is "to be determined," or otherwise not specifically identified, is not permitted and shall also constitute a waiver of any right to request additional time and/or claim a delay.

#### **17.4.4 Unknown and/or Unforeseen Conditions**

If there is an Allowance, then Developer must submit a Request for Allowance Expenditure Directive, including supporting documentation as described below, to receive authorization for the release of funds from the Allowance. Allowance Expenditure Directives shall be based on Developer's costs, without overhead and profit, for products, delivery, installation, labor, insurance, payroll, taxes, bonding and equipment rental will be included in Allowance Expenditure Directive authorizing expenditure of funds from this Allowance. No overhead and profit shall be added to the Allowance Expenditure Directive. If cost of the unforeseen condition(s) exceed the Allowance, and Developer submits a PCO for amounts in excess of the Allowance requesting an increase in Guaranteed Maximum Price and/or Contract Time that is based at least partially on Developer's assertion that Developer has encountered unknown and/or unforeseen condition(s) on the Project, then Developer shall base the PCO on provable information that, beyond a reasonable doubt and to the District's satisfaction, demonstrates that the unknown and/or unforeseen condition(s) were actually unknown and/or unforeseen. If not, the District shall deny the PCO as unsubstantiated, and Developer shall complete the Project without any increase in Guaranteed Maximum Price and/or Contract Time based on that PCO.

(h)	<b>Subtotal</b>		
(i)	<b>Add Overhead and Profit for Developer</b> , not to exceed _____ percent (____ %) of Item (h)		
(j)	<b>Subtotal</b>		
(k)	<b>Add Bond and Insurance</b> , not to exceed _____ percent (____ %) of Item (j) <b>ONLY IF EXCEEDS GMP</b>		
(l)	<b>TOTAL</b>		
(m)	<b>Time</b> (zero unless indicated; "TBD" not permitted)		<b>Calendar Days</b>

	<b>WORK PERFORMED BY DEVELOPER</b>	<b>ADD</b>	<b>DEDUCT</b>
(a)	<b>Material</b> (attach itemized quantity and unit cost plus sales tax)		
(b)	<b>Add Labor</b> (attach itemized hours and rates (District verified if on T&M), fully Burdened, and specify the hourly rate for each additional labor burden, for example, payroll taxes, fringe benefits, etc.)		
(c)	<b>Add Equipment</b> (attach suppliers' invoice)		
(d)	<b>Add General Conditions Cost</b> (if Time is Compensable) (attach supporting documentation)		
(e)	<b>Subtotal</b>		
(f)	<b>Add Overhead and Profit for Developer</b> , not to exceed _____ percent (____ %) of Item (e)		
(g)	<b>Subtotal</b>		
(h)	<b>Add Bond and Insurance</b> , not to exceed _____ percent (____ %) of Item (g)		
(i)	<b>TOTAL</b>		
(j)	<b>Time</b> (zero unless indicated; "TBD" not permitted)		<b>Calendar Days</b>

### 17.5.2 Labor

Developer shall be compensated for the costs of labor actually and directly utilized in the performance of the Work, as verified by the District or District representative. Such labor costs shall be the actual cost, use of any formulas (e.g. labor factors) is not allowed, not to exceed prevailing wage rates in the locality of the Site and shall be in the labor classification(s) necessary for the performance of the Work, fully Burdened. Labor costs shall exclude costs incurred by the Developer in preparing estimate(s) of the costs of the change in the Work, in the maintenance of records relating to the costs of the change in the Work, coordination and assembly of materials and information relating to the change in the Work or performance thereof, or the supervision and other overhead and general conditions costs associated with the change in the Work or performance thereof, including but not limited to the cost for the job superintendent. If applicable, District will pay Developer the reasonable costs for room and board, supported with appropriate backup documentation, without markup for profit or overhead as provided by U.S. General Services Administration per diem rates for California lodging, meals and incidentals, <https://www.gsa.gov/travel/plan-book/per-diem-rates/per-diem-rates-lookup>.

### 17.5.3 Materials

and all other costs incurred by Developer incidental to the use of the Equipment.

**17.5.5 General Conditions Cost.**

The phrase "General Conditions Cost" shall mean, other than expressly limited or excluded herein, the costs of Developer during the construction phase, including but not limited to: payroll costs for project manager for Work conducted at the Site, payroll costs for the superintendent and full-time general foremen, workers not included as direct labor costs engaged in support functions (e.g., loading/unloading, clean-up), costs of offices and temporary facilities including office materials, office supplies, office equipment, minor expenses, utilities, fuel, sanitary facilities and telephone services at the Site, costs of consultants not in the direct employ of Developer or Subcontractors, and fees for permits and licenses.

**17.5.6 Overhead and Profit.**

The phrase "Overhead and Profit" shall include field and office supervisors and assistants, watchperson, use of small tools, consumable, insurance other than construction bonds and insurance required herein, and general conditions, field and home office expenses.

**17.6 Change Order Certification**

**17.6.1** All Change Orders and PCOs must include the following certification by Developer, either in the form specifically or incorporated by this reference:

The undersigned Developer approves the foregoing as to the changes, if any, and to the Guaranteed Maximum Price specified for each item and as to the extension of time allowed, if any, for completion of the entire Work as stated herein, and agrees to furnish all labor, materials, and service, and perform all work necessary to complete any additional work specified for the consideration stated herein. Submission of sums which have no basis in fact or which Developer knows are false are at the sole risk of Developer and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq. and U.S. Criminal Code, 18 U.S.C. § 1001. It is understood that the changes herein to the Contract Documents shall only be effective when approved by the governing board of the District.

It is expressly understood that the value of the extra Work or changes expressly includes any and all of Developer's costs and expenses, both direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project, including, without limitation, cumulative impacts. Developer is not entitled to separately recover amounts for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

**17.6.2** Accord and Satisfaction: Developer's execution of any Change Order shall constitute a full accord and satisfaction, and release, of all Developer (and if applicable, Subcontractor) claims for additional time, money or other relief arising from or relating to the subject matter of the change including, without

## **17.11 Construction Change Directives**

**17.11.1** A Construction Change Directive is a written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work. The District may, as provided by law, by Construction Change Directive and without invalidating the Contract, order changes in the Work consisting of additions, deletions, or other revisions. The adjustment to the Guaranteed Maximum Price or Contract Time, if any, is subject to the provision of this section regarding Changes in the Work. If all or a portion of the Project is being funded by funds requiring approval by the State Allocation Board ("SAB"), these revisions may be subject to compensation once approval of same is received and funded by the SAB, and funds are released by the Office of Public School Construction ("OPSC"). Any dispute as to the adjustment of the Guaranteed Maximum Price, if any, of the Construction Change Directive or timing of payment shall be resolved pursuant to the Payment and Claims and Disputes provisions herein.

**17.11.2** The District may issue a Construction Change Directive in the absence of agreement on the terms of a Change Order.

## **17.12 Force Account Directives**

**17.12.1** When work, for which a definite price has not been agreed upon in advance, is to be paid for on a force account basis, all direct costs necessarily incurred and paid by Developer for labor, material, and equipment used in the performance of that Work, shall be subject to the approval of the District and compensation will be determined as set forth herein.

**17.12.2** District will issue a Force Account Directive to proceed with the Work on a force account basis, and a not-to-exceed budget will be established by the District.

**17.12.3** All requirements regarding direct cost for labor, labor burden, material, equipment, and markups on direct costs for overhead and profit described in this section shall apply to Force Account Directives. However, the District will only pay for actual costs verified in the field by the District or its authorized representative(s) on a daily basis.

**17.12.4** Developer shall be responsible for all costs related to the administration of Force Account Directives. The markup for overhead and profit for Developer modifications shall be full compensation to Developer to administer Force Account Directives, and Developer shall not be entitled to separately recover additional amounts for overhead and/or profit.

**17.12.5** Developer shall notify the District or its authorized representative(s) at least twenty-four (24) hours prior to proceeding with any of the force account work. Furthermore, Developer shall notify the District when it has consumed eighty percent (80%) of the budget, and shall not exceed the budget unless specifically authorized in writing by the District. Developer will not be compensated for force account work in the event that Developer fails to timely notify the District regarding the commencement of force account work, or exceeding the force account budget.

### **17.15 Notice Required**

If Developer desires to make a claim for an increase in the Guaranteed Maximum Price, or any extension in the Contract Time for completion, it shall notify the District pursuant to the provisions herein, including the Article on Claims and Disputes. No claim shall be considered unless made in accordance with this subparagraph. Developer shall proceed to execute the Work even though the adjustment may not have been agreed upon. Any change in the Guaranteed Maximum Price or extension of the Contract Time resulting from such claim shall be authorized by a Change Order.

### **17.16 Applicability to Subcontractors**

Any requirements under this Article shall be equally applicable to Change Orders or Construction Change Directives issued to Subcontractors by Developer to the extent required by the Contract Documents.

### **17.17 Alteration to Change Order Language**

Developer shall not alter Change Orders or reserve time in Change Orders. Change Orders altered in violation of this provision, if in conflict with the terms set forth herein, shall be construed in accordance with the terms set forth herein. Developer shall execute finalized Change Orders and proceed under the provisions herein with proper notice.

### **17.18 Failure of Developer to Execute Change Order**

Developer shall be in default of the Contract Documents if Developer fails to execute a Change Order when Developer agrees with the addition and/or deletion of the Work in that Change Order.

## **18. Requests For Information**

**18.1** Any Request for Information shall reference all applicable Contract Document(s), including Specification section(s), detail(s), page number(s), drawing number(s), and sheet number(s), etc. Developer shall make suggestions and interpretations of the issue raised by each Request for Information. A Request for Information cannot modify the Guaranteed Maximum Price, Contract Time, or the Contract Documents.

**18.2** Developer may be responsible for any costs incurred for professional services that District may deduct from any amounts owing to Developer, if a Request for Information requests an interpretation or decision of a matter where the information sought is equally available to the party making the request. District may deduct from and/or invoice Developer for professional services arising therefrom.

## **19. Payments**

### **19.1 Guaranteed Maximum Price**

As compensation for Developer's construction of the Project, the District shall pay Developer pursuant to the terms of **Exhibit C** to the Facilities Lease. This is the total amount payable by the District to Developer for performance of the Work under the Contract.

of any tier and supplier to be paid from the current Tenant Improvement Payment.

**19.2.1.1.13** A duly completed and executed unconditional waiver and release upon Tenant Improvement Payment compliant with Civil Code section 8134 from Developer and each subcontractor of any tier and supplier that was paid from the previous Tenant Improvement Payment submitted 60 days prior; and

**19.2.1.1.14** A certification by Developer of the following:

Developer warrants title to all Work performed as of the date of this payment application and that all such Work has been completed in accordance with the Contract Documents for the Project. Developer further warrants that all Work performed as of the date of this payment application is free and clear of liens, claims, security interests, or encumbrances in favor of Developer, Subcontractors, material and equipment suppliers, workers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work, except those of which the District has been informed. Submission of sums which have no basis in fact or which Developer knows are false are at the sole risk of Developer and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq.

**19.2.1.1.15** Developer shall be subject to the False Claims Act set forth in Government Code section 12650 et seq. for information provided with any Application for Tenant Improvement Payments.

**19.2.1.1.16** All remaining certified payroll records ("CPR(s)") for each journeyman, apprentice, worker, or other employee employed by Developer and/or each Subcontractor in connection with the Work for the period of the Application for Payment. As indicated herein, the District shall not make any payment to Developer until:

**19.2.1.1.16.1** Developer and/or its Subcontractor(s) provide electronic CPRs directly to the DIR on no less than every 30 days while Work is being performed and within 30 days after the final day of Work performed on the Project for any journeyman, apprentice, worker or other employee was employed in connection with the Work, or within ten (10) days of any request by the District or the DIR to the requesting entity; and

**19.2.1.1.16.2** Any delay in Developer and/or its Subcontractor(s) providing CPRs in a timely manner may directly delay Developer's payment.

### **19.3 District's Approval of Application for Payment**

**19.3.1** Upon receipt of an Application for Payment, The District shall act in accordance with both of the following:

**19.3.1.1** Each Application for Payment shall be reviewed by the District as soon as practicable after receipt for the purpose of determining that the Application for Payment is a proper Application for Payment.

**19.3.1.2** Any Application for Payment determined not to be a proper Application for Payment suitable for payment shall be returned to Developer as soon as practicable, but not later than seven (7) days, after receipt. An Application for Payment returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the Application for Payment is not proper. The number of days available to the District to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which the District exceeds this seven-day return requirement.

**19.3.2** An Application for Payment shall be considered properly executed if funds are available for payment of the Application for Payment, and payment is not delayed due to an audit inquiry by the financial officer of the District.

**19.3.3** District's review of the Developer's Application for Payment will be based on the District's and the Architect's observations at the Site and the data comprising the Application for Payment that the Work has progressed to the point indicated and that, to the best of the District's and the Architect's knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to:

**19.3.3.1** Observation of the Work for general conformance with the Contract Documents.

**19.3.3.2** Results of subsequent tests and inspections.

**19.3.3.3** Minor deviations from the Contract Documents correctable prior to completion; and

**19.3.3.4** Specific qualifications expressed by the Architect.

**19.3.4** District's approval of the certified Application for Payment shall be based on Developer complying with all requirements for a fully complete and valid certified Application for Payment.

**19.3.5** Payments to Developer

**19.3.5.1** Within thirty (30) days after approval of the Application for Payment, Developer shall be paid a sum equal to ninety-five percent (95%), of the value of the Tenant Improvement Payment (as verified by Architect and Inspector and certified by Developer) up to the last day of the previous month, less the aggregate of previous payments and amount to be withheld. The value of the Work completed shall be Developer's best estimate. No inaccuracy or error in said estimate shall



**19.4.1.2** Stop Payment Notices or other liens served upon the District as a result of the Contract.

**19.4.1.3** Failure to comply with the requirements of Public Contract Code section 2600 et seq. ("Skilled and Trained Workforce Requirements").

**19.4.1.4** Liquidated damages assessed against Developer.

**19.4.1.5** Reasonable doubt that the Work can be completed for the unpaid balance of the Guaranteed Maximum Price or by the Contract Time.

**19.4.1.6** Damage to the District or other contractor(s).

**19.4.1.7** Unsatisfactory prosecution of the Work by Developer.

**19.4.1.8** Failure to store and properly secure materials.

**19.4.1.9** Failure of Developer to submit, on a timely basis, proper, sufficient, and acceptable documentation required by the Contract Documents, including, without limitation, a Construction Schedule, Schedule of Submittals, Schedule of Values, Monthly Progress Schedules, Shop Drawings, Product Data and samples, Proposed product lists, executed Change Orders, and/or verified reports.

**19.4.1.10** Failure of Developer to maintain As-Built Drawings.

**19.4.1.11** Erroneous estimates by Developer of the value of the Work performed, or other false statements in an Application for Payment.

**19.4.1.12** Unauthorized deviations from the Contract Documents.

**19.4.1.13** Failure of Developer to prosecute the Work in a timely manner in compliance with the Construction Schedule, established progress schedules, and/or completion dates.

**19.4.1.14** Failure to provide acceptable electronic certified payroll records, as required by the Labor Code, by these Contract Documents or by written request for each journeyman, apprentice, worker, or other employee employed by Developer and/or by each Subcontractor in connection with the Work for the period of the Application for Payment or if payroll records are delinquent or inadequate.

**19.4.1.15** Failure to properly pay prevailing wages as required in Labor Code section 1720 et seq., failure to comply with any other Labor Code requirements, and/or failure to comply with labor compliance monitoring and enforcement by the DIR.

**19.4.1.16** Allowing an unregistered subcontractor, as described in Labor Code section 1725.5, to engage in the performance of any work under this Contract.

Maximum Price (up to one hundred fifty percent (150%) of the estimated reasonable value of the nonconforming Work) shall be made therefor.

#### **19.4.3 Payment After Cure**

When Developer removes the grounds for declining approval, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of Developer to perform in accordance with the terms and conditions of the Contract Documents.

### **19.5 Subcontractor Payments**

#### **19.5.1 Payments to Subcontractors**

No later than seven (7) days after receipt of any Tenant Improvement Payment, or pursuant to Business and Professions Code section 7108.5 and Public Contract Code section 7107, Developer shall pay to each Subcontractor, out of the amount paid to Developer on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled. Developer shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to its Sub-subcontractors in a similar manner.

#### **19.5.2 No Obligation of District for Subcontractor Payment**

The District shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.

#### **19.5.3 Joint Checks**

District shall have the right in its sole discretion, if necessary for the protection of the District, to issue joint checks made payable to Developer and Subcontractors and/or material or equipment suppliers. The joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. In no event shall any joint check payment be construed to create any contract between the District and a Subcontractor of any tier, or a material or equipment supplier, or any obligation from the District to such Subcontractor or a material or equipment supplier or rights in such Subcontractor against the District.

## **20. Completion of the Work**

### **20.1 Completion**

**20.1.1** District will accept completion of Project and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of District.

**20.1.2** The Work may only be accepted as complete by action of the governing board of the District.

**20.1.3** District, at its sole option, may accept completion of Project and have the Notice of Completion recorded when the entire Work shall have been

of one set of computer-aided design and drafting ("CADD") files in the following formats: Auto CADD and PDF, plus one hard copy set.

**20.2.2.3 Construction Storm Water Permit, if applicable**

Developer shall submit to District and Construction Manager all electric and hard copy records required by the Construction Storm Water Permit, if applicable, within seven (7) days of Completion of the Project.

**20.2.3 Maintenance Manuals**

Developer shall prepare all operation and maintenance manuals and date as indicated in the Specifications.

**20.2.4 Source Programming**

Developer shall provide all source programming for all items in the Project.

**20.2.5 Verified Reports**

Developer shall completely and accurately fill out and file forms DSA 6-C or DSA 152 (or most current version applicable at the time the Work is performed), as appropriate. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

**20.3 Final Inspection**

**20.3.1** Developer shall comply with Punch List procedures as provided herein, and maintain the presence of its District-approved project superintendent and project manager until the Punch List is complete to ensure proper and timely completion of the Punch List. Under no circumstances shall Developer demobilize its forces prior to completion of the Punch List without District's prior written approval. Upon receipt of Developer's written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and District acceptance, Architect and Project Inspector will inspect the Work and shall submit to Developer and District a final inspection report noting the Work, if any, required in order to complete in accordance with the Contract Documents. Absent unusual circumstances, this report shall consist of the Punch List items not yet satisfactorily completed.

**20.3.2** Upon Developer's completion of all items on the Punch List and any other uncompleted portions of the Work, Developer shall notify the District and Architect, who shall again inspect such Work. If the Architect finds the Work complete and acceptable under the Contract Documents, the Architect will notify Developer, who shall then jointly submit to the Architect and the District its final Application for Payment.

**20.3.3 Final Inspection Requirements**

**20.3.3.1** Before calling for final inspection, Developer shall determine that the following have been performed:

Work or materials, equipment and workmanship incorporated therein. The District and Developer shall agree in writing to the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents. Any dispute as to responsibilities shall be resolved pursuant to the Claims and Disputes provisions herein, with the added provision that during the dispute process, the District shall have the right to occupy or use any portion of the Work that it needs or desires to use.

#### **20.5.2 Inspection Prior to Occupancy or Use**

Immediately prior to partial occupancy or use, the District, Developer, and the Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

#### **20.5.3 No Waiver**

Unless otherwise agreed upon, partial or entire occupancy or use of a portion or portions of the Work shall not constitute beneficial occupancy or District's acceptance of the Work not complying with the requirements of the Contract Documents.

### **21. Final Payment and Retention**

#### **21.1 Final Payment**

Upon receipt of a final Application for Payment from Developer, the Architect will notify the District whether the Work is complete so that joint inspection of the Work can be scheduled. Thereafter, the District shall jointly inspect the Work and either accept the Work as complete or notify the Architect and Developer in writing of reasons why the Work is not complete. Upon District's acceptance of the Work of Developer as fully complete (that, absent unusual circumstances, will occur when the Punch List items have been satisfactorily completed), the District shall record a Notice of Completion with the County Recorder, and Developer shall, upon receipt of final payment from the District, pay the amount due Subcontractors.

#### **21.2 Prerequisites for Final Payment**

The following conditions must be fulfilled prior to Final Payment:

**21.2.1** A full release of all Stop Payment Notices served in connection with the Work shall be submitted by Developer.

**21.2.2** A duly completed and executed conditional waiver and release upon final payment compliant with Civil Code section 8136 from each subcontractor of any tier and supplier to be paid from the final Tenant Improvement Payment.

**21.2.3** A duly completed and executed unconditional waiver and release upon Tenant Improvement Payment compliant with Civil Code section 8134 from each subcontractor of any tier and supplier that was paid from the previous Tenant Improvement Payment(s).

**22. Uncovering of Work**

If a portion of the Work is covered without Inspector or Architect approval or not in compliance with the Contract Documents, it must, if required in writing by the District, the Project Inspector, or the Architect, be uncovered for the Project Inspector's or the Architect's observation and be corrected, replaced and/or recovered at Developer's expense without change in the Guaranteed Maximum Price or Contract Time.

**23. Nonconforming Work and Correction of Work**

**23.1 Nonconforming Work**

**23.1.1** Developer shall promptly remove from Premises all Work identified by District as failing to conform to the Contract Documents whether incorporated or not. Developer shall promptly replace and re-execute its own Work to comply with the Contract Documents without additional expense to the District and shall bear the expense of making good all work of other contractors destroyed or damaged by any removal or replacement pursuant hereto and/or any delays to the District or other contractors caused thereby.

**23.1.2** If Developer does not commence to remove Work that District has identified as failing to conform to the Contract Documents within a reasonable time, not to exceed FORTY-EIGHT (48) hours after written notice and complete removal of work within a reasonable time, District may remove it and may store any material at Developer's expense. If Developer does not pay expense(s) of that removal within ten (10) days' time thereafter, District may, upon ten (10) days' written notice, sell any material at auction or at private sale and shall deduct all costs and expenses incurred by the District and/or District may withhold those amounts from payment(s) to Developer.

**23.2 Correction of Work**

**23.2.1 Correction of Rejected Work**

Pursuant to the notice provisions herein, Developer shall promptly correct the Work rejected by the District, the Architect, or the Project Inspector as failing to conform to the requirements of the Contract Documents, whether observed before or after Completion and whether or not fabricated, installed, or completed. Developer shall bear costs of correcting the rejected Work, including additional testing, inspections, and compensation for the Inspector's or the Architect's services and expenses made necessary thereby.

**23.2.2 Two-Year Warranty Corrections**

If, within one (2) years after the date of Completion of the Work or a designated portion thereof, or after the date for commencement of warranties established hereunder, or by the terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, Developer shall correct it promptly after receipt of written notice from the District to do so. This period of two (2) years shall be extended with respect to portions of the Work first performed after Completion by the period of time between Completion and the actual performance of the Work. This obligation hereunder shall survive District's

vouchers, invoices, progress payment applications, or other routine or authorized form of requests for progress payments in compliance with the Contract. If a dispute remains, then Developer shall give written notice to District that expressly invokes this Article 25 within the time limits set forth herein.

**25.1.2** Developer's sole and exclusive remedy for Disputed Work is to file a written claim setting forth Developer's position as required herein within the time limits set forth herein.

## **25.2 Duty to Perform during Claim Process**

Developer and its subcontractors shall continue to perform its Work under the Contract, including the Disputed Work, and shall not cause a delay of the Work during any dispute, claim, negotiation, mediation, or arbitration proceeding, except by written agreement by the District.

## **25.3 Definition of Claim**

**25.3.1** Pursuant to Public Contract Code section 9204, the term "Claim" means a separate demand by Developer sent by registered mail or certified mail with return receipt requested, for one or more of the following:

**25.3.1.1** A time extension, including without limitation, for relief of damages or penalties for delay assessed by the District under the Contract;

**25.3.1.2** Payment by the District of money or damages arising from work done by, or on behalf of, Developer pursuant to the Contract and payment of which is not otherwise expressly provided for or to which Developer is not otherwise entitled to; or

**25.3.1.3** An amount of payment disputed by the District.

## **25.4 Claims Presentation**

### **25.4.1 Form and Contents of Claim**

**25.4.1.1** If Developer intends to submit a Claim for an increase in the Guaranteed Maximum Price and/or Contract Time for any reason including, without limitation, the acts of District or its agents, Developer shall, within thirty (30) days after the event giving rise to the Claim, give notice of the Claim ("Notice of Potential Claim") in writing, specifically identifying Developer is invoking this Article 25 Claims Presentation. The Notice of Potential Claim shall provide Developer's preliminary request for an adjustment to the Contract Price and/or Contract Time, with a description of the grounds therefore.

**25.4.1.2** Within thirty (30) days after serving the written Notice of Potential Claim, Developer shall provide a Claim including an itemized statement of the details and amounts of its Claim for any increase in the Guaranteed Maximum Price or Contract Time, as provided below,

Developer may request to waive the claims procedure under Public Contract Code section 9204 and proceed directly to the commencement of a civil action or binding arbitration. If Developer chooses to proceed, Developer shall comply with the following steps:

**25.5.1 STEP 1:**

**25.5.1.1** Upon receipt of a Claim by registered or certified mail, return receipt requested, including the documents necessary to substantiate it, the District shall conduct a reasonable review of the Claim and, within a period not to exceed 45 days, shall provide Developer a written statement identifying what portion of the Claim is disputed and what portion is undisputed. Upon receipt of a Claim, the District and Developer may, by mutual agreement, extend the time period to provide a written statement. If the District needs approval from its governing body to provide Developer a written statement identifying the disputed portion and the undisputed portion of the Claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of Claim sent by registered mail or certified mail, return receipt requested, the District shall have up to three (3) days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide Developer a written statement identifying the disputed portion and the undisputed portion.

**25.5.1.1.1** Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. Amounts not paid in a timely manner as required by this section, section 25.4, shall bear interest at seven percent (7%) per annum.

**25.5.1.2** Upon receipt of a Claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable. In this instance, District and Developer must comply with the sections below regarding Public Contract Code section 20104 et seq. and Government Code Claim Act Claims.

**25.5.1.3** If the District fails to issue a written statement, or to otherwise meet the time requirements of this section, this shall result in the Claim being deemed rejected in its entirety. A claim that is denied by reason of the District's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of Developer.

**25.5.2 STEP 2:**

**25.5.2.1** If Developer disputes the District's written response, or if the District fails to respond to a Claim within the time prescribed, Developer may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the

or her own behalf or on behalf of a lower tier subcontractor, that Developer present a Claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the Claim be presented to the District shall furnish reasonable documentation to support the Claim.

**25.6.2** Within 45 days of receipt of this written request from a subcontractor, Developer shall notify the subcontractor in writing as to whether Developer presented the Claim to the District and, if Developer did not present the Claim, provide the subcontractor with a statement of the reasons for not having done so.

**25.6.3** Developer shall bind all its Subcontractors to the provisions of this section and will hold the District harmless against Claims by Subcontractors.

## **25.7 Government Code Claim Act Claim**

**25.7.1** If a Claim, or any portion thereof, remains in dispute upon satisfaction of all applicable Claim Resolution requirements, including those pursuant to Public Contract Code section 9204, Developer shall comply with all claims presentation requirements as provided in Chapter 1 (commencing with section 900) and Chapter 2 (commencing with section 910) of Part 3 of Division 3.6 of Title 1 of Government Code as a condition precedent to Developer's right to bring a civil action against the District.

**25.7.2** Developer shall bear all costs incurred in the preparation, submission and administration of a Claim. Any claims presented in accordance with the Government Code must affirmatively indicate Developer's prior compliance with the claims procedure herein of the claims asserted.

**25.7.3** For purposes of those provisions, the running of the time within which a claim pursuant to Public Contract Code section 20104.2 only must be presented to the District shall be tolled from the time the Developer submits its written claim pursuant to subdivision (a) until the time that the claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

## **25.8 Claim Resolution pursuant to Public Contract Code section 20104 et seq.**

**25.8.1** In the event of a disagreement between the parties as to performance of the Work, the interpretation of this Contract, or payment or nonpayment for Work performed or not performed, the parties shall attempt to resolve all claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between Developer and District by those procedures set forth in Public Contract Code section 20104 et seq., to the extent applicable.

**25.8.1.1** Developer shall file with the District any written Claim, including the documents necessary to substantiate it, upon the application for final payment.

**25.8.1.2** For claims of less than fifty thousand dollars (\$50,000), the District shall respond in writing within forty-five (45) days of receipt of the Claim or may request in writing within thirty (30) days of receipt of



both parties. The mediation process shall provide for the selection within fifteen (15) days by both parties of a disinterested third person as mediator, shall be commenced within thirty (30) days of the submittal, and shall be concluded within fifteen (15) days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

**25.8.1.7** If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of the Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act, (commencing with Section 2016) of Chapter 1 of Title 4 of part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

**25.8.1.8** The District shall not fail to pay money as to any portion of a Claim which is undisputed except as otherwise provided in the Contract Documents. In any suit filed pursuant to this section, the District shall pay interest at the legal rate on any arbitration award or judgment. Interest shall begin to accrue on the date the suit is filed in a court of law.

**25.8.2** Developer shall bind its Subcontractors to the provisions of this Section and will hold the District harmless against disputes by Subcontractors.

## **25.9 Claims Procedure Compliance**

**25.9.1** Failure to submit and administer claims as required in Article 25 shall waive Developer's right to claim on any specific issues not included in a timely submitted claim. Claim(s) not raised in a timely protest and timely claim submitted under this Article 25 may not be asserted in any subsequent litigation, Government Code Claim, or legal action.

**25.9.2** District shall not be deemed to waive any provision under this Article 25, if at District's sole discretion, a claim is administered in a manner not in accord with this Article 25. Waivers or modifications of this Article 25 may only be made by a signed change order approved as to form by legal counsel for both District and Developer; oral or implied modifications shall be ineffective.

## **25.10 Claim Resolution Non-Applicability**

**25.10.1** The procedures for dispute and claim resolution set forth in this Article shall not apply to the following:

**25.10.1.1** Personal injury, wrongful death or property damage claims.

**25.10.1.2** Latent defect or breach of warranty or guarantee to repair.

**25.10.1.3** Stop payment notices.

("Director"), regardless of any contractual relationship which may be alleged to exist between Developer or any Subcontractor and such workers.

**26.2.4** If, prior to execution of the Facilities Lease, the Director determines that there has been a change in any prevailing rate of per diem wages in the locality in which the Work under the Contract Documents is to be performed, such change shall not alter the wage rates in the Contract Documents subsequently awarded.

**26.2.5** Pursuant to Labor Code section 1775, Developer shall, as a penalty, forfeit the statutory amount (believed by the District to be currently two hundred dollars (\$200) to District for each calendar day, or portion thereof, for each worker paid less than the prevailing rates, determined by the District and/or the Director, for the work or craft in which that worker is employed for any public work done under Contract by Developer or by any Subcontractor under it. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate, shall be paid to each worker by Developer.

**26.2.6** Any worker employed to perform Work on the Project, which Work is not covered by any classification listed in the general prevailing wage rate of per diem wages determined by the Director, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to Work to be performed by him, and that minimum wage rate shall be retroactive to time of initial employment of the person in that classification.

**26.2.7** Pursuant to Labor Code section 1773.1, per diem wages are deemed to include employer payments for health and welfare, pension, vacation, travel time, subsistence pay, and apprenticeship or other training programs authorized by Labor Code section 3093, and similar purposes.

**26.2.8** Developer shall post at appropriate conspicuous points on the Project Site a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned. In addition, Developer shall post a sign-in log for all workers and visitors to the Site, a list of all Subcontractors of any tier on the Site, and the required Equal Employment Opportunity poster(s).

### **26.3 Hours of Work**

**26.3.1** As provided in Article 3 (commencing at section 1810), Chapter 1, Part 7, Division 2, of the Labor Code, eight (8) hours of labor shall constitute a legal day of work. The time of service of any worker employed at any time by Developer or by any Subcontractor on any subcontract under the Contract Documents upon the Work or upon any part of the Work contemplated by the Contract Documents shall be limited and restricted by Developer to eight (8) hours per day, and forty (40) hours during any one week, except as hereinafter provided. Notwithstanding the provisions hereinabove set forth, Work performed by employees of Developer in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon this public work

**26.4.1.1.2** Any delay in Developer and/or its Subcontractor(s) providing CPRs to the District or DIR in a timely manner may directly delay the District's review and/or audit of the CPRs and Developer's payment.

**26.4.2** All CPRs shall be available for inspection at all reasonable hours at the principal office of Developer on the following basis:

**26.4.2.1** A certified copy of an employee's CPR shall be made available for inspection or furnished to the employee or his/her authorized representative on request.

**26.4.2.2** CPRs shall be made available for inspection or furnished upon request or as required by regulation to a representative of the District, Division of Labor Standards Enforcement, Division of Apprenticeship Standards, and/or the DIR.

**26.4.2.3** CPRs shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through the District, Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested CPRs have not been provided pursuant to the provisions herein, the requesting party shall, prior to being provided the records, reimburse the costs of preparation by Developer, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of Developer.

**26.4.3** Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by District, Division of Apprenticeship Standards, Division of Labor Standards Enforcement, or DIR shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of Developer awarded the Project under the Contract Documents or performing under the Contract Documents shall not be marked or obliterated.

**26.4.4** Developer shall inform District of the location of the records enumerated hereunder, including the street address, city, and county, and shall, within five (5) working days of a change in location of the records, provide a notice of change of location and address.

**26.4.5** In the event of noncompliance with the requirements of this section, Developer shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects Developer must comply with this section. Should noncompliance still be evident after the ten (10) day period, Developer shall, as a penalty, forfeit up to one hundred dollars (\$100) to District for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Labor Commissioner, these penalties shall be withheld from Tenant Improvement Payments then due.

**26.4.6** As Developer and its subcontractors have agreed to be bound by the terms of the PLA entered into by the District dated **June 9, 2022**, Developer and its subcontractors may be excused from uploading CPRs electronically

**26.6.7.1** Be denied the right to bid on any subsequent project for one (1) year from the date of such determination.

**26.6.7.2** Forfeit, as a penalty, to District the full amount stated in Labor Code section 1777.7. Interpretation and enforcement of these provisions shall be in accordance with the rules and procedures of the California Apprenticeship Council and under the authority of the Chief of the Division of Apprenticeship Standards.

**26.6.7.3** Developer and all Subcontractors shall comply with Labor Code section 1777.6, which section forbids certain discriminatory practices in the employment of apprentices.

**26.6.7.4** Developer shall become fully acquainted with the law regarding apprentices prior to commencement of the Work. Special attention is directed to sections 1777.5, 1777.6, and 1777.7 of the Labor Code, and Title 8, California Code of Regulations, Section 200 et seq. Questions may be directed to the State Division of Apprenticeship Standards, 455 Golden Gate Avenue, 9th Floor, San Francisco, California 94102.

## **26.7 Skilled and Trained Workforce**

**26.7.1** Developer and its subcontractors at every tier hereby provides an enforceable commitment to comply with Public Contract Code section 2600 et seq., which requires use of a skilled and trained workforce to perform all work on the Contract or Project that falls within an apprenticeable occupation in the building and construction trades.

**26.7.1.1** "Apprenticeable Occupation" means an occupation for which the Chief of the Division of Apprenticeship Standards of the Department of Industrial Relations ("Chief") had approved an apprenticeship program pursuant to Section 3075 of the Labor Code before January 1, 2014.

**26.7.1.2** "Skilled and Trained Workforce" means a workforce that meets all of the following conditions:

**26.7.1.2.1** All of the workers are either skilled journeypersons or apprentices registered in an apprenticeship program approved by the Chief.

**26.7.1.2.2** That, for the applicable dates, either (A) the number of the skilled journeypersons employed to perform work on the Contract or Project by Developer or its subcontractors at every tier are graduates of an apprenticeship program for the applicable occupation that was either approved by the Chief pursuant to Labor Code section 3075 or located outside California and approved for federal purposes pursuant to the apprenticeship regulations adopted by the federal Secretary of Labor, or (B) the hours of work performed by skilled journeypersons who have graduated from an approved

**26.7.2.1** Provide monthly reports to the District demonstrating that Developer and its subcontractors are complying with the requirements of Public Contract Code section 2600 et seq., which shall be a public record under California Public Records Act, Government Code section 6250 et seq.; or

**26.7.2.2** Provide evidence that Developer and its subcontractors have agreed to be bound by: (1) a project labor agreement entered into by the District that binds all contractors and all its subcontractors at every tier performing work on the Project to use a skilled and trained workforce; (2) the extension or renewal of a project labor agreement entered into by the District prior to January 1, 2017; or (3) a project labor agreement that binds all contractors and all its subcontractors at every tier performing work on the Project to use a skilled and trained workforce.

**26.8 [Reserved]**

**26.9 Non-Discrimination**

**26.9.1** Developer herein agrees to comply with the provisions of the California Fair Employment and Housing Act as set forth in Part 2.8 of Division 3 of Title 2 of the California Government Code, commencing at section 12900; the Federal Civil Rights Act of 1964, as set forth in Public Law 88-352, and all amendments thereto; Executive Order 11246; and all administrative rules and regulations found to be applicable to Developer and Subcontractor.

**26.9.2** Special requirements for Federally Assisted Construction Contracts: During the performance of the requirement of the Contract Documents, Developer agrees to incorporate in all subcontracts the provisions set forth in Chapter 60-1.4(b) of Title 41 published in Volume 33 No. 104 of the Federal Register dated May 28, 1968.

**26.10 Labor First Aid**

Developer shall maintain emergency first aid treatment for Developer's laborers and mechanics on the Project which complies with the Federal Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 et seq.) and the California Occupational Safety and Health Act of 1973 (Lab. Code, § 6300 et seq.; 8 Cal. Code of Regs., § 330 et seq.).

**27. Coordination with District**

**27.1 Access.**

Access to the school buildings and entry to buildings, classrooms, restrooms, mechanical rooms, electrical rooms, or other rooms, for construction purposes, must be coordinated with District and onsite District personnel before Work is to start. Unless agreed to otherwise in writing, only a school custodian will be allowed to unlock and lock doors in existing building(s). The custodian will be available only while school is in session. If a custodian is required to arrive before 7:00 a.m. or leave after 3:30 p.m. to accommodate Developer's Work, the overtime wages for the custodian will be

**28.1.1** Section 7103.5(b) of the Public Contract Code states:

In entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgment by the parties.

**28.1.2** Section 4552 of the Government Code states in pertinent part:

In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder.

**28.1.3** Section 4553 of the Government Code states in pertinent part:

If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

**28.1.4** Section 4554 of the Government Code states in pertinent part:

Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

**28.1.5** Under this Article, "public purchasing body" is District and "bidder" is Developer.

**28.2 Excise Taxes**

If, under Federal Excise Tax Law, any transaction hereunder constitutes a sale on which a Federal Excise Tax is imposed and the sale is exempt from such Federal Excise Tax because it is a sale to a State or Local Government for its exclusive use, District, upon request, will execute documents necessary to show (1) that District is a political

**EXHIBIT D-1**

**SPECIAL CONDITIONS**

**1. COVID-19 Vaccination and Testing Requirements**

Developer shall comply with all applicable federal, state and local laws regarding COVID-19. On August 11, 2021, the California Department of Public Health ("CDPH") issued a new State Public Health Officer Order ("Order") regarding COVID-19 vaccine verification for workers in school districts, affecting District operations. The Order took effect on August 12, 2021, and all affected worksites must be in full compliance with the Order by October 15, 2021. In addition, the District passed Resolution No. 3233 which requires all District contractors who work directly with students or District staff at District facilities after January 31, 2022 to be fully vaccinated or have submitted a valid exemption to Developer. Accordingly, Developer is required to comply with the following before permitting Developer personnel to work at the Project site:

*Vaccination Requirements*

Developer shall fill out, sign, date and submit to District the COVID-19 Vaccination/Testing Certification Form. The completed COVID-19 Vaccination/Testing Certification Form must be received by the District prior to the Notice to Proceed.

According to the August 11, 2021, California Department of Public Health ("CDPH") State Public Health Officer Order ("Order"), a person is "fully vaccinated" for COVID-19 if two weeks or more have passed since they have received the second dose in a 2-dose series (Pfizer-BioNTech or Moderna or vaccine authorized by the World Health Organization), or two weeks or more have passed since they received a single-dose vaccine (Johnson and Johnson[J&J]/Janssen).

Pursuant to the CDPH Guidance for Vaccine Records Guidelines & Standards, Developer shall only accept the following as proof of vaccination:

(a) COVID-19 Vaccination Record Card (issued by the Department of Health and Human Services Centers for Disease Control & Prevention or WHO Yellow Card) which includes name of person vaccinated, type of vaccine provided and date last dose administered);

(b) a photo of a Vaccination Record Card as a separate document;

(c) a photo of a Vaccination Record Card stored on a phone or electronic device;

(d) documentation of COVID-19 vaccination from a health care provider;

(e) digital record that includes a QR code that when scanned by a SMART Health Card reader displays to the reader name, date of birth, vaccine dates and vaccine type; or

(f) documentation of vaccination from other contracted employers who follow these vaccination records guidelines and standards.

In the absence of knowledge to the contrary, Developer may accept the documentation presented in (a) through (f) above as valid.

**4. Permits, Certificates, Licenses, Fees, Approvals**

**4.1. Payment for Permits, Certificates, Licenses, Fees, Approvals.**

As required in the General Construction Provisions, Developer shall secure and pay for all permits, licenses and certificates necessary for the prosecution of the Work with the exception of the following:

[Water Connection Fees, Sewer Connection Fees, Impact Fees, Capacity Charges].

With respect to the above listed items, Developer shall be responsible for securing such items; however, District will be responsible for payment of these charges or fees, but only for the actual and direct costs (without markup or additional fees). Developer shall notify the District of the amount due with respect to these items and to whom the amount is payable. Developer shall provide the District with an invoice and receipt with respect to such charges or fees. In the alternative, District may pay such costs directly to DSA.

**5. Disabled Veterans Business Enterprise**

This Project uses or may plan to use funds allocated pursuant to the State of California School Facility Program for the construction and/or modernization of school buildings. Education Code Section 17076.11 requires the District to have a participation goal for disabled veteran business enterprises ("DVBE") of at least three percent (3%), per year, of the overall dollar amount expended each year by the District on projects that receive state funding. Accordingly, Developer must submit the Disabled Veteran Business Enterprise Participation Certification to the District after issuance of the Notice of Award After Guaranteed Maximum Price, identifying the steps Developer took to solicit DVBE participation in conjunction with this Contract.

**6. Modernization Projects**

**6.1. Access.**

Access to the school buildings and entry to buildings, classrooms, restrooms, mechanical rooms, electrical rooms, or other rooms, for construction purposes, must be coordinated with District and onsite District personnel before Work is to start. Unless agreed to otherwise in writing, only a school custodian will be allowed to unlock and lock doors in existing building(s). The custodian will be available only while school is in session. If a custodian is required to arrive before 7:00 a.m. or leave after 3:30 p.m. to accommodate Developer's Work, the overtime wages for the custodian will be paid by Developer, unless at the discretion of the District, other arrangements are made in advance.

**6.2. Master Key.**

Upon request, the District may, at its own discretion, provide a master key to the school site for the convenience of Developer. Developer agrees to pay all expenses to re-key the entire school site and all other affected District buildings if the master key is lost or stolen, or if any unauthorized party obtains a copy of the key or access to the school.



**APPENDIX A**

**DISTRICT MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)  
To be added by amendment**

[REMAINDER OF PAGE INTENTIONALLY BLANK; EXHIBIT FOLLOWS]

**Refer to Amendment No. 1  
attachments 4.1 & 4.2.**

accordance with Section 4-338 of Part 1, Title 24, CCR. Substitutions affecting DSA regulated items are changes to the Contract Documents and shall be considered CCDs. DSA review of CCDs is required, and they shall be approved by DSA prior to fabrication and installation. FCDs and CCDs shall be signed by AOR, SEOR (if applicable), and DSA in accordance with 4-338(c), Part 1, DSA IR A-6.

- H. Contractor shall submit verified reports in accordance with Sections 4-343(c) of Part 1, Title 24, CCR. Architect shall submit verified reports in accordance with Sections 4-341(f) of Part 1, Title 24, CCR.
- I. DSA may supervise construction, reconstruction, or repair in accordance with Section 4-334 of Part 1, Title 24, CCR.
- J. Construction shall be observed by a full-time Project Inspector employed by the District, approved by the Architect, Structural Engineer and DSA in accordance with Sections 4-333(b) and 4-342 of Part 1, Title 24, CCR.
- K. Testing requirements of the District's Testing Laboratory shall be in accordance with Section 4-335 of Part 1, Title 24, CCR.
- L. Special inspection of masonry construction, glued laminated lumber, wood framing using timber connections, ready-mixed concrete, high strength steel bolt installation, welding, and mechanical and electrical work shall be as required by Section 4-333(c) of Part 1, Title 24, CCR. The costs of special inspection will be paid for by the District. Nothing in this paragraph shall limit the District's rights under Division 1 - General Conditions.
- M. The intent of these Drawings and Specifications is that the work of the alteration, rehabilitation or reconstruction is to be in accordance with Title 24, California Code of Regulations. Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the Contract Documents wherein the finished work will not comply with Title 24, California Code of Regulations, a change order, or separate set of plans and specifications, detailing and specifying the required work shall be submitted to and approved by DSA before proceeding with the work.

**PART 2 – PRODUCTS**

NOT USED

**PART 3 – EXECUTION**

NOT USED

END OF SECTION

- B. Codes, regulations, and standards shall be as published effective as of date of bid opening, unless otherwise specified or indicated.

#### **1.06 PROJECT RECORD DOCUMENTS**

- A. Contractor shall maintain on Site one set of the following record documents; Contractor shall record actual revisions to the Work:
  - (1) Contract Drawings.
  - (2) Specifications.
  - (3) Addenda.
  - (4) Change Orders and other modifications to the Contract.
  - (5) Reviewed shop drawings, product data, and samples.
  - (6) Field test records.
  - (7) Inspection certificates.
  - (8) Manufacturer's certificates.
- B. Contractor shall store Record Documents separate from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.
- C. Contractor shall record information concurrent with construction progress.
- D. Specifications: Contractor shall legibly mark and record at each product section of the Specifications the description of the actual product(s) installed, including the following:
  - (1) Manufacturer's name and product model and number.
  - (2) Product substitutions or alternates utilized.
  - (3) Changes made by Addenda and Change Orders and written directives.

#### **1.07 EXAMINATION OF EXISTING CONDITIONS**

- A. Contractor shall be held to have examined the Project Site and acquainted itself with the conditions of the Site and of the streets or roads approaching the Site.
- B. Prior to commencement of Work, Contractor shall survey the Site and existing buildings and improvements to observe existing damage and defects such as cracks, sags, broken, missing or damaged glazing, other building elements and Site improvements, and other damage.
- C. Should Contractor observe cracks, sags, and other damage to and defects of the Site and adjacent buildings, paving, and other items not indicated in the

- B. Contractor shall obtain District's written approval as indicated in the General Conditions in advance of deliveries of material or equipment or other activities that may conflict with District's use of the building(s) or adjacent facilities.

**1.11 STRUCTURAL INTEGRITY**

- A. Contractor shall be responsible for and supervise each operation and work that could affect structural integrity of various building elements, both permanent and temporary.
- B. Contractor shall include structural connections and fastenings as indicated or required for complete performance of the Work.

**PART 2 – PRODUCTS Not Used.**

**PART 3 – EXECUTION Not Used.**

END OF DOCUMENT

**ALTERNATES AND UNIT PRICING**

**PART 1 – ALTERNATES**

**1.01 RELATED DOCUMENTS AND PROVISIONS**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A.** General Conditions;
- B.** Special Conditions;
- C.** Bid Form and Proposal;
- D.** Instruction to Bidders.

**1.02 DESCRIPTION**

The items of work indicated below propose modifications to, substitutions for, additions to and/or deletions from the various parts of the Work specified in other Sections of the Specifications. The acceptance or rejection of any of the alternates is strictly at the option of the District subject to District's acceptance of Contractor's stated prices contained in this Proposal.

**1.03 GENERAL**

Where an item is omitted, or scope of Work is decreased, all Work pertaining to the item whether specifically stated or not, shall be omitted and where an item is added or modified or where scope of Work is increased, all Work pertaining to that required to render same ready for use on the Project in accordance with intention of Drawings and Specifications shall be included in an agreed upon price amount.

**1.04 BASE BID**

The Base Bid includes all work required to construct the Project completely and in accordance with the Contract Documents.

**1.05 ALTERNATES**

- A.** N/A

The above Alternate descriptions are general in nature and for reference purposes only. The Contract Documents, including, without limitation, the Drawings and Specifications, must be referred to for the complete scope of Work.

**PRODUCT OPTIONS AND SUBSTITUTIONS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. Instructions to Bidders;
- B. General Conditions, including, without limitation, Substitutions For Specified Items; and
- C. Special Conditions.

**1.02 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT**

- A. Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required. Substitutions which are equal in quality, utility, and appearance to those specified may be reviewed subject to the provisions of the General Conditions.
- B. Wherever more than one manufacturer's product is specified, the first-named product is the basis for the design used in the work and the use of alternative-named manufacturers' products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by the District and/or the Architect, Contractor shall assume all costs required to make necessary revisions and modifications of the design resulting from the substitutions requested by the Contractor.
- C. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or approved equal," supporting data for the second product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions. The District's Board has found and determined that certain item(s) shall be used on this Project based on the purpose(s) indicated pursuant to Public Contract Code section 3400(c). These findings, as well as the products and brand or trade names, have been identified in the Notice to Bidders.
- D. The Contractor will not be allowed to substitute specified items unless the request for substitution is submitted as follows:
  - (1) District must receive any notice of request for substitution of a specified item a minimum of ten (10) calendar days prior to bid opening.

DOCUMENT 01 26 00

**CHANGES IN THE WORK**

**CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS IN THE AGREEMENT, GENERAL CONDITIONS, AND SPECIAL CONDITIONS, IF USED, RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES.**

END OF DOCUMENT

those exceptions shall be stated in writing to the District within five (5) working days following District's distribution of the meeting notes.

**1.03 PRE-INSTALLATION/PERFORMANCE MEETING:**

- A. Developer shall schedule a meeting prior to the start of each of the following portions of the Work: cutting and patching of plaster and roofing, and other weather-exposed and moisture-resistant products. Developer shall invite all Invitees to this meeting, and others whose work may affect or be affected by the quality of the cutting and patching work.
- B. Developer shall review in detail prior to this meeting, the manufacturer's requirements and specifications, applicable portions of the Contract Documents, Shop Drawings, and other submittals, and other related work. At this meeting, invitees shall review and resolve conflicts, incompatibilities, or inadequacies discovered or anticipated.
- C. Developer shall review in detail Project conditions, schedule, requirements for performance, application, installation, and quality of completed Work, and protection of adjacent Work and property.
- D. Developer shall review in detail means of protecting the completed Work during the remainder of the construction period.

**PART 2 - PRODUCTS Not Used.**

**PART 3 - EXECUTION Not Used.**

END OF DOCUMENT



C. Milestone Schedule:

**Preliminary Construction Schedule**

Anticipated award of pre-construction: March 2, 2023

Pre-construction duration: March 6, 2023 – May 17, 2024

**INCREMENT 1:**

Anticipated submittal to DSA: February 24, 2023

Anticipated approval of GMP: August 17, 2023

Anticipated mobilization date for construction: August 31, 2023

**INCREMENT 2:**

Anticipated 50% CD estimate(s) due from Developer: July 7, 2023

Anticipated submittal to DSA: October 10, 2023

Anticipated DSA submittal estimate(s) due from Developer: December 15, 2023

Anticipated approval of GMP: May 16, 2024

Anticipated mobilization date for construction: May 21, 2024

Increment 1 and Increment 2, phase 1 required construction completion: July 14, 2025

Increment 2, phase 2 required construction completion: August 29, 2025

Increment 1 and Increment 2 required punchlist and project acceptance: October 31, 2025

D. QUALIFICATIONS

Contractor shall employ experienced scheduling personnel qualified to use the latest version of [i.e., Primavera Project Planner]. Experience level required is set forth below. Contractor may employ such personnel directly or may employ a consultant for this purpose.

- (1) The written statement shall identify the individual who will perform CPM scheduling.
- (2) Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM.
- (3) Required level of experience shall include at least two (2) projects of similar nature and scope with value not less than three fourths ( $\frac{3}{4}$ ) of the Total Bid Price of this Project. The written statement shall provide contact persons for referenced projects with current telephone and address information.

- E. District reserves the right to approve or reject Contractor's scheduler or consultant at any time. District reserves the right to refuse replacing of Contractor's scheduler or consultant, if District believes replacement will negatively affect the scheduling of Work under this Contract.

- F. Software: Use [**i.e., District Project Planner for Windows, latest version**]. Such software shall be compatible with Windows operating system. Contractor shall transmit contract file to District on compact disk at times requested by District.
- G. Transmit each item under the form approved by District.
  - (1) Identify Project with District Contract number and name of Contractor.
  - (2) Provide space for Contractor's approval stamp and District's review stamps.
  - (3) Submittals received from sources other than Contractor will be returned to the Contractor without District's review.

### **1.05 INITIAL CPM SCHEDULE**

- A. Initial CPM Schedule submitted for review at the pre-construction conference shall serve as Contractor's schedule for up to ninety (90) calendar days after the Notice to Proceed.
- B. Indicate detailed plan for the Work to be completed in first ninety (90) days of the Contract; details of planned mobilization of plant and equipment; sequence of early operations; procurement of materials and equipment. Show Work beyond ninety (90) calendar days in summary form.
- C. Initial CPM Schedule shall be time scaled.
- D. Initial CPM Schedule shall be cost and resource loaded. Accepted cost and resource loaded schedule will be used as basis for monthly progress payments until acceptance of the Original CPM Schedule. Use of Initial CPM Schedule for progress payments shall not exceed ninety (90) calendar days.
- E. District and Contractor shall meet to review and discuss the Initial CPM Schedule within seven (7) calendar days after it has been submitted to District.
  - (1) District's review and comment on the schedule shall be limited to Contract conformance (with sequencing, coordination, and milestone requirements).
  - (2) Contractor shall make corrections to schedule necessary to comply with Contract requirements and shall adjust schedule to incorporate any missing information requested by District. Contractor shall resubmit Initial CPM Schedule if requested by District.
- F. If, during the first ninety (90) days after Notice to Proceed, the Contractor is of the opinion that any of the Work included on its Initial CPM Schedule has been impacted, the Contractor shall submit to District a written Time Impact Evaluation ("TIE") in accordance with Article 1.12 of this Section. The TIE shall be based on the most current update of the Initial CPM Schedule.

separate activity in the schedule. Sum of cost for all activities shall equal total Contract value.

- (11) Resources required (labor and major equipment) to perform each activity.
- (12) Responsibility code for each activity corresponding to Contractor or Subcontractor responsible for performing the Work.
- (13) Identify the activities which constitute the controlling operations or critical path. No more than twenty-five (25%) of the activities shall be critical or near critical. Near critical is defined as float in the range of one (1) to (10) days.
- (14) Twenty (20) workdays for developing punch list(s), completion of punch-list items, and final clean up for the Work or any designated portion thereof. No other activities shall be scheduled during this period.
- (15) Interface with the work of other contractors, District, and agencies such as, but not limited to, utility companies.
- (16) Show detailed Subcontractor Work activities. In addition, furnish copies of Subcontractor schedules upon which CPM was built.
  - (a) Also furnish for each Subcontractor, as determined by District, submitted on Subcontractor letterhead, a statement certifying that Subcontractor concurs with Contractor's Original CPM Schedule and that Subcontractor's related schedules have been incorporated, including activity duration, cost and resource loading.
  - (b) Subcontractor schedules shall be independently derived and not a copy of Contractor's schedule.
  - (c) In addition to Contractor's schedule and resource loading, obtain from electrical, mechanical, and plumbing Subcontractors, and other Subcontractors as required by District, productivity calculations common to their trades, such as units per person day, feet of pipe per day per person, feet of wiring per day per person, and similar information.
  - (d) Furnish schedule for Contractor/Subcontractor CPM schedule meetings which shall be held prior to submission of Original CPM schedule to District. District shall be permitted to attend scheduled meetings as an observer.
- (17) Activity durations shall be in Work days.
- (18) Submit with the schedule a list of anticipated non-Work days, such as weekends and holidays. The Progress Schedule shall exclude in its Work day calendar all non-Work days on which Contractor anticipates critical Work will not be performed.

requests. No additional compensation will be provided for such adjustments, additions, or clarifications.

- B. Acceptance of Contractor's schedule by District will be based solely upon schedule's compliance with Contract requirements.
  - (1) By way of Contractor assigning activity durations and proposing sequence of Work, Contractor agrees to utilize sufficient and necessary management and other resources to perform work in accordance with the schedule.
  - (2) Upon submittal of schedule update, updated schedule shall be considered "current" CPM Schedule.
  - (3) Submission of Contractor's schedule to District shall not relieve Contractor of total responsibility for scheduling, sequencing, and pursuing Work to comply with requirements of Contract Documents, including adverse effects such as delays resulting from ill-timed Work.
- C. Submittal of Original CPM Schedule, and subsequent schedule updates, shall be understood to be Contractor's representation that the Schedule meets requirements of Contract Documents and that Work shall be executed in sequence indicated on the schedule.
- D. Contractor shall distribute Original CPM Schedule to Subcontractors for review and written acceptance, which shall be noted on Subcontractors' letterheads to Contractor and transmitted to District for the record.

#### **1.08 MONTHLY CPM SCHEDULE UPDATE SUBMITTALS**

- A. Following acceptance of Contractor's Original CPM Schedule, Contractor shall monitor progress of Work and adjust schedule each month to reflect actual progress and any anticipated changes to planned activities.
  - (1) Each schedule update submitted shall be complete, including all information requested for the Original CPM Schedule submittal.
  - (2) Each update shall continue to show all Work activities including those already completed. These completed activities shall accurately reflect "as built" information by indicating when activities were actually started and completed.
- B. A meeting will be held on approximately the twenty-fifth (25th) of each month to review the schedule update submittal and progress payment application.
  - (1) At this meeting, at a minimum, the following items will be reviewed: Percent (%) complete of each activity; Time Impact Evaluations for Change Orders and Time Extension Request; actual and anticipated activity sequence changes; actual and anticipated duration changes; and actual and anticipated Contractor delays.

Contractor's failure to respond in writing within seven (7) calendar days of District's written rejection of a schedule revision shall be contractually interpreted as acceptance of District's position, and the Contractor waives its rights to subsequently dispute or file a claim regarding District's position.

- E. At District's discretion, the Contractor can be required to provide Subcontractor certifications of performance regarding proposed schedule revisions affecting said Subcontractors.

#### **1.10 RECOVERY SCHEDULE**

- A. If the Schedule Update shows a completion date twenty-one (21) calendar days beyond the Contract Completion Date, or individual milestone completion dates, the Contractor shall submit to District the proposed revisions to recover the lost time within seven (7) calendar days. As part of this submittal, the Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.
- B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District.
- C. If the Contractor's revisions are not accepted by District, District and the Contractor shall follow the procedures in paragraph 1.09.C, 1.09.D and 1.09.E above.
- D. At District's discretion, the Contractor can be required to provide Subcontractor certifications for revisions affecting said Subcontractors.

#### **1.11 TIME IMPACT EVALUATION ("TIE") FOR CHANGE ORDERS, AND OTHER DELAYS**

- A. When Contractor is directed to proceed with changed Work, the Contractor shall prepare and submit within fourteen (14) calendar days from the Notice to Proceed a TIE which includes both a written narrative and a schedule diagram depicting how the changed Work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed Work in the schedule and how it impacts the current schedule-update critical path. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable District to evaluate the impact of changed Work to the scheduled critical path.
- B. Contractor shall be required to comply with the requirements of Paragraph 1.09.A for all types of delays such as, but not limited to, Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.
- C. Contractor shall be responsible for all costs associated with the preparation of TIEs, and the process of incorporating them into the current schedule update. The Contractor shall provide District with four (4) copies of each TIE.

date, previous payments, and amount earned for current update period.

- (3) Schedule plots presenting time-scaled network diagram showing activities and their relationships with the controlling operations or critical path clearly highlighted.
- (4) Cash flow report calculated by early start, late start, and indicating actual progress. Provide an exhibit depicting this information in graphic form.
- (5) Planned versus actual resource (i.e., labor) histogram calculated by early start and late start.

C. Other Reports:

In addition to above reports, District may request, from month to month, any two of the following reports. Submit four (4) copies of all reports.

- (1) Activities by early start.
- (2) Activities by late start.
- (3) Activities grouped by Subcontractors or selected trades.
- (4) Activities with scheduled early start dates in a given time frame, such as fifteen (15) or thirty (30) day outlook.

D. Furnish District with report files on compact disks containing all schedule files for each report generated.

#### **1.14 PROJECT STATUS REPORTING**

- A. In addition to submittal requirements for CPM scheduling identified in this Section, Contractor shall provide a monthly project status report (i.e., written narrative report) to be submitted in conjunction with each CPM Schedule as specified herein. Status reporting shall be in form specified below.
- B. Contractor shall prepare monthly written narrative reports of status of Project for submission to District. Written status reports shall include:
  - (1) Status of major Project components (percent (%) complete, amount of time ahead or behind schedule) and an explanation of how Project will be brought back on schedule if delays have occurred.
  - (2) Progress made on critical activities indicated on CPM Schedule.
  - (3) Explanations for any lack of work on critical path activities planned to be performed during last month.
  - (4) Explanations for any schedule changes, including changes to logic or to activity durations.

F. Equipment, other than hand tools, utilized by Contractor and Subcontractors.

**1.17 PERIODIC VERIFIED REPORTS**

Contractor shall complete and verify construction reports on a form prescribed by the Division of the State Architect and file reports on the first day of February, May, August, and November during the preceding quarter year; at the completion of the Contract; at the completion of the Work; at the suspension of Work for a period of more than one (1) month; whenever the services of Contractor or any of Contractor's Subcontractors are terminated for any reason; and at any time a special verified report is required by the Division of the State Architect. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

**PART 2 – PRODUCTS Not Used.**

**PART 3 - EXECUTION Not Used.**

END OF DOCUMENT

- (2) Contractor shall comply with all time frames herein and in the General Conditions and, in any case, shall submit required information in sufficient time to permit proper consideration and action before ordering any materials or items represented by such Shop Drawings, Product Data, and/or Samples.
- (3) Contractor shall allow sufficient time so that no delay occurs due to required lead time in ordering or delivery of any item to the Site. Contractor shall be responsible for any delay in progress of Work due to its failure to observe these requirements.
- (4) Time for completion of Work shall not be extended on account of Contractor's failure to promptly submit Shop Drawings, Product Data, and/or Samples.
- (5) Reference numbers on Shop Drawings shall have Architectural and/or Engineering Contract Drawings reference numbers for details, sections, and "cuts" shown on Shop Drawings. These reference numbers shall be in addition to any numbering system that Contractor chooses to use or has adopted as standard.
- (6) When the magnitude or complexity of submittal material prevents a complete review within the stated time frame, Contractor shall make this submittal in increments to avoid extended delays.
- (7) Contractor shall certify on submittals for review that submittals conform to Contract requirements. Also certify that Contractor-furnished equipment can be installed in allocated space. In event of any variance, Contractor shall specifically state in transmittal and on Shop Drawings, portions vary and require approval of a substitute. Submittals shall not be used as a means of requesting a substitution.
- (8) Unless specified otherwise, sampling, preparation of samples, and tests shall be in accordance with the latest standard of the American Society for Testing and Materials.
- (9) Upon demand by Architect or District, Contractor shall submit samples of materials and/or articles for tests or examinations and consideration before Contractor incorporates same in Work. Contractor shall be solely responsible for delays due to sample(s) not being submitted in time to allow for tests. Acceptance or rejection will be expressed in writing. Work shall be equal to approved samples in every respect. Samples that are of value after testing will remain the property of Contractor.

C. Submittal Schedule:

- (1) Contractor shall prepare its proposed submittal schedule that is coordinated with the proposed construction schedule and submit both to the District within ten (10) days after the date of the Notice to Proceed. Contractor's proposed schedules shall become the Project Construction Schedule and the Project Submittal Schedule after each is approved by the District.



contiguous with and having bearing on other work shown on Shop Drawings is accurately drawn and in conformance with Contract Documents.

- I. Submitted drawings and details must bear stamp of approval of Contractor:
  - (1) Stamp and signature shall clearly certify that Contractor has checked Shop Drawings for compliance with Drawings.
  - (2) If Contractor submits a Shop Drawing without an executed stamp of approval, or whenever it is evident (despite stamp) that Drawings have not been checked, the District and/or Architect will not consider them and will return them to the Contractor for revision and resubmission. In that event, it will be deemed that Contractor has not complied with this provision and Contractor shall bear risk of all delays to same extent as if it had not submitted any Shop Drawings or details.
- J. Submission of Shop Drawings (in either original submission or when resubmitted with correction) constitutes evidence that Contractor has checked all information thereon and that it accepts and is willing to perform Work as shown.
- K. Contractor shall pay for cost of any changes in construction due to improper checking and coordination. Contractor shall be responsible for all additional costs, including coordination. Contractor shall be responsible for costs incurred by itself, the District, the Architect, the Project Inspector, the Construction Manager, any other Subcontractor or contractor, etc., due to improperly checked and/or coordination of submittals.
- L. Shop Drawings must clearly delineate the following information:
  - (1) Project name and address.
  - (2) Specification number and description.
  - (3) Architect's name and project number.
  - (4) Shop Drawing title, number, date, and scale.
  - (5) Names of Contractor, Subcontractor(s) and fabricator.
  - (6) Working and erection dimensions.
  - (7) Arrangements and sectional views.
  - (8) Necessary details, including complete information for making connections with other Work.
  - (9) Kinds of materials and finishes.
  - (10) Descriptive names of materials and equipment, classified item numbers, and locations at which materials or equipment are to be installed in the Work. Contractor shall use same reference identification(s) as shown on Contract Drawings.

- (1) Samples must be of sufficient size and quality to clearly illustrate functional characteristics, with integrally related parts and attachment devices.
- (2) Samples must show full range of texture, color, and pattern.
- C. Contractor shall make all Submittals, unless it has authorized Subcontractor(s) to submit and Contractor has notified the District in writing to this effect.
- D. Samples to be shipped prepaid or hand-delivered to the District.
- E. Contractor shall mark samples to show name of Project, name of Contractor submitting, Contract number and segment of Work where representative Sample will be used, all applicable Specifications Sections and documents, Contract Drawing Number and detail, and ASTM or FS reference, if applicable.
- F. Contractor shall not deliver any material to Site prior to receipt of District's and/or Architect's completed written review and approval. Contractor shall furnish materials equal in every respect to approved Samples and execute Work in conformance therewith.
- G. District's and/or Architect's review, acceptance, and/or approval of Sample(s) will not preclude rejections of any material upon discovery of defects in same prior to final acceptance of completed Work.
- H. After a material has been approved, no change in brand or make will be permitted.
- I. Contractor shall prepare its Submittal Schedule and submit Samples of materials requiring laboratory tests to specified laboratory for testing not less than ninety (90) days before such materials are required to be used in Work.
- J. Samples which are rejected must be resubmitted promptly after notification of rejection and be marked "Resubmitted Sample" in addition to other information required.
- K. Field Samples and Mock-Ups are to be removed by Contractor at District's direction:
  - (1) Size: As Specified.
  - (2) Furnish catalog numbers and similar data, as requested.

**1.06 REVIEW AND RESUBMISSION REQUIREMENTS:**

- A. The District will arrange for review of Sample(s), Shop Drawing(s), Product Data, and other submittal(s) by appropriate reviewer and return to Contractor as provided below within twenty-one (21) days after receipt or within twenty-one (21) days after receipt of all related information necessary for such review, whichever is later.
- B. One (1) copy of product or materials data will be returned to Contractor with the review status.

**SITE STANDARDS**

**PART 1 – GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS:**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including without limitation, Site Access, Conditions, and Regulations;
- B. Special Conditions;
- C. Drug-Free Workplace Certification;
- D. Tobacco-Free Environment Certification;
- E. Criminal Background Investigation/Fingerprinting Certification;
- F. Temporary Facilities and Controls.

**1.02 REQUIREMENTS OF THE DISTRICT:**

- A. Drug-Free Schools and Safety Requirements:
  - (1) All school sites and other District Facilities have been declared "Drug-Free Zones." No drugs, alcohol and/or smoking are allowed at any time in any buildings and/or grounds on District property. No students, staff, visitors, or contractors are to use drugs on these sites.
  - (2) Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school-owned vehicles and vehicles owned by others while on District property. Contractor shall post: "Non-Smoking Area" in a highly visible location in each work area, staging area, and parking area. Contractor may designate a smoking area outside of District property within the public right-of-way, provided that this area remains quiet and unobtrusive to adjacent neighbors. This smoking area is to be kept clean at all times.
  - (3) Contractor shall ensure that no alcohol, firearms, weapons, or controlled substances enter or are used at the Site. Contractor shall immediately remove from the Site and terminate the employment of any employee(s) found in violation of this provision.
- B. Language: Profanity or other unacceptable and/or loud language will not be tolerated, "Cat calls" or other derogatory language toward students, staff, volunteers, parents or public will not be allowed.

**REGULATORY REQUIREMENTS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS:**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Obtaining of Permits, Licenses and Registrations and Work to Comply with All Applicable Laws and Regulations;
- B. Special Conditions; and
- C. Quality Control.

**1.02 DESCRIPTION:**

This section covers the general requirements for regulatory requirements pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.

**1.03 REQUIREMENTS OF REGULATORY AGENCIES:**

- A. All statutes, ordinances, laws, rules, codes, regulations, standards, and the lawful orders of all public authorities having jurisdiction over the Work, are hereby incorporated into these Contract Documents as if repeated in full herein and are intended to be included in any reference to Code or Building Code, unless otherwise specified, including, without limitation, the references in the list below. Contractor shall make available at the Site copies of all the listed documents applicable to the Work as the District and/or Architect may request, including, without limitation, applicable portions of the California Code of Regulations ("CCR").
  - (1) California Building Standards Administrative Code, Part 1, Title 24, CCR.
  - (2) California Building Code (CBC), Part 2, Title 24, CCR; (International Building Code volumes 1-2 and California Amendments).
  - (3) California Electrical Code (CEC), Part 3, Title 24, CCR; (National Electrical Code and California Amendments).
  - (4) California Mechanical Code (CMC), Part 4, Title 24, CCR; (Uniform Mechanical Code and California Amendments).
  - (5) California Plumbing Code (CPC), Part 5, Title 24, CCR; (Uniform Plumbing Code and California Amendments).

- (1) Test and testing laboratory per Section 4-335. District shall pay for the testing laboratory.
- (2) Special inspections per Section 4-333(c).
- (3) Deferred Approvals per section 4-317(g).
- (4) Verified reports per Sections 4-336 & 4-343(c).
- (5) Duties of the Architect & Engineers shall be per Sections 4-333(a) and 4-341.
- (6) Duties of the Contractor shall be per Section 4-343.
- (7) Duties of Project Inspector shall be per Section 4-334.
- (8) Addenda and Construction Change Documents per Section 4-338.

Contractor shall keep and make available all applicable parts of the most current version of Title 24 referred to in the plans and specifications at the Site during construction.

- C. Items of deferred approval shall be clearly marked on the first sheet of the Architect's and/or Engineer's approved Drawings. All items later submitted for approval shall be per Title 24 requirements to the DSA.
- (1) Contractor shall submit the following to Architect for review and endorsement:
    - (a) Product information on proposed material/system supplier.
    - (b) Drawings, specifications, and calculations prepared, signed, and stamped by an architect or engineer licensed in the State of California for that portion of the Work.
    - (c) All other requirements as may be required by DSA.
  - (2) Cost of preparing and submitting documentation per DSA Deferred Approval requirements including required modifications to Drawings and Specifications, whether or not indicated in the Contract Documents, shall be borne by Contractor.
  - (3) Contractor shall not begin fabrication and installation of deferred approval items without first obtaining DSA approval of Drawings and Specifications.
  - (4) Schedule of Work Subject to DSA Deferred Approval: Window wall systems exceeding 10 feet in span.

**PART 2 – PRODUCTS Not Used.**

**PART 3 – EXECUTION Not Used.**

END OF DOCUMENT

27.	CCR	California Code of Regulations
28.	CLFMI	Chain Link Fence Manufacturers Institute
29.	CRA	California Redwood Association
30.	CRSI	Concrete Reinforcing Steel Institute
31.	CS	Commercial Standards
32.	CSI	Construction Specifications Institute
33.	CTI	Cooling Technology Institute
34.	FGIA	Fenestration and Glazing Industry Alliance
35.	FGMA	Flat Glass Manufacturers' Association
36.	FIA	Factory Insurance Association
37.	FM	Factory Mutual Global
38.	FS/FED SPEC	Federal Specification
39.	FTI	Facing Title Institute
40.	GA	Gypsum Association
41.	IAPMO	International Association of Plumbing and Mechanical Officials
42.	ICC	International Code Council
43.	IEEE	Institute of Electrical and Electronics Engineers
44.	IES	Illuminating Engineering Society
45.	MCAC	Mason Contractors Association of California
46.	MIMA	Mineral Wool Insulation Manufacturers Association
47.	MLMA	Metal Lath Manufacturers Association
48.	MS/MIL SPEC	Military Specifications
49.	NAAMM	National Association of Architectural Metal Manufacturers
50.	NBHA	National Builders Hardware Association
51.	NCMA	National Concrete Masonry Association
52.	NCSEA	National Council of Structural Engineers Associations
53.	NEC	National Electrical Code
54.	NEMA	National Electrical Manufacturers Association
55.	NIST	National Institute of Standards and Technology
56.	NSI	Natural Stone Institute
57.	NTMA	National Terrazzo and Mosaic Association, Inc.
58.	ORS	Office of Regulatory Services (California)
59.	OSHA	Occupational Safety and Health Act
60.	PCI	Precast/Prestressed Concrete Institute
61.	PCA	Portland Cement Association
62.	PCA	Painting Contractors Association
63.	PDI	Plumbing Drainage Institute
64.	PEI	Porcelain Enamel Institute, Inc.
65.	PG&E	Pacific Gas & Electric Company
66.	PS	Product Standards
67.	SDI	Steel Door Institute; Steel Deck Institute
68.	SJI	Steel Joist Institute
69.	SSPC	Society for Protective Coatings
70.	TCNA	Tile Council of North America, Inc.
71.	TPI	Truss Plate Institute
72.	UBC	Uniform Building Code
73.	UL	Underwriters Laboratories Code

**DEFINITIONS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions including without limitation, Definitions;
- B. Special Conditions.

**1.02 QUALITY ASSURANCE**

- A. For products or workmanship specified by association, trade, or Federal Standards, Contractor shall comply with requirements of the standard, except when more rigid requirements are specified in the Contract Documents, or are required by applicable codes.
- B. Contractor shall conform to current reference standard publication date in effect on the date of bid opening.
- C. Contractor shall obtain copies of standards unless specifically required not to by the Contract Documents.
- D. Contractor shall maintain a copy of all standards at jobsite during submittals, planning, and progress of the specific Work, until final completion, unless specifically required not to by the Contract Documents.
- E. Should specified reference standards conflict with Contract Documents, Contractor shall request clarification from the District and/or the Architect before proceeding.
- F. The contractual relationship of the parties to the Contract shall not be altered from the contractual relationship as indicated in the Contract Documents by mention or inference otherwise in any referenced document.
- G. Governing Codes shall be as shown in the Contract Documents including, without limitation, the Specifications.

END OF DOCUMENT

ADC	Air Duct Council 1901 N. Roselle Road, Suite 800 Schaumburg, IL 60195 <a href="http://www.flexibleduct.org">www.flexibleduct.org</a>	847/706-6750
AF&PA	American Forest and Paper Association 1101 K Street, NW, Suite 700 Washington, DC 20005 <a href="http://www.afandpa.org">www.afandpa.org</a>	202/463-2700
AGA	American Gas Association 400 North Capitol Street, NW, Suite 450 Washington, DC 20001 <a href="http://www.aga.org">www.aga.org</a>	202/824-7000
AGC	Associate General Contractors of America 2300 Wilson Blvd., Suite 300 Arlington, VA 22201 <a href="http://www.agc.org">www.agc.org</a>	703/548-3118
AHA	American Hardboard Association 1210 West Northwest Highway Palatine, IL 60067 <a href="http://domensino.com/AHA/default.htm">http://domensino.com/AHA/default.htm</a>	847/934-8800
AI	Asphalt Institute 2696 Research Park Drive Lexington, KY 40511-8480 <a href="http://www.asphaltinstitute.org">www.asphaltinstitute.org</a>	859/288-4960
AIA	The American Institute of Architects 1735 New York Ave., NW Washington, DC 20006-5292 <a href="http://www.aia.org">www.aia.org</a>	202/626-7300
AISC	American Institute of Steel Construction 130 East Randolph Street, Suite 2000 Chicago, IL 60601 <a href="http://www.aisc.org">www.aisc.org</a>	312.670.2400
AISI	American Iron and Steel Institute 25 Massachusetts Ave., NW, Suite 800 Washington, DC 20001 <a href="http://www.steel.org">www.steel.org</a>	202/452-7100
AITC	American Institute of Timber Construction 1010 South 336th Street, #210 Federal Way, WA 98003-7394 <a href="https://www.plib.org/aitc/">https://www.plib.org/aitc/</a>	253/835-3344



APA	Architectural Precast Association 325 John Knox Rd, Suite L-103 Tallahassee, FL 32303 www.archprecast.org	850/205-5637
APCIA	American Property Casualty Insurance Association (merger of American Insurance Association (formerly the National Board of Fire Underwriters) with the Property Casualty Insurers Association of America) 555 12th St, NW, Suite 550 Washington DC 20004 www.apci.org	202/828-7100
AHRI	Air Conditioning and Refrigeration Institute (now Air- Conditioning, Heating, & Refrigeration Institute) 2311 Wilson Blvd, Suite 400 Arlington, VA 22201 www.ahrinet.org	703/524-8800
ARMA	Asphalt Roofing Manufacturers Association 2331 Rock Spring Road Forest Hill, MD 21050 www.asphaltroofing.org	443/640-1075
ASA	The Acoustical Society of America Suite 300 1305 Walt Whitman Road Melville, NY 11747-4300 https://acousticalsociety.org/	516/576-2360
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191 www.asce.org	800/548-2723 703/295-6300
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 180 Technology Parkway Peachtree Corners, GA 30092 www.ashrae.org	800/527-4723 404/636-8400
ASLA	American Society of Landscape Architects 636 Eye Street, NW Washington, DC 20001-3736 www.asla.org	202/898-2444
ASME	American Society of Mechanical Engineers Two Park Avenue New York, NY 10016-5990 www.asme.org	800/834-2763

BHMA	Builders Hardware Manufacturers Association 355 Lexington Avenue, 15th Floor New York, NY 10017 www.buildershardware.com	212/297-2122
BIA	The Brick Industry Association 12007 Sunrise Valley Drive, Suite 430 Reston, VA 20191 www.gobrick.com	703/620-0010
CGA	Compressed Gas Association 8484 Westpark Drive, Suite 220 McLean, VA 22102 www.cganet.com	703/788-2700
CISCA	Ceilings & Interior Systems Construction Association 1010 Jorie Blvd, Suite 30 Oak Brook, IL 60523 www.cisca.org	630/584-1919
CISPI	Cast Iron Soil Pipe Institute 2401 Fieldcrest Dr. Mundelein, IL 60060 www.cispi.org	224/864-2910
CLFMI	Chain Link Fence Manufacturers Institute 10015 Old Columbia Road, Suite B-215 Columbia, MD 21046 chainlinkinfo.org	301/596-2583
CPA	Composite Panel Association 19465 Deerfield Avenue, Suite 306 Leesburg, VA 20176 www.compositepanel.org	703/724-1128
CPSC	Consumer Product Safety Commission 4330 East-West Highway Bethesda, MD 20814 www.cpsc.gov	800/638-2772
CRA	California Redwood Association 818 Grayson Road, Suite 201 Pleasant Hill, CA 94523 www.calredwood.org	925/935-1499

EPA	Environmental Protection Agency Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 <a href="http://www.epa.gov">www.epa.gov</a>	202/272-0167
FCICA	Floor Covering Installation Contractors Association 800 Roosevelt Rd., Bldg. C, Suite 312 Glen Ellyn, IL 60137 <a href="http://www.fcica.com">www.fcica.com</a>	630/672-3702
FGIA	Fenestration and Glazing Industry Alliance 1900 E Golf Rd, Suite 1250 Schaumburg, IL 60173 <a href="https://fgiaonline.org/">https://fgiaonline.org/</a>	847/303-5664
FM Global	Factory Mutual Insurance Company Amy Daley Global Practice Leader – Education, Public Entities, Health Care FM Global 270 Central Avenue Johnston, RI 02919-4949 <a href="http://www.fmglobal.com">www.fmglobal.com</a>	401/275-3000 401/275-3029
FS	General Services Administration (GSA) Index of Federal Specifications, Standards and Commercial Item Descriptions 470 East L'Enfant Plaza, SW, Suite 8100 Washington, DC 20407 <a href="http://www.gsa.gov">www.gsa.gov</a>	202/619-8925
GA	The Gypsum Association 962 Wayne Ave., Suite 620 Silver Spring, MD 20910 <a href="http://www.gypsum.org">www.gypsum.org</a>	301/277-8686
HMA	Hardwood Manufacturers Association One Williamsburg Place, Suite 108 Warrendale, PA 15086 <a href="http://hmamembers.org">http://hmamembers.org</a>	412/244-0440

NAIMA	North American Insulation Manufacturers Association P.O. Box 1906 Alexandria, VA 22313 <a href="https://insulationinstitute.org/">https://insulationinstitute.org/</a>	703/684-0084
NALP	National Association of Landscape Professionals (formerly Professional Landcare Network) 12500 Fair Lakes Circle, Suite 200 Fairfax, VA 22033 <a href="https://www.landscapeprofessionals.org/">https://www.landscapeprofessionals.org/</a>	703/736-9666
NAPA	National Asphalt Pavement Association 6406 Ivy Lane, Suite 350 Greenbelt, MD 20770-1441 <a href="http://www.asphaltpavement.org">www.asphaltpavement.org</a>	888/468-6499 301/731-4748
NCSPA	National Corrugated Steel Pipe Association 14070 Proton Road, Suite 100 Dallas, TX 75244 <a href="http://www.ncspa.org">www.ncspa.org</a>	972/850-1907
NCMA	National Concrete Masonry Association 13750 Sunrise Valley Drive Herndon, VA 20171-4662 <a href="http://www.ncma.org">www.ncma.org</a>	703/713-1900
NEBB	National Environmental Balancing Bureau 8575 Grovemont Circle Gaithersburg, MD 20877 <a href="http://www.nebb.org">www.nebb.org</a>	301/977-3698
NECA	National Electrical Contractors Association 1201 Pennsylvania Ave. NW Washington, D.C., 20004 <a href="http://www.necanet.org">www.necanet.org</a>	202/991-6300
NEMA	National Electrical Manufacturers Association 1300 North 17th Street N, Suite 900 Rosslyn, VA 22209 <a href="http://www.nema.org">www.nema.org</a>	703/841-3200
NEII	National Elevator Industry, Inc. 5537 SW Urish Road Topeka, KS 66610 <a href="https://nationalelevatorindustry.org/">https://nationalelevatorindustry.org/</a>	703/589-9985
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471 <a href="http://www.nfpa.org">www.nfpa.org</a>	800/344-3555 855/274-8525

PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077 or 200 Massachusetts Ave NW, Suite 200 Washington, DC 20001 www.cement.org	847/966-6200 202/408-9494
PCA	Painting Contractors Association (formerly Painting and Decorating Contractors of America) 2316 Millpark Drive Maryland Heights, MO 63043 https://www.pcapainted.org/	800/322-7322
PCI	Precast/Prestressed Concrete Institute 8770 W. Bryn Mawr Ave., Suite 1150 Chicago, IL 60631 www.pci.org	312/786-0300
PDI	Plumbing & Drainage Institute 800 Turnpike Street, Suite 300 North Andover, MA 01845 http://pdionline.org	978/557-0720 800/589-8956
PEI	Porcelain Enamel Institute, Inc. P.O. Box 920220 Norcross, GA 30010 www.porcelainenamel.com	770/676-9366
PG&E	Pacific Gas & Electric Company P.O. Box 997300 Sacramento, CA 95899-7300 www.pge.com	800/743-5000
PLIB	Pacific Lumber Inspection Bureau (formerly West Coast Lumber Inspection Bureau) 1010 South 336th Street, Suite 210 Federal Way, WA 98003-7394 https://www.plib.org/	253/835-3344
RFCI	Resilient Floor Covering Institute 115 Broad Street, Suite 201 La Grange, GA 30240 www.rfci.com	706/882-3833
SDI	Steel Deck Institute P.O. Box 426 Glenshaw, PA 15116 www.sdi.org	412/487-3325

TVI	The Vermiculite Institute c/o The Schundler Company 10 Central Street Nahant, MA 01908 <a href="http://www.vermiculiteinstitute.org">www.vermiculiteinstitute.org</a>	732/287-2244
UL	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 <a href="http://www.ul.com">www.ul.com</a>	847/272-8800 877/854-3577
UNI	Uni-Bell PVC Pipe Association 201 E. John Carpenter Freeway, Suite 750 Irving, TX 75062 <a href="http://www.uni-bell.org">www.uni-bell.org</a>	972/243-3902
USDA	U.S. Department of Agriculture 1400 Independence Ave., S.W. Washington, DC 20250 <a href="http://www.usda.gov">www.usda.gov</a>	202/720-2791
WA	Wallcoverings Association 35 E Wacker Dr., Suite 850 Chicago, IL 60601 <a href="http://www.wallcoverings.org">www.wallcoverings.org</a>	312/224-2574
WCMA	Window Covering Manufacturers Association 355 Lexington Avenue 15th Floor New York, NY 10017 <a href="http://www.wcmanet.org">www.wcmanet.org</a>	212/297-2122
WDMA	Window & Door Manufacturers Association 2001 K Street NW, 3rd Floor North Washington, D.C. 20006 <a href="http://www.wdma.com">www.wdma.com</a>	202/367-1157
WI	Woodwork Institute 1455 Response Road, Suite 110 Sacramento, CA 95815 <a href="http://www.wicnet.org">www.wicnet.org</a>	916/372-9943
WRI	Wire Reinforcement Institute 942 Main Street, Suite 300 Hartford, CT 06103 <a href="http://www.wirereinforcementinstitute.org">www.wirereinforcementinstitute.org</a>	860/240-9545
WWCA	Western Wall & Ceiling Contractors Association 1910 N. Lime St. Orange, CA 92865 <a href="http://www.wwcca.org">www.wwcca.org</a>	714/221-5520

**MATERIALS AND EQUIPMENT**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Purchase of Materials and Equipment;
- B. Special Conditions;
- C. Imported Materials Certification.

**1.02 MATERIAL AND EQUIPMENT**

- A. Only items approved by the District and/or Design Professional shall be used.
- B. Contractor shall submit lists of products and other product information in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

**1.03 MATERIAL AND EQUIPMENT COLORS**

- A. The District and/or Architect will provide a schedule of colors.
- B. No individual color selections will be made until after approval of all pertinent materials and equipment and after receipt of appropriate samples in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.
- C. Contractor shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Contractor shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer.
- B. Contractor shall deliver fabrications in as large assemblies as practicable; where specified as shop-primed or shop-finished, package or crate as required to preserve such priming or finish intact and free from abrasion.
- C. Contractor shall store materials in such a manner as necessary to properly protect them from damage. Materials or equipment damaged by handling, weather, dirt, or from any other cause will not be accepted.

## **PART 3 - EXECUTION**

### **3.01 WORKMANSHIP**

- A. Where not more specifically described in any other Contract Documents, workmanship shall conform to methods and operations of best standards and accepted practices of trade or trades involved and shall include items of fabrication, construction, or installation regularly furnished or required for completion (including finish and for successful operation, as intended).
- B. Work shall be executed by tradespersons skilled in their respective lines of Work. When completed, parts shall have been durably and substantially built and present a neat appearance.

### **3.02 COORDINATION**

- A. Contractor shall coordinate installation of Work so as to not interfere with installation of others. Adjustment or rework because of Contractor's failure to coordinate will be at no additional cost to District.
- B. Contractor shall examine in-place work for readiness, completeness, fitness to be concealed or to receive other work, and in compliance with Contract Documents. Concealing or covering Work constitutes acceptance of additional cost which will result should in-place Work be found unsuitable for receiving other Work or otherwise deviating from the requirements of the Contract Documents.

### **3.03 COMPLETENESS**

Contractor shall provide all portions of the Work, unless clearly stated otherwise, installed complete and operational with all elements, accessories, anchorages, utility connections, etc., in manner to assure well-balanced performance, in accordance with manufacturer's recommendations and by Contract Documents. For example, electric water coolers require water, electricity, and drain services; roof drains require drain system; sinks fit within countertop, etc. Terms such as "installed complete," "operable condition," "for use intended," "connected to all utilities," "terminate with proper cap," "adequately anchored," "patch and refinish," "to match similar," should be assumed to apply in all cases, except where completeness of functional or operable condition is specifically stated as not required.

### **3.04 APPROVED INSTALLER OR APPLICATOR**

Installation by a manufacturer's approved installer or applicator is an understood part of Specifications and only approved installer or applicator is to provide on-site Work where specified manufacturer has on-going program of approving (i.e. certifying, bonding, re-warranting) installers or applicators. Newly established relationships between a manufacturer and an installer or applicator who does not have other approved applicator work in progress or completed is not approved for this Project.



**QUALITY CONTROL**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS:**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Inspector, Inspections and Tests, Uncovering of Work and Non-conforming of Work and Correction of Work;
- B. Special Conditions.

**1.02 RELATED CODES:**

- A. The Work is governed by requirements of Title 24, California Code of Regulations ("CCR"), and the Contractor shall keep a copy of these available at the job Site for ready reference during construction.
- B. The Division of the State Architect ("DSA") shall be notified at or before the start of construction.

**1.03 OBSERVATION AND SUPERVISION:**

- A. The District and Architect or their appointed representatives will review the Work and the Contractor shall provide facilities and access to the Work at all times as required to facilitate this review. Administration by the Architect and any consulting Structural Engineer will be in accordance with applicable regulations, including, without limitation, CCR, Part 1, Title 24, Section 4-341.
- B. One or more Project Inspector(s) approved by DSA and employed by or in contract with the District, referred to hereinafter as the "Project Inspector", will observe the work in accordance with CCR, Part 1, Title 24, Sections 4-333(b) and 4-342:
  - (1) The Project Inspector and Special Inspector(s) shall have access to the Work wherever it is in preparation or progress for ascertaining that the Work is in accordance with the Contract Documents and all applicable code sections. The Contractor shall provide facilities and operation of equipment as needed, and access as required and shall provide assistance for sampling or measuring materials.
  - (2) The Project Inspector will notify the District and Architect and call the attention of the Contractor to any observed failure of Work or material to conform to Contract Documents.
  - (3) The Project Inspector shall observe and monitor all testing and inspection activities required.

- D. The District may at its discretion, pay and then back charge the Contractor for:
- (1) Retests or reinspections, if required, and tests or inspections required due to Contractor error or lack of required identifications of material.
  - (2) Uncovering of work in accordance with Contract Documents.
  - (3) Testing done on weekends, holidays, and overtime will be chargeable to the Contractor for the overtime portion.
  - (4) Testing done off Site.
- E. Testing and inspection reports and certifications:
- (1) If initially received by Contractor, Contractor shall provide to each of the following a copy of the agency or laboratory report of each test or inspection or certification.
    - (a) The District;
    - (b) The Construction Manager, if any;
    - (c) The Architect;
    - (d) The Consulting Engineer, if any;
    - (e) Other engineers on the Project, as appropriate;
    - (f) The Project Inspector; and
    - (g) The Contractor.
  - (2) When the test or inspection is one required by the CCR, a copy of the report shall also be provided to the DSA.

## **PART 2 - PRODUCTS**

### **2.01 TYPE OF TESTS AND INSPECTIONS**

- A. Testing and inspection shall be in accordance with DSA Form 103 (or current version)
- B. Slump Test  
ASTM C 143
- C. Concrete Tests

Testing agency shall test concrete used in the work per the following paragraphs:

- (1) Compressive Strength:

**TEMPORARY FACILITIES AND CONTROLS**

**PART 1 – GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS:**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions;
- C. Site Standards; and
- D. Construction Waste Management and Disposal.

**1.02 TEMPORARY UTILITIES:**

- A. Electric Power and Lighting:
  - (1) Contractor will pay for power during the course of the Work. To the extent power is available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver that power service from its existing location in the building(s) or on the Site to point of intended use.
  - (2) Contractor shall verify characteristics of power available in building(s) or on the Site. Contractor shall take all actions required to make modifications where power of higher voltage or different phases of current are required. Contractor shall be fully responsible for providing that service and shall pay all costs required therefor.
  - (3) Contractor shall furnish, wire for, install, and maintain temporary electrical lights wherever it is necessary to provide illumination for the proper performance and/or observation of the Work: a minimum of 20 foot-candles for rough work and 50 foot-candles for finish work.
  - (4) Contractor shall be responsible for maintaining existing lighting levels in the project vicinity should temporary outages or service interruptions occur.
- B. Heat and Ventilation:
  - (1) Contractor shall provide temporary heat to maintain environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation and curing of materials, and to

- F. Fire Protection:
- (1) Contractor shall provide and maintain fire extinguishers and other equipment for fire protection. Such equipment shall be designated for use for fire protection only and shall comply with all requirements of the California Fire, State Fire Marshall and/or its designee.
  - (2) Where on-site welding and burning of steel is unavoidable, Contractor shall provide protection for adjacent surfaces.
- G. Trash Removal:
- (1) Contractor shall provide trash removal on a timely basis. Under no circumstance shall Contractor use District trash service.
- H. Field Office:
- (1) If Contractor chooses to provide a field office, it shall be an acceptable construction trailer that is well-lit and ventilated. The construction trailer shall be equipped with shelves, desks, filing cabinet, chairs, and such other items of equipment needed. Trailer and equipment are the property of the Contractor and must be removed from the Site upon completion of the Work. Contractor may use the corridor adjacent to the construction area for an office area, if approved in writing by District.
  - (2) Contractor shall provide any additional electric lighting and power required for the trailer. Contractor shall make adequate provisions for heating and cooling as required.
- I. Temporary Facilities:
- (1) **N/A**

### **1.03 CONSTRUCTION AIDS:**

- A. Plant and Equipment:
- (1) Contractor shall furnish, operate, and maintain a complete plant for fabricating, handling, conveying, installing, and erecting materials and equipment; and for conveyances for transporting workers. Include elevators, hoists, debris chutes, and other equipment, tools, and appliances necessary for performance of the Work.
  - (2) Contractor shall maintain plant and equipment in safe and efficient operating condition. Damages due to defective plant and equipment, and uses made thereof, shall be repaired by Contractor at no expense to the District.
- B. None of the District's tools and equipment shall be used by Contractor for the performance of the Work.

larger shall be tunneled under and heavily wrapped with wet burlap so as to prevent scarring or excessive drying. Smaller roots that interfere with installation of new work may be cut with prior approval by the District. Roots must first be cut with a Vermeer, or equivalent, root cutter prior to any trenching.

- (c) Where excavation for new construction is required within drip line of trees, hand excavation shall be employed to minimize damage to root system. Roots shall be relocated in backfill areas wherever possible. If encountered immediately adjacent to location of new construction, roots shall be cut approximately 6 inches back from new construction.
- (d) Approved excavations shall be carefully backfilled with the excavated materials approved for backfilling. Backfill shall conform to adjacent grades without dips, sunken areas, humps, or other surface irregularities. Do not use mechanical equipment to compact backfill. Tamp carefully using hand tools, refilling and tamping until Final Acceptance as necessary to offset settlement.
- (e) Exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or roots shall be wrapped with four layers of wet, untreated burlap and temporarily supported and protected from damage until permanently relocated and covered with backfill.
- (f) Accidentally broken roots should be sawed cleanly 3 inches behind ragged end.

#### **1.05 SECURITY:**

The Contractor shall be responsible for project security for materials, tools, equipment, supplies, and completed and partially completed Work.

#### **1.06 TEMPORARY CONTROLS:**

##### **A. Noise Control:**

- (1) Contractor acknowledges that adjacent facilities may remain in operation during all or a portion of the Work period, and it shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.
- (2) Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to the District a minimum of forty-eight (48) hours in advance of their performance.

##### **B. Noise and Vibration:**

- (1) Equipment and impact tools shall have intake and exhaust mufflers.

- (2) Signs other than the specified Project sign and or signs required by law, for safety, or for egress, shall not be permitted, unless otherwise approved in advance by the District.

B. Materials:

- (1) Structure and Framing: Structurally sound, new or used wood or metal; wood shall be nominal 3/4-inch exterior grade plywood.
- (2) Sign Surface: Minimum 3/4-inch exterior grade plywood.
- (3) Rough Hardware: Galvanized.
- (4) Paint: Exterior quality, of type and colors selected by the District and/or the Design Professional.

C. Fabrication:

- (1) Contractor shall fabricate to provide smooth, even surface for painting.
- (2) Size: 4'-0" x 8'-0", unless otherwise indicated.
- (3) Contractor shall paint exposed surfaces of supports, framing, and surface material with exterior grade paint: one coat of primer and one coat of finish paint.
- (4) Text and Graphics: As indicated.

**1.08 PUBLICITY RELEASES:**

- A. Contractor shall not release any information, story, photograph, plan, or drawing relating information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s) without the written permission of the District.

**PART 2 – PRODUCTS Not used.**

**PART 3 – EXECUTION Not used.**

END OF DOCUMENT

**1.04 PERFORMANCE REQUIREMENTS:**

- A. General: Develop waste management plan that results in end-of Project rates for salvage/recycling of sixty-five percent (65%) by weight (or by volume, but not a combination) of total waste generated by the Work.

**1.05 SUBMITTALS:**

- A. Waste Management Plan: Submit waste management plan within 30 days of date established for commencement of the Work.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit copies of report. Include the following information:
  - (1) Material category.
  - (2) Generation point of waste.
  - (3) Total quantity of waste in tons or cubic yards.
  - (4) Quantity of waste salvaged, both estimated and actual in tons or cubic yards.
  - (5) Quantity of waste recycled, both estimated and actual in tons or cubic yards.
  - (6) Total quantity of waste recovered (salvaged plus recycled) in tons or cubic yards.
  - (7) Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Waste Reduction Calculations: Before request for final payment, submit copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

- (1) Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
- (2) Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
- (3) Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
- (4) Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
- (5) Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
- (6) Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

**PART 2 - PRODUCTS Not Used.**

**PART 3 - EXECUTION**

**3.01 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 Document 01 50 00 for operation, termination, and removal requirements.
- 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 occurring at Project site.
  - (1) Distribute waste management plan to everyone concerned within 3 days of submittal return.



- (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.
- E. Site-Clearing Wastes: Chip brush, branches, and trees on site.
- F. 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.
- G. Gypsum Board: Stack large clean pieces on wood pallets 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.

### **3.03 DISPOSAL OF WASTE:**

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, 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. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off District property and legally dispose of them.

END OF DOCUMENT

- C. Equipment Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.
- D. Furniture and Furnishings Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.
- E. Plans: One (1) reproducible copy of appropriately scaled plans of trailer layout. Plans shall include, but not be limited to: lighting; furniture; equipment; telephone and electrical outlets; and the like.
- F. Product Samples: One (1) complete and entire unit of each type, if directed by District.

#### **1.05 QUALITY ASSURANCE**

- A. Standards: In the event that provisions of codes, regulations, safety orders, Contract Documents, referenced manufacturer's specifications, manufacturer's instructions, industry standards, and the like, are in conflict, the more restrictive and higher quality shall govern.
- B. Installer: Installer or Installers engaged by Contractor must have a minimum of five (5) years of documented and properly authenticated successful experience of specialization in the installation of the items or systems, or both, specified herein.
- C. Manufacturer: Contractor shall obtain products from nationally and industry recognized Manufacturer with five (5) years minimum, of immediately recent, continuous, documented and properly authenticated successful experience of specialization in the manufacture of the product specified herein.
- D. State Personnel Training: Provide proper training for maintenance and operations, including emergency procedures, and the like, as directed by District.
- E. Units: Shall be sound and free of defects, and shall not include any damage or defect that will impair the safety, installation, performance, or the durability of the entire Office Trailer and appurtenant systems.

#### **1.06 REGULATORY REQUIREMENTS**

- A. General: Work shall be executed in accordance with applicable Codes, Regulations, Statutes, Enactments, Rulings, Laws, each authority having jurisdiction, and including, but not limited to, Regulatory Requirements specified herein.
- B. California Building Standards Code ("CBSC").
- C. California Code of Regulations, Title 25, Chapter 3, Sub Chapter 2, Article 3 ("CCR").
- D. Coach Insignia: Trailer shall display California Commercial Coach Insignia; such insignia shall be deemed to show that the trailer is in accordance with the Construction and Fire Safety requirements of CCR.

- (9) Voicemail Messaging System or Answering Machine: One (1) unit, two (2)-line; digital.

## **2.02 FIELD OFFICE TRAILER ITEMS**

- A. General: Provide the Field Office Trailer with the following arranged into two (2) workstations:
  - (1) Desks: Two (2) desks: thirty-six (36) inches by sixty (60) inches; steel, laminated plastic top; locking, one (1) or two (2) file drawers single pedestal; steel; provide five (5) keys to District.
  - (2) Tables: Two (2) tables; thirty-six (36) inches by sixty (60) inches; twenty-nine (29) inches high; steel, laminated plastic top tables; one (1) at each desk.
  - (3) Chairs: Two (2) chairs: swivel; steel; with seat cushion and arms; one (1) at each desk.
  - (4) Waste Baskets: Two (2) waste baskets, one at each desk.
- B. Furniture and Equipment: Provide in the space located to effect efficient and logical use.
  - (1) File cabinet: One (1); four (4) drawer; lateral; steel locking.
  - (2) Plan Table: One (1) plan table: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawers.
  - (3) Drafting Stool: One (1) drafting stool; swiveling; steel; padded; adjustable; with footrest and casters.
  - (4) Bookshelf: One (1) bookshelf: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawer.
  - (5) Plan Rack: One (1) wheel mounted plan rack.
  - (6) Waste Baskets: One (1) large waste basket.
  - (7) Coat/Hat Hanger: Wall mounted with minimum capacity for four (4) garments and ten (10) hats.
  - (8) Document Management System: Shall include an integrated high-volume printer, copier, and facsimile machine, including stand, base, and storage cabinet; and shall include the following features:
    - (a) Type: Laser, dry electrostatic transfer, plain paper, digital, multi-function imaging system.
    - (b) Network: Ethernet or Token Ring network ready, Plug-and-Play.

- (d) All chemicals, such as toner, fixing agent, and the like.
- (e) System training and setup.
- (10) Portable Toilets: Two (2); each shall include a urinal; each unit shall be a properly enclosed chemical unit conforming to ANSI Z4.3.
  - (a) Location: As directed by District.
  - (b) Maintenance: Maintain each unit and surrounding areas in a clean, hygienic and orderly manner, at all time. Empty, clean, and sanitize each unit each day at a location and time as directed by District.
  - (c) Removal: Relocate, or remove from the site, each Portable Toilet. Upon such directive by District, the Contractor shall forthwith relocate or remove each Portable Toilet and submit the affected areas to a condition which existed prior to the installation of each Portable Toilet, within three (3) calendar days, or as directed by District in writing, at no cost to District.

## **2.03 UTILITY AND SERVICES**

- A. Telephone Service: Contractor shall provide and interface the entire telephone service, and shall properly and timely pay for telephone service for District's non-long-distance use.
- B. Electrical Service: Provide all proper connections and continuously pay for service for the duration of the Work.

## **2.04 FINISHES**

- A. General: Manufacturer standard finish system over surfaces properly cleaned, pretreated, and prepared to obtain proper bond; all visible surfaces shall be coated.
- B. Finish: Color as selected by District from manufacturer standard palette.

## **PART 3 – EXECUTION**

### **3.01 INSTALLATION**

- A. General: Properly prepare area and affected items to receive the Work. Set Work accurately in location, alignment, and elevation; rigidly, securely, and firmly anchor to appropriate structure; install plumb, straight, square, level, true, without racking, rigidly anchored to proper solid blocking, substrate, and the like; provide appropriate type and quantity of reinforcements, fasteners, adhesives, self-adhesive and other tapes; lubricants, coatings, accessories, and the like, as required for a complete, structurally rigid, stable, sound, and appropriately finished installation, in accordance with manufacturer's published instructions, and as indicated. The more restrictive and higher quality requirement shall govern. Moving parts shall be properly secured, without binding, looseness, noise, and the like.

SECTION 01 57 13

EROSION CONTROL

**PART 1 – GENERAL**

1.01 SUMMARY

- A. General: Provide all materials, equipment and labor necessary to furnish and install BMPs and required maintenance as shown on the Drawings and on the Storm Water Pollution Prevention Plan.
- B. Storm Water Pollution Prevention Plan: A Storm Water Pollution Prevention Plan (SWPPP) has been prepared by the District. Comply with State Water Resources Control Board requirements. The SWPPP will be provided to the Contractor prior to the start of work. The SWPPP shall be tailored to the contractor's approach to the work in this contract. The Contractor shall provide the following, but not limited to:
  - 1. Cut and fill operations.
  - 2. Temporary stockpiles.
  - 3. Vehicle and equipment storage, maintenance and fueling operations.
  - 4. Concrete, plaster, mortar and paint disposal.
  - 5. Dust control.
  - 6. Tracking of dirt, mud on off-site streets.
  - 7. Pipe flushing.
  - 8. Appropriate Erosion Controls
- C. General contractor shall provide all monitoring and reporting. Monitoring and reporting required to be completed by a qualified SWPPP practitioner. The Qualified SWPPP Practitioner shall provide the following, but not limited to:
  - 1. PH and turbidity sampling per current NPDES permit.
  - 2. Upload all AdHoc reports to the SWRCB SMARTS website.
  - 3. Prepare weekly BMP Inspection reports and storm event reports.
  - 4. Prepare Annual Report uploaded to the SMARTS system.
  - 5. Prepare Notice of Termination.

1.02 QUALITY ASSURANCE

- A. General: Comply with governing codes and regulations.

**PART 2 – PRODUCTS**

2.01 MATERIALS

- A. Straw Wattles: Shall be new manufactured straw rolls in compliance with state requirements for sediment control.

**OWNER-FURNISHED PRODUCTS**

**PART 1 – GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions; and
- C. Materials and Equipment.

**1.02 SECTION INCLUDES**

- A. Requirements for the following:
  - (1) Installing Owner-furnished materials and equipment.
  - (2) Providing necessary utilities, connections and rough-ins.

**1.03 DEFINITIONS**

- A. Owner: District, who is providing/furnishing materials and equipment.
- B. Installing Contactor: Contractor, who is installing the materials and equipment furnished by the Owner.

**1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Receive, store and handle products in accordance with the manufacturer's instructions.
- B. Protect equipment items as required to prevent damage during storage and construction.

**PART 2 – PRODUCTS**

**2.01 GENERAL PRODUCT REQUIREMENTS**

- A. Installing Contractor's Responsibilities:
  - (1) Verify mounting and utility requirements for Owner-furnished materials and equipment items.
  - (2) Provide mounting and utility rough in for all items where required.

Shop Drawings, supply labor and material required, and make mechanical, plumbing, and electrical connections required to operate equipment.

- 8) Be certified by equipment manufacturer for installation of the specific equipment supplied by the Owner.
  - 9) Provide anchorage and/or bracing as required for seismic restraint per Title 24, UBC Standard 27-11 and all other applicable codes.
  - 10) Provide the contract-required warranty and guarantee for all work, materials and equipment, and installation upon its completion and acceptance by the District. Guarantee includes all costs associated with the removal, shipping to and from the Site, and re-installation of any equipment found to be defective.
- C. Compatibility with Space and Service Requirements:
- (1) Equipment items shall be compatible with space limitations indicated and as shown on the Contract Documents and specified in other sections of the Specifications.
  - (2) Modifications to equipment items required to conform to space limitations specified for rough in shall not cause additional cost to the District.
- D. Manufacturer's printed descriptions, specifications, and instructions shall govern the Work unless specifically indicated or specified otherwise.

## **2.02 FURNISHED MATERIALS AND EQUIPMENT**

- A. All furnished materials and equipment are indicated or scheduled on the Contract Documents.

## **PART 3 – EXECUTION**

### **3.01 INSTALLATION**

- A. Install equipment items in accordance with the manufacturer's instructions.
- B. Set equipment items securely in place, rigidly or flexibly mounted in accordance with manufacturers' directions.
- C. Make electrical and mechanical connections as indicated and required.
- D. Touch-up and restore damaged or defaced finishes to the Owner's satisfaction.

### **3.02 CLEANING AND PROTECTION**

- A. Repair or replace items not acceptable to the Architect or Owner.

SECTION 01 66 00

**PRODUCT DELIVERY, STORAGE AND HANDLING**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Site Access, Conditions and Requirements;
- B. Special Conditions.

**1.02 PRODUCTS**

- A. Products are as defined in the General Conditions.
- B. Contractor shall not use and/or reuse materials and/or equipment removed from existing Premises, except as specifically permitted by the Contract Documents.
- C. Contractor shall provide interchangeable components of the same manufacturer, for similar components.

**1.03 TRANSPORTATION AND HANDLING**

- A. Contractor shall transport and handle Products in accordance with manufacturer's instructions.
- B. Contractor shall promptly inspect shipments to confirm that Products comply with requirements, quantities are correct, and products are undamaged.
- C. Contractor shall provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

**1.04 STORAGE AND PROTECTION**

- A. Contractor shall store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Contractor shall store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated Products, Contractor shall place on sloped supports, above ground.
- C. Contractor shall provide off-site storage and protection when Site does not permit on-site storage or protection.



**FIELD ENGINEERING**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS:**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Site Investigation, and Soils Investigation Report;
- B. Special Conditions;
- C. Site-Visit Certification.

**1.02 REQUIREMENTS INCLUDED:**

- A. Contractor shall provide and pay for field engineering services by a California-registered engineer, required for the project, including, without limitations:
  - (1) Survey work required in execution of the Project.
  - (2) Civil or other professional engineering services specified, or required to execute Contractor's construction methods.

**1.03 QUALIFICATIONS OF SURVEYOR OR ENGINEERS:**

Contractor shall only use a qualified licensed engineer or registered land surveyor, to whom District makes no objection.

**1.04 SURVEY REFERENCE POINTS:**

- A. Existing basic horizontal and vertical control points for the Project are those designated on the Drawings.
- B. Contractor shall locate and protect control points prior to starting Site Work and preserve all permanent reference points during construction. In addition Contractor shall:
  - (1) Make no changes or relocation without prior written notice to District and Architect.
  - (2) Report to District and Architect when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
  - (3) Require surveyor to replace Project control points based on original survey control that may be lost or destroyed.

**CUTTING AND PATCHING**

**PART 1 – GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS:**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Inspector, Inspections, and Tests, Integration of Work, Nonconforming Work, and Correction of Work, and Uncovering Work;
- B. Special Conditions;
- C. Hazardous Materials Procedures and Requirements;
- D. Hazardous Materials Certification;
- E. Lead-Based Paint Certification;
- F. Imported Materials Certification.

**1.02 CUTTING AND PATCHING:**

- A. Contractor shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the Work or to:
  - (1) Make several parts fit together properly.
  - (2) Uncover portions of Work to provide for installation of ill-timed Work.
  - (3) Remove and replace defective Work.
  - (4) Remove and replace Work not conforming to requirements of Contract Documents.
  - (5) Remove Samples of installed Work as specified for testing.
  - (6) Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.
  - (7) Attaching new materials to existing remodeling areas – including painting (or other finishes) to match existing conditions.
- B. In addition to Contract requirements, upon written instructions from the District, Contractor shall uncover Work to provide for observations of covered Work in accordance with the Contract Documents; remove samples of installed materials for testing as directed by District; and remove Work to provide for alteration of existing Work.

- (9) Written permission of District or other District contractor(s) whose work will be affected.

#### **1.04 QUALITY ASSURANCE:**

- A. Contractor shall ensure that cutting, fitting, and patching shall achieve security, strength, weather protection, appearance for aesthetic match, efficiency, operational life, maintenance, safety of operational elements, and the continuity of existing fire ratings.
- B. Contractor shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, colors, and that materials shall match existing construction. Where there is dispute as to whether duplication is successful or has been achieved to a reasonable degree, the District's decision shall be final.

#### **1.05 PAYMENT FOR COSTS:**

- A. Cost caused by ill-timed or defective Work or Work not conforming to Contract Documents, including costs for additional services of the District, its consultants, including but not limited to the Construction Manager, the Architect, the Project Inspector(s), Engineers, and Agents, will be paid by Contractor and/or deducted from the Contract by the District.
- B. District shall only pay for cost of Work if it is part of the original Contract Price or if a change has been made to the contract in compliance with the provisions of the General Conditions. Cost of Work performed upon instructions from the District, other than defective or nonconforming Work, will be paid by District on approval of written Change Order. Contractor shall provide written cost proposals prior to proceeding with cutting and patching.

### **PART 2 - PRODUCTS**

#### **2.01 MATERIALS:**

- A. Contractor shall provide for replacement and restoration of Work removed. Contractor shall comply with the Contract Documents and with the Industry Standard(s), for the type of Work, and the Specification requirements for each specific product involved. If not specified, Contractor shall first recommend a product of a manufacturer or appropriate trade association for approval by the District.
- B. Materials to be cut and patched include those damaged by the performance of the Work.

### **PART 3 – EXECUTION**

#### **3.01 INSPECTION:**

- A. Contractor shall inspect existing conditions of the Site and the Work, including elements subject to movement or damage during cutting and patching, excavating and backfilling. After uncovering Work, Contractor shall inspect conditions affecting installation of new products.

requirements of the Contract Documents and as required to match surrounding areas and surfaces.

- F. Contractor shall refinish all continuous surfaces to nearest intersection as necessary to match the existing finish to any new finish.

END OF DOCUMENT

- C. Contractor shall remove debris and abandoned items from all areas of the Site and from concealed spaces.
- D. Contractor shall prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.
- E. Contractor shall close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity. Contractor shall insulate ductwork and piping to prevent condensation in exposed areas. Contractor shall insulate building cavities for thermal and/or acoustical protection, as detailed.

### **3.03 INSTALLATION:**

- A. Contractor shall coordinate Work of all alternations and renovations to expedite completion and to accommodate District occupancy.
- B. Designated Areas and Finishes: Contractor shall complete all installations in all respects, including operational, mechanical work and electrical work.
- C. Contractor shall remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to original or specified condition.
- D. Contractor shall refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat and square or straight transition to adjacent finishes.
- E. Contractor shall install products as specified in the Contract Documents, including without limitation, the Specifications.

### **3.04 TRANSITIONS:**

- A. Where new Work abuts or aligns with existing, Contractor shall perform a smooth and even transition. Patched Work must match existing adjacent work in texture and appearance.
- B. When finished surfaces are cut so that a smooth transition with new Work is not possible, Contractor shall terminate existing surface along a straight line at a natural line of division and make a recommendation for resolution to the District and the Architect for review and approval.

### **3.05 ADJUSTMENTS:**

- A. Where removal of partitions or walls results in adjacent spaces becoming one, Contractor shall rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
- B. Where a change of plane of 1/4 inch or more occurs, Contractor shall submit a recommendation for providing a smooth transition to the District and the Architect for review and approval.

**CONTRACT CLOSEOUT AND FINAL CLEANING**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Completion of Work;
- B. Special Conditions;
- C. Temporary Facilities and Controls.

**1.02 CLOSEOUT PROCEDURES**

Contractor shall comply with all closeout provisions as indicated in the General Conditions.

**1.03 FINAL CLEANING**

- A. Contractor shall execute final cleaning prior to final inspection.
- B. Contractor shall clean interior and exterior glass and all surfaces exposed to view; remove temporary labels, tape, stains, and foreign substances, polish transparent and glossy surfaces, wax and polish new vinyl floor surfaces, vacuum carpeted and soft surfaces.
- C. Contractor shall clean equipment and fixtures to a sanitary condition.
- D. Contractor shall replace filters of operating equipment.
- E. Contractor shall clean debris from roofs, gutters, down spouts, and drainage systems.
- F. Contractor shall clean Site, sweep paved areas, and rake clean landscaped surfaces.
- G. Contractor shall remove waste and surplus materials, rubbish, and construction facilities from the Site and surrounding areas.

**1.04 ADJUSTING**

Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation.

- B. Contractor shall provide District with all required Operation and Maintenance Data at one time. Partial or piecemeal submissions of Operation and Maintenance Data will not be accepted.

**PART 2 – PRODUCTS Not Used.**

**PART 3 – EXECUTION Not Used.**

END OF DOCUMENT

- B. For Each Product or System: Contractor shall list names, addresses, and telephone numbers of Subcontractor(s) and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Contractor shall mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Drawings: Contractor shall supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Contractor shall not use Project Record Documents as maintenance drawings.
- E. Text: Contractor shall include any and all information as required to supplement product data. Contractor shall provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- F. Warranties and Bonds: Contractor shall bind in one copy of each.

#### **1.05 MANUAL FOR MATERIALS AND FINISHES:**

- A. Building Products, Applied Materials, and Finishes: Contractor shall include product data, with catalog number, size, composition, and color and texture designations. Contractor shall provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Contractor shall include Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather Exposed Products: Contractor shall include product data listing applicable reference standards, chemical composition, and details of installation. Contractor shall provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: Contractor shall include all additional requirements as specified in the Specifications.
- E. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

#### **1.06 MANUAL FOR EQUIPMENT AND SYSTEMS:**

- A. Each Item of Equipment and Each System: Contractor shall include description of unit or system, and component parts and identify function, normal operating characteristics, and limiting conditions. Contractor shall include performance curves, with engineering data and tests, and complete nomenclature, and commercial number of replaceable parts.
- B. Panelboard Circuit Directories: Contractor shall provide electrical service characteristics, controls, and communications.



- C. Contractor shall submit two (2) copies of a complete Manual in final form prior to final Application for Payment. Copy will be returned with Architect/Engineer comments. Contractor must revise the content of the Manual as required by District prior to District's approval of Contractor's final Application for Payment.
- D. Contractor must submit two (2) copies of revised Manual in final form within ten (10) days after final inspection.

**PART 2 – PRODUCTS Not Used.**

**PART 3 – EXECUTION Not Used.**

END OF DOC

- **TIME OF SUBMITTALS:**

11. For equipment or component parts of equipment put into service during construction with District's permission, Contractor shall submit a draft warranty for that equipment or component within ten (10) days after acceptance of that equipment or component.
12. Contractor shall submit for District approval all warranties and related documents within ten (10) days after date of completion. Contractor must revise the warranties as required by the District prior to District's approval of Contractor's final Application for Payment.
13. For items of work delayed beyond date of completion, Contractor shall provide an updated submittal within ten (10) days after acceptance, listing the date of acceptance as start of warranty period.

- **- PRODUCTS Not Used.**

- **- EXECUTION Not Used.**

END OF DOCUMENT

2. Actual numbering of each electrical circuit to match panel schedule.
3. Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Contract Drawings.
4. Locations of all items, not necessarily concealed, which vary from the Contract Documents.
5. Installed location of all cathodic protection anodes.
6. Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.
7. Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, etc.
8. Sufficient information to locate Work concealed in each building with reasonable ease and accuracy.

In some instances, this information may be recorded by dimension. In other instances, it may be recorded in relation to the spaces in the building near which it was installed.

22. Contractor shall provide additional drawings as necessary for clarification.
23. Contractor shall provide reproducible record drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."
24. After review and approval of the marked-up specifications by the Project Inspector, Contractor shall provide electronic copies of the drawings (in PDF format) with one file with all of the sheets and one set of individual sheet files at the conclusion of the Project.

- **- RECORD SPECIFICATIONS**

- **GENERAL:**

25. Contractor shall mark each section legibly to record manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.
26. After review and approval of the marked-up specifications by the Project Inspector, Contractor shall provide one electronic copy of the specifications (in PDF format) at the conclusion of the Project.

- **- MAINTENANCE OF RECORD DOCUMENTS**

- **GENERAL**

27. Contractor shall store Record Documents apart from documents used for construction as follows:

**COMMISSIONING**

**PART 1 – GENERAL**

**1.01 RELATED DOCUMENTS AND PROVISIONS:**

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Contractor's Submittals and Schedules, Drawings and Specifications;
- B. Special Conditions.
- C. Submittal Procedures: Procedures for submittal of product data and quality assurance submittals.
- D. Closeout Procedures: General closeout requirements.
- E. Sustainable Design Closeout Documentation: Closeout requirements relating to sustainable design certification.
- F. Appropriate Sections of Divisions 15 and 16 specify closeout and/or commissioning related requirements for specific pieces of equipment or building operating systems.

**1.02 SECTION INCLUDES**

- A. Equipment and system commissioning, including the following:
  - (1) Completion of commissioning procedures on specific equipment and systems as indicated under "Related Documents and Provisions" above.
  - (2) Verification of operational and functional performance of specific equipment and systems for compliance with the "Design Intent" as described in the "Related Documents and Provisions" indicated above.

**1.03 REFERENCES**

- A. [ASTM International (ASTM)]:
  - (1) [ASTM X000-00, Title of Standard].
  - (2) [ASTM X000-00, Title of Standard].
- B. [Name of Organization (Organization Acronym)]:
  - (1) [Acronym, Standard or Document Number and Date of Issue, Title of Standard or Document].

1.05 PROTECTION

- A. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.
- B. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.
- C. Safety Precautions Prevent damage to existing elements identified to remain or to be salvaged, and prevent injury to the public and workmen engaged on site. Demolish roofs, walls and other building elements in such manner that demolished materials fall within foundation lines of building. Do not allow demolition debris to accumulate on site. Pull down hazardous work at end of each day; do not leave standing or hanging overnight, or over weekends.
  - 1. Protect existing items which are not indicated to be altered. Protect utilities designated to remain from damage.
  - 2. Protect trees, plant growth, and features designated to remain as final landscaping as shown on drawings.
  - 3. Protect benchmarks from damage or displacement.
- D. Trees: Carefully protect existing trees that are to remain. Provide temporary irrigation as necessary to maintain health of trees.
- E. Fire Safety: The contractor shall conform to chapter 33 of the California Fire Code (CFC), "Fire Safety During Construction and Demolition", at all times during the construction process. A copy of this chapter can be provided.
- F. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.
- G. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.
- H. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
- I. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.

- E. Coordinate the time and duration of all system disconnects with Owner.

### 3.03 DEMOLITION

#### A. General Requirements

1. Clear areas required for access to site and execution of Work, including pavements, structures, foundations, vegetation, trash and debris.
2. Coordinate with Owner the time of day and route to remove demolished materials from premises.
3. Remove demolished materials from site as work progresses. Upon completion of work, leave areas of work in clean condition.
4. Remove all buried debris, rubble, trash, or other material not deemed suitable by the Geotechnical Engineer.
5. Fill all voids or excavations resulting from clearing, demolition, or removal of vegetation with specified fill material.

#### B. Fixture and Equipment Removal:

1. Remove existing fixtures and equipment as identified and shown on drawings and required by Architect.
2. Verify all service connections to fixtures and equipment designated for removal have been properly disconnected.
3. Remove all conductors from conduit at all abandoned circuits.

### 3.04 UTILITY AND BUILDING SERVICES REMOVAL AND RE-INSTALLATION

- A. Where crossing paths and potential points of interference with existing utility services are shown or can be reasonably inferred from surface conditions or evidence of subsurface systems, such as meter boxes, vaults, relief vents, cleanouts and similar components.

1. Review all contract documents showing crossing paths and potential points of interference.
2. Pothole or determine by other means the accurate depth and location of such utilities.
3. Incorporate all costs required to complete work under this contract, including additional trenching, re-routing of existing and new utilities, and all means necessary to construct work under this contract.
4. No additional cost to the Owner will be allowed for work necessary to accommodate utility conflicts where such crossing paths are shown on contract drawings or can be reasonably inferred from surface conditions or components.

- B. Remove all conductors from conduit at all abandoned electrical circuits.

- C. Seal off ends of all piping, drains and other components as directed by Architect and serving utility.

- D. Where necessary to maintain service to existing utility and building systems, relocate or redirect all conduit and conductors, piping, drains, and associated system components.

1. Re-circuit all electrical as required.

8. Selected equipment of such sizes and capacities that the existing environment is disturbed as little as possible, and to afford ease of mobility within limited and relatively confined work areas. Make every effort to preserve the topography in its natural state.
9. Keep drains, catch basins, surface drainage courses and related drainage system components clear of debris and construction materials.
10. Remove irrigation piping and appurtenances as necessary within area of work, unless noted otherwise to remain. Replace irrigation piping and appurtenances to irrigate new and/or existing landscaping. Contractor shall be responsible for temporary landscape irrigation until such time that irrigation system is restored and operational.

### 3.07 DISPOSAL

Demolished materials become property of the Contractor and shall be removed from premises, except those items specifically listed to be retained by Owner.

- A. Dispose of all demolished material, trash, debris, and other materials not used in the work in accordance with the regulations of jurisdictional authority.
- B. It is recommended that all materials that are of a recyclable nature, be transported to a suitable legal recycling facility instead of a dump or refuse facility (unless they are one-in-the same).
- C. Burning and Burying of Materials: NOT ALLOWED.
- D. Haul Routes:
  1. Obtain permits as required by jurisdictional agencies. Establish haul routes in advance, post flagmen for the safety of the public and workmen.
  2. Keep streets free of mud, rubbish, etc.; assume responsibility for damage resulting from hauling operations; hold Owner free of liability in connection therewith.
- E. Remove demolished materials and debris from site on a daily basis.

### 3.08 CLEANING

- A. Upon completion of work of this Section promptly remove from the working area all scraps, debris.
- B. Clean excess material from surface of all remaining paved surfaces and utility structures.
- C. Power wash all concrete surfaces to remove stains, dried mud, tire marks, and rust spots.

END OF SECTION

- A. Submit under provisions of Section 01 33 00.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

- A. Plywood: PS-1-95, BB Plyform grade, Class I, Exterior classification. Supply in large sheets of adequate thickness to support the imposed loads, but in no case less than 5/8" thick.
- B. Lumber: Douglas Fir species; construction grade; with grade stamp clearly visible. Forms may be used for concrete surfaces that are unexposed and require no further surface applied materials. Lumber, if used, shall be clean and sound 2x (height as required) No. 2 grade or better.
- C. Form Coating: Form shall be coated with nongrain-raising and non-staining types of form coating that will not leave a residual matter on the face of the concrete or adversely affect proper bonding of any subsequent paint or other surface applications. Form coating containing mineral oils or other non-drying materials will not be permitted for any concrete work.
- D. Form Ties: Snap off metal of fixed length: leaving no metal within 1-1/2 inches of surface and no fractures, spalls or other surface defects larger than one-inch diameter; manufactured by Burke, Dayton Superior, or accepted equal.
- E. Spreaders: Metal (no wood permitted).

### **2.02 ACCESSORIES**

- A. Form Ties: Snap-off metal of adjustable length; cone type; 1 inch break back dimension; free of defects that will leave holes no larger than 1 inch diameter in concrete surface.
- B. Form Release Agent: Colorless material which will not stain concrete, absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.
- C. Fillets for Chamfered Corners: Wood strips type; 3/4 x 3/4-inch size; maximum possible lengths.
- D. Flashing Reglets: 26-gauge thick galvanized steel; longest possible lengths; release tape sealed slots; with alignment splines for joints; securable to concrete formwork; Type CO reglet manufactured by Fry Reglet [www.fryreglet.com](http://www.fryreglet.com).
- E. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required; of strength and character to maintain formwork in place while placing concrete.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**



- F. Build in securely braced temporary bulkheads, keyed as required, at approved locations of construction joints.
  - G. Slope tie-wires downward to outside of wall.
  - H. During and immediately after concrete placing, tighten forms, posts, and shores. Readjust to maintain grades, levels, and camber.
- A. Inserts, Embedded Parts, And Openings
- 1. Provide formed openings where required for work embedded in or passing through concrete.
  - 2. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
  - 3. Install accessories in accordance with manufacturer's instructions, level and plumb. Ensure items are not disturbed during concrete placement.
- B. Earth Forms
- 1. Construct wood edge strips at top sides of excavations as indicated on drawings.
  - 2. Provide forms for footings and foundation walls wherever concrete cannot be placed against solid earth.
  - 3. Remove loose dirt and debris from form area prior to concrete placement.
  - 4. Concrete for foundations may be placed directly into neat excavations provided the foundation trench walls are stable as determined by the Architect (Structural Engineer) subject to the approval of The Division of the State Architect.
  - 5. When earth formed foundations are used, the minimum formwork shown on the drawings is mandatory to insure clean excavations prior to and during concrete placement.
  - 6. Provide 3-1/2-inch-high starter wall for all concrete and masonry walls below grade.
- C. Form Removal
- 1. Do not remove forms and bracing until concrete has sufficient strength to support its own weight and imposed loads.
  - 2. Do not damage concrete surfaces during form removal.
  - 3. Store reusable forms for exposed architectural concrete to prevent damage to contact surfaces.
  - 4. Remove formwork in same sequence as concrete placement to achieve similar concrete surface coloration.
  - 5. Forms shall remain in place for not less than the following periods of time. These periods represent minimum cumulative number of days during which temperature of air in contact with concrete is 60 degrees F and above.
    - a. Vertical forms of foundations and walls: 5 days.
    - b. Slab edge screens or forms: 7 days.

### 3.05 CLEANING

- A. Clean forms to remove foreign matter as erection proceeds.

SECTION 03 20 00  
CONCRETE REINFORCING

**PART 1 – GENERAL**

1.01 SUMMARY

A. Section Includes:

1. Reinforcing steel bars, welded steel wire fabric fabricated steel bar or rod mats for cast-in-place concrete.
2. Support chairs, bolsters, bar supports, and spacers, for supporting reinforcement.
3. Fibrous secondary reinforcement for light weight concrete topping.

B. Related Sections:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 03 10 00 – Concrete Forming and Accessories.
3. Section 03 30 00 – Cast-In-Place Concrete.
4. Section 04 10 00 – Mortar and Grout.
5. Section 04 22 00 – Concrete Unit Masonry.
6. Section 32 16 00 – Site Concrete.

1.02 REFERENCES

- A. CBC - California Building Code, (CCR) California Code of Regulations, Title 24, Part 2, Chapter 19A (ACI 318).
- B. ACI 301 - Specifications for Concrete Construction.
- C. ACI 315 (SP-66) – Guide to Presenting Reinforcing Steel Design Details.
- D. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.
- E. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
- F. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- G. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- H. ASTM A706 - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement.
- I. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete.

- C. Chairs, Bolsters, Bar Supports, Spacers Adjacent to Architectural Concrete Surfaces: Plastic coated sized and shaped as required. Wood is not permitted as supports for reinforcing. Concrete dobies allowed at foundations and footings only.

## 2.03 FABRICATION

- A. Steel reinforcement shall not be bent or straightened in a manner that will injure the material. Bars with kinks or bends not shown on the Drawings shall not be used. Heating of the bars for bending will not be permitted.
  - 1. Spacers and chairs shall be as specified or detailed and spaced such that steel reinforcement will be carried without deflection. Chairs shall center reinforcing vertically at center of slab thickness.
  - 2. Concrete blocks may be used to support bottom layer of steel in floor slabs on grade
  - 3. Bars shall be in long lengths with laps and splices as shown. Offset laps 8'-0" in adjacent bars. Place steel with clearances and cover as shown. Bar laps shall be as indicated on the drawings. Tie all laps and all intersections with specified wire. Maintain clear space between parallel bars not less than 1-1/2 times nominal diameter for round bars, or twice side dimension for square bars, but in no case shall clear space be less than 1-1/2", nor less than 1-1/2 times maximum size concrete aggregate.
  - 4. Install welded wire fabric in lengths as long as possible. Lap adjoining pieces at least one full mesh and lace splices with wire ties. Offset laps of adjoining widths to prevent continuous laps in either direction.
  - 5. Cut bars true to length with ends square and free of burrs.
- B. Drawing Notes: Refer to notes on Drawings for additional reinforcement requirements.
- C. Welding of reinforcing bar shall be performed only where indicated on plans and in compliance with AWS D1.4. All welding of reinforcement is to be inspected in accordance with CBC Table 1705A.2.1, Item 5(b).
- D. Fabricate in accordance with ACI 315 (SP-66), providing concrete cover specified in Section 03 31 00.
- B. Locate reinforcing splices not indicated on Drawings at points of minimum stress. Indicate location of splices on shop drawings.
- C. Weld reinforcing bars in accordance with AWS D1.4.

## 2.04 SOURCE QUALITY CONTROL AND TESTING

- A. Source Quality Control and Testing will be performed under provisions of Section 01 45 00 and as required by the Division of the State Architect and District Inspector.

## PART 3 – EXECUTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

**PART 1 – GENERAL**

1.01 SUMMARY

A. SECTION INCLUDES:

1. Concrete Formwork.
2. Reinforcement of Concrete.
3. Concrete Placing and Finishing.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 03 10 00: Concrete Forming and Accessories.
3. Section 03 20 00: Concrete Reinforcing.
4. Section 04 10 00: Mortar and Grout.
5. Section 04 22 00: Concrete Unit Masonry.
6. Section 32 16 00: Site Concrete.

1.02 REFERENCES

- A. CBC - California Building Code, (CCR) California Code of Regulations Title 24, Part 2, Chapter 19A.
- B. CBC - California Building Code, (CCR) California Code of Regulations, Title 24, Part 2, California State Accessibility Standards.
- C. ACI 117-10 - Specification for Tolerances for Concrete Construction and Materials.
- D. ACI 211.1-91 - Standard Practice for Selecting Proportions for Normal Weight, Heavy Weight and Mass Concrete.
- E. ACI 301-16 - Specifications for Structural Concrete for Buildings.
- F. ACI 302.1R-15 - Guide to Concrete Floor and Slab Construction.
- G. ACI 304R-00 - Guide for Measuring, Mixing, Transporting and Placing Concrete.
- H. ACI 305R-10 - Hot Weather Concreting.
- I. ACI 306R-16 - Cold Weather Concreting.

- EE. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
- FF. ASTM E96 - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials.
- GG. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
- HH. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
- II. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- JJ. ASTM E1745 - Standard Specifications for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
- KK. ASTM F710 - Standard Practice for Preparing Concrete Floor to Receive Resilient Flooring.
- LL. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- MM. National Ready Mix Concrete Association - Plant Certification Program.

#### 1.03 QUALITY ASSURANCE

- A. All Concrete for the project shall be controlled concrete of specified strengths, of uniform color, and free from defects liable to adversely affect strength, durability or appearance of the structure or its components.
- B. Requirements of Regulatory Agencies: The quality and design of structural concrete shall comply with the requirements of the California Building Code, except where more stringent requirements are specified.
- C. Workmanship: Materials and methods used for the production and placement of concrete shall be such as to assure the specified quality and shall conform to applicable requirements of the Building Code for Reinforced Concrete (ACI 318) of the American Concrete Institute, except as otherwise specified in this Section.
  - 1. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement at no expense to the Owner.
  - 2. Proper installation of partitions and equipment requires the floor finish to be level and smooth throughout. Extreme care shall be exercised during all floating and troweling operations to check levels often.

- I. Tests: For structural concrete, the Testing Lab shall take four (4) test cylinders of concrete each day for every 50 cubic yards of concrete or fraction thereof being placed. Cylinders shall be made and stored as per instructions given by the testing laboratory and shall be in accordance with ASTM Specifications C-31 / C31M-09 and C-39 / C39M-09a. Cylinders shall be tested for ultimate compressive strength of concrete with one cylinder tested at the age of 7 days and two (from the same batch) to be tested at the age of 28 days, with one cylinder held as a spare for future testing if needed. Tests shall be made by a recognized test laboratory selected by the Owner and approved by the Architect.
  - 1. Cylinders not meeting the required design stresses shall indicate defective concrete and such concrete shall be removed and replaced at no increase in cost to the Owner. Core tests requested by the Contractor to establish design stresses, when cylinder tests indicate defective concrete, shall be paid for by the Contractor.
  - 2. Batch plant inspection as required by the DSA Structural Tests and Inspections Form SSS 103-1.
- J. Floor Flatness: Provide certification of floor slab flatness per the requirements of Part 3 below.
- K. Preinstallation Meetings.
  - 1. Preinstallation Conference: Conduct conference at Project site.
    - a. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
      - 1) Contractor's superintendent.
      - 2) Independent testing agency responsible for concrete design mixtures.
      - 3) Ready-mix concrete manufacturer.
      - 4) Concrete Subcontractor.
      - 5) Special concrete finish Subcontractor.
      - 6) Inspector.
      - 7) Owner's Representative.
      - 8) Architect.
    - b. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, methods for achieving specified floor and slab flatness and levelness, floor and slab flatness and levelness measurement, and concrete protection.
    - c. Sign-in sheet shall be provided at time of meeting to document attendees.

#### 1.04 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Manufacturer's Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items, including reinforcement and forming accessories,

2. ASTM C989/C989M-18a Ground Granulated Blast Furnace Slag.
- D. Water: ASTM C1602/C1602M-22 Clean and free from deleterious amounts of acids, alkalis, salts and organic matter.
- E. Concrete Aggregates: ASTM C33 / C33M-08 except as otherwise specified hereinafter. All aggregates shall be nonreactive and nondegenerative, and shall consist of sound crushed rock, washed gravel, or a combination of both.
1. Aggregate size for structural slabs shall be 1-1/2 inch. Aggregate size for other structural concrete shall be between 3/4 inch and 1-1/2-inch maximum.
  2. Aggregate shall be saturated surface dry by batch plant.
  3. Modify fine aggregates when air entrained concrete is used in accordance with Paragraph 4.2.4 of ASTM C33 / C33M-08.
  4. Aggregate shall result in shrinkage of concrete not exceeding .048 percent at 28 days. Testing lab shall verify aggregate and concrete shrinkage.
  5. Do not use fine or coarse aggregates that contain substances that are known to cause spalling or adverse reactions in the concrete.
- F. Cementitious Materials:
1. Fly Ash: 40 percent replacement maximum.
  2. Slag Cement: 50 percent maximum.
  3. Combined Fly Ash and Slag Cement: 50 percent replacement maximum.
- E. Air Entraining Agents shall be used in concrete at the contractor's option. The maximum entrained air content shall be no more than 4 percent + 1 percent by volume. Sika AER, Master Builders Micro Air, Darex AEA, Protex AEA or approved equal meeting ASTM C260/C260M.
- F. Admixtures: Except for air entraining agents, and water-reducing admixtures, no other admixtures shall be used without written approval from the Architect. Where such agents are permitted, they shall be a type approved and used only as directed by the Architect and at no increase in cost to the Owner.
1. Calcium chloride will not be permitted for use in concrete under any circumstances.
  2. Air Entraining Agents: ASTM C260. Use where specified. The maximum entrained air content shall be no more than 4 percent + 1 percent by volume unless noted otherwise. Approved air entraining agents are Sika AER, Master Builders Micro Air, Darex AEA, Protex AEA or approved equal.
  3. Water Reducing Admixtures: ASTM C494 Type A, D, E, F, or G and ACI 318, Section 3.6. Use where specified.
- 2.02 CRUSHED ROCK BASE:
- A. Under all new concrete ramps and paving, or as otherwise indicated on the Drawings, provide a minimum of 4 inches of crushed rock fill. Crushed rock fill shall be clean gravel of 1" max. size and have no material passing through a No. 4 sieve.

2.03 JOINT MATERIAL:

1. **Laboratory Mix Design:** Concrete designs, using Methods B or C, Section 1905.1.1 of the CBC, Title 24, shall be reviewed by the Testing Laboratory. The concrete mix designs reviewed by the Testing Laboratory and approved by the Project Architect or Structural Engineer shall be used by the Contractor. Contractor shall provide samples of aggregates as required by the laboratory to review the mix designs. Laboratory shall also include shrinkage tests.
  2. **Water Reducing Admixture:** All concrete shall contain a water reducing admixture.
  3. **Air Entraining Agent:** Include in all concrete in all exterior concrete to result in concrete at point of placement having an air entrainment of 4% (+/- 1%).
  4. **Maximum water - cement ratio at point of placement:** 0.45.
- B. **Ready-Mixed Concrete:** ASTM C94 / C94M-09a except as otherwise specified herein.
1. Transit-mixed concrete shall be mixed for a period of not less than 10 minutes at a peripheral drum speed of approximately 200 feet per minute, and mixing shall be continued until discharge is complete. At least 3 minutes of the mixing period shall be at the job. Transit mixers shall be equipped with water measuring devices consisting of either accurately calibrated water tanks or water meters.
  2. When outside air temperature is between 85 degrees and 90 degrees, reduce mixing and delivery time from 90 minutes to 75 minutes. When outside air temperature is above 90 degrees, reduce mixing and delivery time to 60 minutes.
- C. **Job Mixing:** The capacity of the mixer shall be such that it will handle one or more full sack batches. No split sack batches will be permitted except when all materials are weighed. The rated capacity of the mixer shall not be exceeded. The mixing drum shall be equipped with an automatic timing and locking device and with an accurate water gauge for measuring the amount of water used. Mixing time of each batch shall be at least 1-1/2 minutes after all ingredients are in the mixer.
- D. **Slump of Concrete:** The slump of concrete as determined by the Standard Test Method for Slump of Hydraulic Cement Concrete ASTM Designation C-143 / C143M-09 shall be as follows:
1. All Concrete: 4 inches maximum, plus/minus 1 inch (5 inch maximum).

### **PART 3 – EXECUTION**

#### **3.01 CONCRETE PLACEMENT**

- A. **Surrounding Conditions:** Before any concrete is placed, the following items of work shall have been completed in the area of placing.
1. Forms shall have been erected, braced, cleaned, sealed, lubricated if required, and bulkheaded where placing is to stop.
    - a. Any wood forms other than plywood shall be thoroughly water soaked before placing any concrete. The wetting of forms shall be started at least 12 hours before concreting.
  2. Reinforcing steel shall have been placed, tied, supported, and, at time concrete is placed around it, shall be cleaned of rust, scale, mill scale or other coatings that will destroy or reduce bond.



Architect. Prior to placing of concrete for any concrete slabs, the moisture content of the subgrade below the slabs shall be adjusted to at least optimum moisture.

6. Deposit the concrete in forms as nearly as practicable in its final position to avoid flowing and maintain until completion of the unit an approximate horizontal plastic surface. Thoroughly compact all concrete during placing operations, thoroughly around reinforcement, embedded fixtures, or accessories, and into the corners of forms to eliminate air pockets and honeycombing. Compacting shall be done with mechanical vibrators. Vibrators shall not be used to cause concrete to flow horizontally. Thoroughly compact concrete to the forms to release the air and secure full contact of the concrete with the forms.
7. Hot Weather Concreting: Concrete placing and finishing operations during hot weather shall be done as quickly as possible. Ample personnel shall be available to manage and place the concrete immediately after its mixing or delivery to the site of the work. Concrete shall be placed in layers thin enough and over areas small enough to ensure complete bond and union of adjacent layers, and thus prevent "cold joints".
  - a. At air temperature of 80 degrees Fahrenheit or above, the following precautions should be taken:
    - 1) In no case shall the temperature of the concrete exceed 90 degrees Fahrenheit when placed in the work.
    - 2) If necessary, to produce and maintain concrete at an acceptable temperature, chopped or crushed ice shall be added directly into the mixer up to 50 percent by weight of the mixing water used, the weight of the ice being included in batch weight of the mixing water. The ice shall be added at such a rate and in such a manner that it will be completely melted by the time concrete is mixed.
    - 3) Stockpiled aggregates shall be saturated and kept surface moist by continuous fog spray or by intermittent sprinkling.
    - 4) Forms, reinforcements, and subgrade surfaces shall be wet down immediately before concrete is placed in contact therewith. Remove all excess water before placing concrete. Wetting down of areas around the work to cool the surrounding air and increase the humidity is recommended.
8. Cold Weather Requirements: Do not place concrete when ambient temperature is below 40 degrees Fahrenheit and falling.

### 3.02 CONCRETE FINISHING

- A. All Concrete Work, except as otherwise specified, shall be of a quality that will present a finished appearance upon the stripping of the forms. Only a minimum of patching and finishing should be necessary as required to fill holes left by form ties and to remove any fins or minor irregularities left by the joints in the forms. Except as otherwise specified, all concrete surfaces shall be finished as follows:
- B. Float finish: Begin float finish when bleed water sheen has disappeared, and the concrete surface has stiffened sufficiently to permit operations. Float surface with power driven floats, or by hand-floating if area is small or inaccessible to power units. Finish surfaces to true planes within a tolerance as specified in 3.04-C. Cut down high spots and fill low spots. Refloat surface immediately to a uniform granular surface.

18" maximum from the ends, epoxy set into existing concrete a minimum of 6" in length at the centerline of existing concrete slab.

- D. Contraction Joints (Control Joints): Provide weakened-plane contraction joints, sectioning concrete into areas indicated. Construct contraction joints for a depth equal to at least 1/4 of the concrete thickness unless otherwise noted on drawings. Form in fresh concrete by grooving and finishing each edge of joint with a radiused jointer tool. **Joints to be spaced at 10' on center maximum or as shown on the drawings.**
  - E. Construction Joints: Set construction joints at side and end terminations of concrete placement and at locations where placement operations are stopped for more than 1/2 hour unless placement ends at isolation joints.
    - 1. Provide preformed galvanized steel or plastic keyway-section forms or bulkhead forms with keys. Use Burke "Keyed Kold Joint Header Form" or approved equal. Embed keys at least 1 1/2" into concrete.
    - 2. Provide slip dowels across construction joints.
  - F. Isolation Joints (Expansion Joints): Form isolation joints of performed joint filler strips abutting concrete curbs, catch basin, utility access holes, inlets, structures, walks, other fixed objects, and where indicated.
    - 1. Extend joint fillers full width and depth of joint, not less than 1/2" or more than 1" below finished surface where a joint sealant is indicated. Place top of removable joint filler flush with finished concrete surface.
    - 2. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary, removable performed cap.
    - 3. After concrete has cured, remove cap exposing top edge of fiber joint filler, and apply joint sealant.
- 3.04 PUMPING OF CONCRETE (may be permitted for concrete, providing):
- A. The Contractor engages a testing laboratory to design concrete mixes for pumping. Trial batches shall be made and tested as required hereinbefore for typical concrete.
  - B. The quality and proportioning of aggregates for pumping conditions shall be determined in accordance with ACI, Recommended Practice 613. Aggregate proportioning must be tailored to the pump intended for use.
  - C. When starting a pump operation, actual pumping of concrete shall be preceded by a mortar mix (concrete without coarse aggregate) for the purpose of lubrication.
  - D. All mortar and concrete leakage resulting from pumping operations shall be removed from formwork, reinforcing steel and any finished surface.
- 3.05 CURING
- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperature. Comply with the recommendations of ACI 306R for cold weather protection and ACI 305R for hot weather protection during curing.

**SECTION 04 10 00  
MORTAR AND GROUT**

**PART 1 - GENERAL**

**1.01 GENERAL REQUIREMENTS**

- A. The requirements of Divisions 0 and 1 apply to all work of this Section.

**1.02 SCOPE**

- A. Provide all materials, labor and accessories as required and specified for complete mortar and grout installation in masonry walls.

**1.03 RELATED WORK**

- A. Section 03 20 00: Concrete Reinforcing.  
C. Section 03 30 00: Cast-in-Place Concrete.  
D. Section 04 22 00: Concrete Unit Masonry.  
E. Section 31 16 00: Site Concrete.

**1.04 QUALITY ASSURANCE**

- A. Standards and References: (Latest Edition unless otherwise noted)
1. ASTM C144, Aggregate for Masonry Mortar.
  2. ASTM C150, Portland Cement.
  3. ASTM C207, Hydrated Lime for Masonry Purposes
  4. ASTM C404, Aggregates for Grout
  5. ASTM C1019, Method of Sampling and Testing Grout
  6. ACI 530/ASCE 5, Building Code Requirements and Specification for Masonry Structures
  7. 2022 California Building Code (CBC), Volumes 1, 2, 3, with State of California Amendments
- B. Tests and Inspections:
1. All tests and inspections herein are to be performed by an independent testing laboratory approved by the building official.
  2. Mortar and Grout Tests: At the beginning of Masonry Work, at least 1 test sample each of mortar and grout shall be taken on 3 successive working days, then once per week with at least one sample taken for each 5000 square feet of wall area, or fraction thereof.
    - a. Test specimens shall be made in accordance with CBS Section 2105A.2.
    - b. Test specimens shall be continuously stored in moist air until tested.
    - c. Mortar shall show a compressive strength of not less than 1800 psi at 28 days. Grout shall show a compressive strength of not less than 2000 psi at 28 days.
  3. A special inspector shall be employed per CBC Section 1704A.5 during the placement of all units, placement of all reinforcing steel, during all grouting operations and during taking of all test specimens.
- C. Submittals:
1. Mix design for mortar and grout shall be submitted for review.

- C. Mortar mix shall be proportioned by volume; one part portland cement, not less than 1/4 part nor more than 1/2 part lime putty, and sand totaling not less than 2 1/4 nor more than 3 times sum of volumes of cement and lime used.

1. Total clay content shall not exceed 2% of sand content or 6% of cement content.

- D. Mortar at exposed, unfinished masonry shall be Basalite No. S296 (green) and S205 (white) to match or as otherwise selected by Architect to best match block colors.

## 2.03 GROUT

- A. Grout (per ASTM C476) shall have a 28-day compressive strength of not less than 2000 psi. Proportion by volume, and with sufficient water to produce consistency for pouring without segregation so that grout will flow into masonry joints. Grout shall conform to CBC Section 2103A.13.

- B. Fine Grout: 1 part portland cement, to which may be added not more than 1/10 part lime putty, and 3 parts sand.

1. Fine grout shall be used for all grout spaces less than 3" wide.

- C. Coarse Grout: 1 part portland cement, to which may be added not more than 1/10 part lime putty, 3 parts sand and not less than 1 part nor more than 2 parts pea gravel (3/8" maximum aggregate size).

1. Coarse grout shall be used in grout spaces 3" wide or more.

- D. Add "Sika Grout Aid" admixture to grout at the rate of 1 pound per 100 pounds cementitious material.

## PART 3 - EXECUTION

### 3.01 MIXING MORTAR AND GROUT

- A. Accurately measure materials in suitably calibrated devices; shovel measurements are not acceptable. Each 94lb. sack of portland cement will be considered as 1 cubic foot.

- B. Place sand, cement and water in mixer in that order and mix for at least 2 minutes; then add lime putty and continue mixing as long as necessary to secure a uniform mass, but in no case less than 10 minutes.

- C. Use mixers of at least 1 sack capacity; batches requiring fractional sacks will not be permitted unless cement is weighed for each batch.

### 3.02 GROUTING PROCEDURES

- A. Specified under Sections 04 22 00.

### 3.03 RETEMPERING

- A. When necessary to retemper mortar, add water and remix; retempering by dashing water over mortar will not be permitted.

SECTION 04 22 00

CONCRETE UNIT MASONRY

**PART 1 - GENERAL**

1.01 SUMMARY

A. Section Includes:

1. Furnish and install all concrete unit masonry, reinforcement, and all required accessories and materials as shown on the Drawings and specified here.
  - a. Coordinate with other trades for embedded items, furnished under those sections and installed here.
  - b. Supervise setting of dowels for masonry furnished and installed under Section 03 21 00, Reinforcing Steel.

B. Related Work:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 03 21 00: Reinforcing Steel.
3. Section 03 30 00: Cast-in-Place Concrete.
4. Section 04 10 00: Mortar and Grout.

1.02 QUALITY ASSURANCE

A. Allowable Tolerances: Place masonry in accordance with section 3.3B.

B. Standards and References: (Latest Edition unless otherwise noted):

1. California Building Code (CBC) with State of California Amendments.
2. TMS 402-16 – Building Code Requirements for Masonry Construction
3. TMS 602-16 – Specification for Masonry Structures
4. ASTM C90 – Specification for Loadbearing Concrete Masonry Units
5. ASTM C140 – Standard Test Methods for Sampling and Testing of Concrete Masonry Units and Related Units
6. ASTM C426 – Standard Test Method for Linear Drying Shrinkage of Concrete Masonry Units

C. Submittals: Refer to the requirements of Divisions 0 & 1 for submitting the following items:

1. Supplier's certificate indicating units comply with material standards indicated below:
2. See Section 03 21 00 for reinforcing steel submittals.

D. Tests and Inspections:

1. A testing program is required prior to start of construction. Testing program to be done in Compliance with the CBC requirements and in collaboration with Testing Laboratory, Design team, contractor, owner and submitted for review by the agency in charge of building enforcement. Requirements below are minimum requirements; additional requirements may be required in final testing program.

2. **Type 2** – Dark Accent Color: 8" wide by 8" high x 16" long unless specified otherwise. Equal to Basalite No. 397 (standard color group), split face finish (dark brown). Provide 8" wide x 2" high x 16" long, matching color, precision face cap block to be used as cap at all Type 2 color locations.
- C. Provide corners, ends and other specialty units at exposed locations to match block types specified herein and as required to match coursing patterns indicated on the Drawings.
- D. Provide bond beam units, open end units, lintel units and other special units as indicated. Use open end units at cells containing vertical reinforcement per CBC 2104A.1.3.1.2.1.
- E. Where smooth-faced block may be required to accommodate signage, light fixtures, fire alarm devices, or other components, the specified block pattern and unit locations may be modified, or the specified split-face blocks may also be ground at these locations. Confirm all proposed revisions to the indicate block pattern with Architect prior to installation.

## 2.02 MORTAR AND GROUT

- A. Specified under Section 04 10 00.

## 2.03 ACCESSORY MATERIALS

- A. Reinforcing Bars: ASTM A615, Grade 40 or 60, as indicated in Section 03 21 00, deformed bars. Where bars are to be welded, ASTM A706 Grade 60 bars shall be used.
  1. Tie Wire: Black annealed steel wire not lighter than 16 gauge.
- B. Ladder-type Joint Reinforcing: ASTM A951. Ladder-type joint reinforcing shall be comprised of 9-gauge side rods and 9-gauge cross-rods at 16" on center and shall conform to ASTM A951. Cross-rods are to be butt welded to side rods. Ladder-type joint reinforcement shall be hot dip galvanized or stainless steel.
  1. Width: Fabricate joint reinforcement in units with widths a minimum of 2" less than nominal width of walls. Provide mortar coverage over joint reinforcement of not less than 5/8" on joint faces exposed to exterior and 1/2" elsewhere.
- C. Provide spacers to firmly hold reinforcement in place.
- D. Anchor Bolts: All anchor bolts cast in masonry shall be headed studs or headed bolts with cut threads conforming to ASTM F1554 Grade 36 or ASTM A307 or ASTM A36 as indicated on drawings.
- E. Expansion Anchors: All expansion bolts installed in masonry shall be Hilti Kwik Bolt 3 per ICC ESR-1385, Simpson Wedge-All per ICC ESR-1396 or Dewalt/Powers Power-Stud+ SD1 per ICC ESR-2966. See Structural Drawings for installation requirements, testing and special head requirements as applicable. Substitution of other brands or anchors shall proceed only after written approval from the Structural Engineer and the Building Official has been obtained.
- F. Adhesive Anchors: All drill and epoxy threaded rods shall be ASTM F1554 Grade 36 or Grade 50, as indicated on drawings, and installed in masonry with Hilti HIT-HY 270 per ICC ESR-4143, Simpson SET-XP per UES ER-265 or Dewalt / Powers AC100+ Gold per ICC ESR-3200. See Structural Drawings for installation requirements, testing and special head requirements as applicable. Substitution of other brands or anchors shall proceed only after written approval from the Structural Engineer and the Building Official has been obtained.

- B. Do not begin work before unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Clean concrete surfaces to receive masonry. Remove laitance or other foreign material lodged in surfaces by sandblasting or other means as required. Joints between concrete and masonry shall be considered construction joints. See Concrete specifications.
- B. Ensure masonry units are clean and free from dust, dirt, or other foreign materials before laying. Do not use damaged masonry units, damaged components of structure, or damaged packaged materials.
- C. Establish lines, levels, and coursing. Protect from disturbances.
- D. Provide temporary bracing during erection of masonry work. Maintain in place until masonry has set to provide permanent bracing.

3.03 COURSING

- A. Erect masonry in accordance with CBC Section 2104A.1.
- B. Place masonry to lines and levels indicated to the following tolerances:
  - 1. Variation from Unit to Adjacent Unit: 1/32 inch max.
  - 2. Variation from Plane of Wall: 1/4 inch in 10 feet.
  - 3. Variation from Plumb: 1/4 inch.
  - 4. Variation from Level Coursing: 1/8 inch in 3 feet; 1/4 inch in 10 feet; ½ inch maximum.
  - 5. Variation of Joint Thickness: 1/8 inch in 3 feet.
- C. Bond: Block shall be laid in a stacked bond pattern with vertical and horizontal joints aligned.
- D. Maintain masonry courses to uniform width. Make vertical and horizontal joints equal and of uniform thickness.
- E. Preserve the vertical continuity of cells in concrete unit masonry per Article 3.3E of TMS 602.

3.04 PLACING AND BONDING

- A. Do not install cracked, broken or chipped masonry units.
- B. Lay only dry concrete masonry units. Do not wet concrete masonry prior to laying up units unless written permission is obtained from the Engineer.
- C. Lay masonry in full bed of mortar, properly jointed with other work. Deep or excessive furrowing of mortar joints is not permitted.
  - 1. Block Cap: Lay with full mortar coverage on horizontal and vertical joints.
  - 2. Install grout cap where and as indicated.
- D. Fully bond intersections and external and internal corners.
- E. Do not shift or tap masonry units after mortar has taken initial set. Where adjustment must be made, remove mortar and replace.

2. Use low lift or high lift grouting at Contractor's option.
3. Use grout pump, hopper or bucket to place grout.
4. Place grout in final position within 1 1/2 hours after introduction of mixing water.
5. Stop grout approximately 1½ inches below top of last course, except at top course bring grout to top of wall. Do not form grout keys within beams.

B. Low Lift Grouting:

1. Do not lay units higher than 48 inches before grouting.
2. If mortar has been allowed to set prior to grouting, remove all fins protruding more than ½ inch into grout space.
3. Conform to requirements of CBC Section 2104A.1.3.1.2.2.
4. Consolidate each lift with mechanical vibration twice per Article 3.5 E of TMS 602. Once while placing grout and once more after initial absorption of water but before set.

C. High Lift Grouting:

1. Conform to requirements of CBC Section 2104A.1.3.1.2.3 and DSA IR 21-2.13.
2. Lay up walls, subject to maximum height limitations of Table 6 under Article 3.5 of TMS 602.
3. Provide clean out holes at the bottom of every pour in cells containing vertical reinforcement per CBC 2104A.1.3.1.1.2.3. Construct clean out courses with open bottom bond beam units inverted to permit cleaning of all cells by flushing. Cleanouts shall be not less than 3x4inch openings cut from one face shell. Do not plug clean out holes until masonry work, reinforcement, and final cleaning of the grout spaces have been completed and inspected.
4. Clean mortar droppings from the bottom of the grout space and from reinforcing steel. Remove mortar fins protruding more than ½ inch into the grout space by dislodging the projections with a rod as the work progresses or by washing the grout space at least twice a day during erection using a high-pressure stream of water.
5. Do not place grout in hollow unit masonry until mortar joints have set for at least 24 hours and clean out plugs have cured 24 hours.
6. Place grout in lifts not to exceed 4 feet in height, with a waiting period between lifts, dependent on weather and absorption rate of the masonry, in order to place the succeeding lift after the preceding lift becomes plastic but prior to initial set. The first lift shall be consolidated using mechanical vibrators. After the required waiting period, place the second lift and consolidate with the vibrator, reconsolidating the lift below to a depth of 12 to 18 inches. Repeat the waiting, placing and consolidating process until the top of the grout pour is reached. Reconsolidate the top lift after the required waiting period. The high lift grouting of any section of wall between lateral flow barriers shall be completed to the top of a pour in one working day unless a new series of clean out holes is established and the resulting horizontal construction joint cleaned.

3.08 WEATHER PROVISIONS FOR CONSTRUCTION

- A. Cold Weather Construction to be in accordance with Article 1.8 C of TMS 602.
- B. Hot Weather Construction to be in accordance with Article 1.8 D of TMS 602.

3.09 EXPANSION AND CONTROL JOINTS

- A. See drawings for type and location of expansion and/or control joints.



CONCRETE UNIT MASONRY

04 22 00 - 9

- A. Materials or workmanship not conforming to appearance or strength specified, will be deemed defective and shall be removed and replaced at no cost to Owner.
- B. Defective mortar and grout, as defined under Section 04 05 00; "Mortar and Grout" shall constitute defective masonry.

END OF SECTION 04 22 00

- A. Submit under provisions of Section 01 33 00.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Provide specific submittal for all ramp and sloped walk guide rails, handrails, and guardrails prior to fabrication clearly showing spacing of rails and embed details.
- C. Indicate welded connections using standard AWS A2.1 welding symbols. Indicate net weld lengths.

1.03 QUALITY ASSURANCE

- A. Welders' Certificates: Submit under provisions of Section 01 33 13, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.
- B. Field Measurements
  - 1. Verify that field measurements are as indicated on Drawings.

**PART 2 - PRODUCTS**

2.01 MATERIALS

- A. Steel Sections: ASTM A36.
- B. Steel Tubing: ASTM A500, Grade B.
- C. Plates: ASTM A36.
- D. Pipe: ASTM A53, Grade B, Schedule 40.
- E. Bolts, Nuts, and Washers: ASTM A307 galvanized to ASTM A 153 for galvanized components.
- F. Welding Materials: AWS D1.1; type required for materials being welded.
- G. Shop and Touch Up Primer: SSPC 15, Type 1, red oxide.
- H. Touch-Up for Galvanized Surfaces: Zinc rich galvanizing paint. Must contain either between 65% to 69% metallic zinc by weight or greater than 92% metallic zinc by weight in dry film. "Brite" sheen required at exposed galvanized finish. Spray application not acceptable; brush applied only.

2.02 EQUIPMENT SUPPORT SYSTEM

- A. Provide galvanized Unistrut, or other approved.
  - 1. Main Runner: P5500 channel at 8-foot centers.
  - 2. 5/8-inch hanger rods at 48 inches on centers and hanger clamps.

- B. Beginning of installation means erector accepts existing conditions.

### 3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate sections.

### 3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated on Drawings.
- D. Perform field welding in accordance with AWS D1.1.
- E. Obtain Architect approval prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

### G. WELDING

1. Except for modifications indicated on drawings and specified herein, AISC Code of Standard Practices for Steel Buildings, and AWS Code for Fusion Welding and Gas Cutting in Building Construction, both as amended to date, govern materials, fabrication and erection of work under this Section.
2. Make welds in accordance with best standard practice. Perform welding on unexposed sides to prevent pitting, discoloring, weld-halo and other surface imperfections. Thoroughly clean surfaces to be welded. Welds must show a uniform section and reasonable smoothness without distortion. No exposed spot welding permitted. Dress and finish exposed surfaces of welded joints to produce invisible connections. Furnish welding alloys in the same color and character as the surfaces of the metals joined.

### 3.04 CONSTRUCTION

- A. Insofar as possible, fit and shop assemble work ready for erection. Accurately make jointing and intersections in true planes, and with adequate fastenings. Make exposed joints even and smooth. Grind exposed weld joints smooth and flush.

sheet metal are shown or specified to be attached in steel frames, the drilling, tapping and attachment must be done by trade involved.

6. Furnish corner guards, bumpers, etc., of sizes and shapes indicated and with anchors welded to the backs and of sizes and spacing shown.
7. Provide hot-dipped galvanized steel and iron for exterior use.

**K. FINISH**

1. Except where indicated, or specified to be galvanized, clean miscellaneous steel and iron of any grease, rust, mill scale, or other foreign matter, and give one shop coat of the specified primer: Do not prime material to be embedded in concrete.
2. After welding is completed, repair damage to the galvanizing by applying a minimum of two coats of liquid galvanizing compound in accordance with manufacturer's instructions to provide a coating equal to original finish.

**3.05 SCHEDULE**

- A. The Schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled.
- B. Miscellaneous Framing and Supports: Steel not a part of structural steel framework as required to complete work; galvanized prime paint finish.
- C. Joist Hangers: Joist strap anchors, galvanized prime paint finish.
- D. Ledge and Shelf Angles, Channels and Plates Not Attached to Structural Framing: For support of metal decking, joists, masonry, galvanized, and prime paint finish.
- E. Lintels: As detailed; galvanized prime paint finish.
- F. Metal Gates and Fences: Welded tubular steel as detailed, complete with all necessary hardware; hot-dipped galvanized, primed with paint finish.
- G. Steel pipe railing: hot-dipped galvanized at exterior, primed and painted at interior.
- H. Pipe rail wall support brackets: hot-dipped galvanized at exterior, primed and painted at interior.
- I. Steel pipe downspouts and downspout support brackets: hot-dipped galvanized and painted.

END OF SECTION

- D. Submit standard color ranges of exposed materials for Architect selection.
- E. Submit manufacturer's installation instructions under provisions of Section 01 33 00.

#### 1.03 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years' experience.
- B. Applicator: Company specializing in applying the work of this section with minimum three years' experience, with projects of a similar size and type.
- C. Conform to Sealant Waterproofing and Restoration Institute requirements for materials and installation.
- D. Prior to installation of joint sealants, field test adhesion to joint substrates.
  - 1. Install joint sealants in 5-foot joint lengths. Allow to cure before testing. Test adhesion by pulling sealant out of joint.
  - 2. Perform field tests for each type of elastomeric sealant and joint substrate.
  - 3. Arrange for tests to take place with joint sealant manufacturer's technical representative present.
  - 4. Report whether or not sealant in joint connected to pulled out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.
  - 5. Sealants not evidencing adhesive failure from testing, in absence of other indications of non-compliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrate during testing.

#### 1.04 ENVIRONMENTAL REQUIREMENTS

- A. Do not install solvent curing sealants in enclosed building spaces.
- B. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.
- C. Do not install sealants under adverse weather conditions or when temperatures are above or below manufacturer's recommended limitations for installation.
- D. Deliver materials in the unopened, original containers or unopened packages with manufacturer's name, labels, product identification, color, expiration period, curing time and mixing instructions for multi-component materials.

#### 1.05 SEQUENCING AND SCHEDULING

- A. Coordinate the work of this Section with all Sections referencing this Section.

Provide Sikaflex 260 Primer at all stainless steel and/or galvanized substrate location for proper adhesion of Sikaflex 2cSL.

- I. Substitutions: Under provisions of Section 01 33 00.
- J. Color of sealant shall be as selected by Architect.

## 2.02 ACCESSORIES

- A. Primer: Non staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Noncorrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Non-staining; compatible with sealant and primer; such as round, closed cell polyethylene foam rod; oversized 30 to 50 percent larger than joint width. Materials impregnated with oil, bitumen or similar materials shall not be used. Sealant shall not adhere to back-up material.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.
- E. Solvents: cleaning agents or other accessory materials shall be as recommended by the sealant manufacturer.

## PART 3 – EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces and joint openings are ready to receive work and field measurements are as shown on Drawings and recommended by the manufacturer.
- B. Beginning of installation means installer accepts existing surfaces.

### 3.02 PREPARATION

- A. Clean and prime joints in accordance with manufacturer's instructions.
- B. Remove loose materials and foreign matter which might impair adhesion of sealant.
- C. Verify that joint backing and release tapes are compatible with sealant.
- D. Perform preparation in accordance with sealant manufacturer's recommendations.
- E. Protect elements surrounding the work of this Section from damage or disfiguration.
- F. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or acid washing to produce a clean, sound substrate. Remove loose particles remaining from cleaning operations by vacuuming or blowing out joints.

- C. Do not paint sealants until sealant is fully cured.
- D. Do not paint silicone sealant.

END OF SECTION

- A. Submit product data under provisions of Section 01 33 00.
- B. Provide manufacturer's technical information and instructions for application of each material proposed for use by catalog number.
- C. List each material by catalog number and cross-reference specific coating with specified finish system.
- D. Provide manufacturer's certificate that products proposed meet or exceed specified materials.
- E. Submit samples under provisions of Section 01 33 00.
- F. Submit two (2) samples 8-1/2 x 11 inch in size of each paint color and texture applied to cardboard. Resubmit samples until acceptable color, sheen and texture is obtained.
- G. On same species and quality of wood to be installed, submit two (2) 4 x 8-inch samples showing system to be used.

1.06 QUALITY ASSURANCE

- A. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with five (5) years' experience.
- B. Applicator: Company specializing in commercial painting and finishing with five (5) years documented experience.
- C. Regulatory Requirements
  - 1. Comply with applicable codes and regulations of governmental agencies having jurisdiction including those having jurisdiction over airborne emissions and industrial waste disposal. Where those requirements conflict with this specification, comply with the more stringent provisions.
  - 2. Comply with the current applicable regulations of the California Air Resources Board (CARB) and the Environmental Protection Agency (EPA).
  - 3. Coats: The number of coats specified is the minimum number acceptable. If full coverage is not obtained with the specified number of coats, apply such additional coats as are necessary to produce the required finish.
  - 4. Employ coats and undercoats for all types of finishes in strict accordance with the recommendations of the paint manufacturer.
  - 5. Provide primers and undercoat paint produced by the same manufacturer as the finish coat.
- D. Field Samples
  - 1. Provide field samples under provisions of Section 01 33 00.
  - 2. On wall surfaces and other exterior and interior components, duplicate specified finishes on at least 100 sq. ft. of surface area.
  - 3. Provide full-coat finishes until required coverage, sheen; color and texture are obtained.
  - 4. Simulate finished lighting conditions for review of field samples.



2. Label each container with paint mixture formula, color, texture, and room locations in addition to the manufacturer's label.

#### 1.12 WARRANTY

- A. All "Deep Tone" colors shall be warranted for 10-year color retention with a delta loss of no more than 75 cie lab units.

### PART 2 - PRODUCTS

#### 2.01 ACCEPTABLE MANUFACTURERS

- A. Unless specifically identified otherwise, product designations included at end of section are those of the Dunn Edwards, [www.dunnedwards.com](http://www.dunnedwards.com) and shall serve as the standard for kind, quality, and function.
- B. Subject to compliance with requirements, other manufacturers offering equivalent products are:
  1. Dunn Edwards, [www.dunnedwards.com](http://www.dunnedwards.com).
  2. Kelly Moore, <https://kellymoore.com/professional/contractors/>
  3. Sherwin Williams, <https://www.sherwin-williams.com/painting-contractors/project-solutions/commercial>
- C. Substitutions: Under provisions of Section 01 25 13.

#### 2.02 MATERIALS

- A. Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
- B. Good flow and brushing properties; capable of drying or curing free of streaks or sags.
- C. "Deep Tone" colors to be composed of 100 percent acrylic pigments, factory ground, with a colored base.
- D. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.
- E. Chemical Components of Interior Paints and Coatings: Shall not exceed the limitations of Green Seal's Standard GS-11 for VOC content and the following restrictions:
  1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
  2. Non-Flat Paints and Coatings: VOC content of not more than 150 g/L.
  3. Anticorrosive Coatings: VOC content of not more than 250 g/L.

1. Plaster and Gypsum Wallboard 12 percent.
2. Masonry, Concrete, and Concrete Unit Masonry 12 percent.
3. Interior Located Wood 15 percent, measured in accordance with ASTM 02016.
4. Exterior Located Wood 15 percent, measured in accordance with ASTM 02016.
  - a. Beginning of installation means acceptance of existing surfaces.

### 3.02 PREPARATION

#### A. Work Not to Be Painted

1. Painting is not required on surfaces in concealed and inaccessible areas such as furred spaces, foundation spaces, utility tunnels, pipe spaces and duct shafts.
2. Do not paint metal surfaces such as stainless steel, chromium plate, brass, bronze, and similar finished metal surfaces.
3. Do not paint anodized aluminum or other surfaces which are specified to be factory pre-finished.
4. Do not paint sandblasted or architecturally finished concrete surfaces.
5. Do not paint prefinished acoustic materials or acoustic suspension systems.
6. Do not paint over Underwriters Laboratories, Factory Mutual or other code-required labels or identifications.
7. Do not paint exterior hot-dipped galvanized materials/products as specified elsewhere.

#### B. Surface Preparation

1. See attached sheet for Lead paint and Asbestos awareness.
2. Remove all tacks, stickers, staples adhesive glue, picture hangers, protruding nails, tape and adhesive glue, and all other foreign materials from surfaces prior to priming or painting. Mask off and protect existing room identification tags including Asbestos tags on door frames.
3. All exterior surfaces to be painted will be pressure washed to remove all loose paint, blisters, bridged cracks, surface-chalk and loose debris at no less than 3200-PSI, or sand blasted.
4. If prior is not possible, washing all surfaces with TSP made by Synco or Jasco, by hand means, scraping and sanding of all surfaces is required prior to pre-priming for proper patching and painting of surfaces.
5. Prior to any painting, any wood or metal deficiencies should be replaced including but not limited to, doors, facial boards, overhang wood, siding, trim etc.
6. All glossy surfaces WILL be sanded prior to any paint application. NO EXCEPTIONS.
7. Clean all roofing tar from facial boards and metal flashing etc.
8. All factory primed new material wood, metal etc, will be sanded prior to priming and painting.
9. All surfaces to be patched will be pre-primed with the proper material as per manufacture specifications for substrate.
10. Any efflorescence will be primed as per Dunn-Edwards EFF-Stop concrete and masonry filler manufactures specifications.
11. Wash all doors, casings and other surfaces with TSP made by Synco or Jasco to remove oily dirt, dust, smoke, and other residues that could prevent proper adhesion of any paint products.
12. For all fillers and patching compounds used, surfaces will be primed before, after application, and before finish paint being applied.

P. Finishing Mechanical and Electrical Equipment:

1. Refer to Division 23 and Division 26 for schedule of color coding and identification banding of equipment, ductwork, piping, and conduit.
2. Paint shop primed equipment. Do not paint shop prefinished items.
3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are prefinished.
5. Replace identification markings on mechanical or electrical equipment when painted accidentally.
6. Paint interior surfaces of air ducts, and connector and baseboard heating cabinets that are visible through grilles and louvers with one (1) coat of flat black paint, to limit of sight line. Paint dampers exposed behind louvers, grilles, and connector and baseboard cabinets to match face panels.
7. Paint exposed conduit and electrical equipment occurring in finished areas with existing matching wall color.
8. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
9. Color code equipment, piping, conduit, and exposed ductwork in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.
10. Replace electrical plates, hardware, light fixture trim, and fittings removed prior to finishing.
11. Paint grilles, registers, and diffusers which do not match color of adjacent surface.
12. Paint all mechanical and electrical equipment, vents, fans, and the like occurring on roof.
13. Do not paint moving parts of operating units; mechanical or electrical parts such as valve operators; linkages; sensing devices; and motor shafts.
14. Do not paint over labels or equipment identification markings.
15. Do not paint mechanical room specialties such as compressors, boilers, pumps, control panels, etc.
16. Do not paint switch plates, light fixtures, and fixture lenses.

3.04 CONSTRUCTION

A. Priming:

1. All new or bare galvanized metal will first be etched and then primed with appropriate galvanized latex or oil base primer, use cleaner and primer measures as per manufactures specification.
2. All door and Casings may be sprayed. Doors may also be tight rolled with a 3/8th inch nap roller. All casings to be brushed or laid off with a brush. ABSOLUTELY NO EXCEPTIONS.
3. All holes and cracks are to be filled with the proper exterior patching compound and latex caulking with silicone.
4. All rusty ferrous and ferrous metal are to be primed with a rust-inhibitive red, gray or white oxide all galvanized metal will be primed with a galvanized primer.

B. Finish Coat

- B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.
- C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.08 PROTECTION OF COMPLETED WORK

- A. Protect finished installation under provisions of Division 01.
- B. Erect barriers and post warning signs. Maintain in place until coatings are fully dry.
- C. Confirm that no dust generating activities will occur following application of coatings.

3.09 SCHEDULES

A. Color Schedule Guidelines

- 1. Paint and finish colors shall be selected by the Architect from manufacturer's entire range to match District standard colors or compliment those colors with the approval of the SCUSD Paint Shop Supervisor.
- 2. Access doors, registers, exposed piping, electrical conduit and mechanical/electrical panels: Generally, the same color as adjacent walls.
- 3. Exterior and interior steel doors, frames and trim: Generally, a contrasting color to adjacent walls.
- 4. Doors generally are all the same color, but of a contrasting color from frame and trim.
- 5. Exterior and interior steel fabrications: Generally, a contrasting color to adjacent walls.
- 6. Exposed interior mechanical/ductwork: Generally, a contrasting color to adjacent walls or ceiling.
- 7. Ceilings are generally to be painted a different color than walls.

B. Exterior Painting Schedule

- 1. Concrete Substrates, Masonry, Clay, Stucco, Non-Traffic Surfaces:
  - a. Prime Coat: Primer, alkali resistant, waterbased, interior/exterior, Dunn-Edwards, Eff-Stop Premium, ESPR00.
  - b. Intermediate Coat: Latex, exterior, matching topcoat.
  - c. Topcoat: Latex, exterior, eggshell, Dunn-Edwards, Evershield, EVSH30, 100% acrylic, (Gloss Level 3).  
Or
  - d. Topcoat: Latex, exterior, low sheen, Dunn-Edwards, Evershield, EVSH40, 100% acrylic, (Gloss Level 4).  
Or
  - e. Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3).  
Or

- 2) Intermediate Coat: Waterborne urethane alkyd, interior/exterior, matching topcoat.
- 3) Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3).  
Or
- 4) Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).  
Or
- 5) Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5)

### C. Interior Painting Schedule

#### 1. Gypsum Board Substrates:

- a. Prime Coat: Primer sealer, latex, interior, Dunn-Edwards, Vinylastic Select VNSL00.
- b. Intermediate Coat: Latex, interior, matching topcoat
- c. Topcoat: Latex, interior/exterior, eggshell, Dunn-Edwards, Evershield, EVSH30, (Gloss Level 3).  
Or
- d. Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3).  
Or
- e. Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).  
Or
- f. Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5)

#### 2. Wood Substrates:

- a. Prime Coat: Primer, acrylic, for interior wood, Dunn-Edwards, Ultra-Grip Select UGSL00 or Dunn-Edwards, Decoprime DCPR00.
- b. Intermediate Coat: Latex, interior, matching topcoat.
- c. Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3)  
Or
- d. Topcoat: Waterborne urethane alkyd, interior/exterior, low sheen, Dunn-Edwards, Aristoshield ASHL40, (Gloss Level 4).  
Or
- e. Topcoat: Waterborne urethane alkyd, interior/exterior, semi-gloss, Dunn-Edwards, Aristoshield ASHL50, (Gloss Level 5)

#### 3. Ferrous Metal Substrates:

- a. Ultra-Premium Low Odor / Zero VOC Latex over a Waterborne Alkyd Primer System:
  - 1) Prime Coat: Primer, alkyd, anti-corrosive, for metal, Dunn-Edwards, Bloc-Rust Premium BRPR00 Series or Enduraprime rust preventative primer ENPR00.
  - 2) Intermediate Coat: Latex, interior, matching topcoat.
  - 3) Topcoat: Waterborne urethane alkyd, interior/exterior, eggshell, Dunn-Edwards, Aristoshield ASHL30, (Gloss Level 3)

SECTION 26 00 10

BASIC ELECTRICAL REQUIREMENTS

**PART 1 - GENERAL**

1.01 SUMMARY

A. Table of Contents, Division 26 - Electrical:

<u>SECTION NO.</u>	<u>SECTION TITLE</u>
260010	BASIC ELECTRICAL REQUIREMENTS
260090	ELECTRICAL DEMOLITION
260543	UNDERGROUND DUCTS AND STRUCTURES
265000	LIGHTING

B. Work included: This Section includes general administrative and procedural requirements for Division 26. The following administrative and procedural requirements are included in this Section to supplement the requirements specified in Division 01.

1. Quality assurance.
2. Definition of terms.
3. Submittals.
4. Coordination.
5. Record documents.
6. Operation and maintenance manuals.
7. Project management and coordination services.
8. Contract modification pricing procedures.
9. Excavation.
10. Rough-in.
11. Electrical installation.
12. Cutting, patching, painting, and sealing.
13. Field quality control.
14. Cleaning.
15. Project closeout.

C. Related Work: Consult all other Sections, determine the extent and character of related Work, and properly coordinate Work specified herein with that specified elsewhere to produce a complete and operable installation.

1. General and supplementary conditions: Drawings and general provisions of Contract and Division 01 of the Specifications, apply to all Division 26 Sections.

- F. All electrical apparatus furnished under this Section shall conform to NEMA standards and the CEC and bear the UL label where such label is applicable.
- G. Certify that each welder performing Work has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.

#### 1.03 DEFINITION OF TERMS

- A. The following list of terms as used in the Division 26 documents shall be defined as follows:
  - 1. "Provide": Shall mean furnish, install, and connect unless otherwise indicated.
  - 2. "Furnish": Shall mean purchase and deliver to Project site.
  - 3. "Install": Shall mean to physically install the items in-place.
  - 4. "Connect": Shall mean make final electrical connections for a complete operating piece of equipment.
  - 5. "As directed": Shall be as directed by the Owner or their authorized Representative.
  - 6. "Utility Companies": Shall mean the company providing electrical, telephone or cable television services to the Project.

#### 1.04 SUBMITTALS

- A. Format: Furnish submittal data in electronic format for each Specification Section with a table of contents listing materials by Section and paragraph number.
- B. Submittals shall consist of detailed Shop Drawings, Specifications, block wiring diagrams, "catalog cuts" and data sheets containing physical and dimensional information, performance data, electrical characteristics, materials used in fabrication and material finish. Clearly indicate by arrows or brackets precisely what is being submitted on and those optional accessories which are included and those which are excluded. Furnish quantities of each submittal as noted in Division 01.
- C. Each submittal shall be labeled with the Specification Section Number and shall be accompanied by a cover letter or shall bear a stamp stating that the submittal has been thoroughly reviewed by the Contractor and is in full compliance with the requirements of the Contract Documents or provide a Specification Section line-by-line compliance response statement with detailed exception/ deviation response statements for all applicable provisions for the applicable Specification Section. Any Specification Section lines without a detailed exception/ deviation response statement shall be treated as the Contractor or Vendor is submitting in full compliance with the applicable Specification Section requirements. Cover letters shall list in full the items and data submitted. Failure to comply with this requirement shall constitute grounds for rejection of data.
- D. The Contractor shall submit detailed Drawings of all electrical equipment rooms and closets if the proposed installation layout differs from the construction documents. Physical size of electrical equipment indicated on the Drawings shall match those of the electrical equipment that is being submitted for review, i.e.: switchboards, panelboards, transformers, control panels, etc. Minimum scale: 1/4" = 1'- 0". Revised electrical equipment layouts must be approved prior to release of order for equipment and prior to installation.

1. In the event of discrepancies within the Contract Documents, the Engineer shall be so notified, within sufficient time, as delineated in Division 01, prior to the Bid Opening to allow the issuance of an Addendum.
  2. If, in the event that time does not permit notification or clarification of discrepancies prior to the Bid Opening, the following shall apply: The Drawings govern in matters of quantity and the Specifications govern in matters of quality. In the event of conflict within the Drawings involving quantities or within the Specifications involving quantities or within the Specifications involving quality, the greater quantity and higher quality shall apply. Such discrepancies shall be noted and clarified in the Contractor's Bid. No additional allowances will be made because of errors, ambiguities or omissions that reasonably should have been discovered during the preparation of the Bid.
- B. Project conditions:
1. Examination of Project site: The Contractor shall visit the Project site and thoroughly review the locale, working conditions, conflicting utilities, and the conditions in which the Electrical Work will take place. Verify all existing conditions in the field. No allowances will be made subsequently for any costs that may be incurred because of any error or omission due to failure to examine the Project site and to notify the Engineer of any discrepancies between Contract Documents and actual Project site conditions.
  2. Protection: Keep conduits, junction boxes, outlet boxes and other openings closed to prevent entry of foreign matter. Cover fixtures, equipment, devices, and apparatus and protect them against dirt, paint, water, chemical or mechanical damage, before and during construction period. Prior to final acceptance, restore to original condition any fixture, apparatus or equipment damaged including restoration of damaged factory applied painted finishes. Protect bright finished surfaces and similar items until in service. No rust or damage will be permitted.
  3. Supervision: Contractor shall personally or through an authorized and competent representative constantly supervise the Work from beginning to completion and, within reason, keep the same foreman and workmen on the Project throughout the Project duration.
- C. Preparation:
1. Drawings:
    - a. Layout: General layout indicated on the Drawings shall be followed except where other Work may conflict with the Drawings.
    - b. Accuracy: Drawings for the Work under this Section are essentially diagrammatic within the constraints of the symbology applied.
- D. Utility company contacts:
1. Contact for electrical service:

SMUD  
Tony Dias, Engineering Designer  
916-732-7347  
Anthony.Dias@smud.org



- E. Where any device or part of equipment is referred to in these specifications in the singular number (e.g., "the switch"), this reference shall be deemed to apply to as many such devices as are required to complete the installation as shown on the drawings.
- F. During construction the contractor shall at all times maintain electrical utilities of the building without interruption. Should it be necessary to interrupt any electrical service or utility, the contractor shall secure permission in writing from the owner's representative for such Interruption at least ten (10) business days in advance. Any interruption shall be made with minimum amount of inconvenience and any shut-down time shall have to be on a premium time basis and such time to be included in the contractor's bid. Arrange to provide and pay for temporary power source as required by project conditions.
- G. Working clearance around equipment shall not be less than that specified in the CEC for all voltages specified.

### 3.02 ELECTRICAL INSTALLATION

- A. Preparation, sequencing, handling, and installation shall be in accordance with Manufacturer's written instructions and technical data particular to the product specified and/or accepted equal except as otherwise specified. Comply with the following requirements:
  - 1. Shop Drawings prepared by Manufacturer.
  - 2. Verify all dimensions by field measurements.
  - 3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for electrical installations.
  - 4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
  - 5. Sequence, coordinate and integrate installations of electrical materials and equipment for efficient flow of the Work. Give attention to large equipment requiring positioning prior to closing in the building.
  - 6. Where mounting height is not detailed or dimensioned, contact the Architect for direction prior to proceeding with rough-in.
  - 7. Coordinate connection of electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies and controlling agencies. Provide required connection for each service.
  - 8. Install systems, materials, and equipment to conform with approved submittal data, including coordination Drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are indicated only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.
  - 9. Install systems, materials, and equipment level and plumb, parallel, and perpendicular to other building systems and components, where installed exposed in finished spaces.

SECTION 26 00 90  
ELECTRICAL DEMOLITION

**PART 1 - GENERAL**

1.01 SUMMARY

- A. Work included: Labor and equipment necessary to complete the demolition required for the item specified under this Division, including but not limited to:
  - 1. Electrical demolition

1.02 SYSTEM DESCRIPTION

- A. All existing buildings on the campus are to be demolished upon completion of construction of the new campus.
- B. Disconnection, removal and relocation of all wiring, luminaires, outlets, conduit, and all other types of electrical equipment as described on Drawings.

**PART 2 - PRODUCTS**

2.01 MATERIALS AND EQUIPMENT

- A. Materials and equipment necessary for patching and extending Work, as specified in other Sections.

**PART 3 - EXECUTION**

3.01 EXAMINATION

- A. Contractor shall thoroughly review conditions in the area of demolition prior to commencing Work to ensure complete understanding of existing installation in relationship to demolition Work.

3.02 GENERAL REQUIREMENTS

- A. Remove all wiring, luminaires, outlets, conduit, and all other types of electrical equipment within the area of demolition
- B. All equipment, luminaires, devices, etc., which are removed shall be delivered to the Owner for disposition. All items which are removed and not wanted by the Owner and which are not reused shall become the property of the Contractor and shall be legally removed from the Project site.
- C. Cutting and patching necessary for the removal of Electrical Work shall be included.

3.03 WIRING

- A. Removed abandoned wiring to source of supply. All wiring shall be returned to the owner at their discretion.

3.04 EXISTING SYSTEMS

SECTION 26 05 43

UNDERGROUND DUCTS AND STRUCTURES

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Work included: Labor, materials, and equipment necessary to complete the installation required for the item specified under this Division, including but not limited to:
  - 1. Underground conduits and ducts.
  - 2. Handhole and pullboxes.
  - 3. Excavation, trenching and backfill.
- B. Related Work: Consult all other Sections, determine the extent and character of related Work, and properly coordinate Work specified herein with that specified elsewhere to produce a complete installation.
  - 1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
  - 2. Division 31 - Earthwork: General requirements for Excavation and Backfill and related items for ducts, manholes, pullboxes and handholes.
  - 3. Division 03 - Cast-in-place concrete: Protective envelope for ducts.

**1.02 REFERENCES**

- A. Comply with the latest edition of the following applicable Specifications and standards except as otherwise indicated or specified:
  - 1. American Concrete Institute (ACI):
    - ACI 318; Building Code Requirements for Structural Concrete
  - 2. American National Standards Institute, Inc. (ANSI):
  - 3. American Society for Testing And Materials (ASTM):
    - ASTM C31; Standard Practice for Making and Curing Concrete Test Specimens in the Field
    - ASTM C39; Test Method for Compressive Strength of Cylindrical Concrete Specimens
    - ASTM C172; Standard Practice for Sampling Freshly Mixed Concrete
    - ASTM C192; Practice for Making and Curing Concrete Test Specimens in the Laboratory
    - ASTM C231; Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
    - ASTM C478; Specification for Precast Reinforced Concrete Manhole Sections

3. Shop Drawings showing details and design calculations for precast handholes, including reinforced steel.
4. Submit Manufacturer's installation instructions.
5. Complete bill of material listing all components.

#### 1.05 QUALITY ASSURANCE

- A. All materials, equipment and parts comprising the units specified herein shall be new, unused, and currently under production.
- B. Only products and applications listed in this Section may be used on the Project unless otherwise submitted and approved.
- C. Precast concrete vaults shall be designed and fabricated by an experienced and acceptable precast concrete manufacturer. The manufacturer shall have been regularly and continuously engaged in the manufacture of precast concrete units similar to that indicated in the project specifications or drawings for at least 10 years.

### **PART 2 - PRODUCTS**

#### 2.01 MANUFACTURERS

- A. Products furnished by the following Manufacturers shall be acceptable if in compliance with all features specified herein and indicated on the Drawings.
  1. Underground precast concrete utility structures:
    - a. Oldcastle Enclosure Solutions.
    - b. Jensen Precast.
  2. Conduits, ducts and fittings:
    - a. Prime Conduit.
    - b. JM Eagle.
    - c. Cantex.
    - d. Occidental Coating Company (OCAL).
- B. Substitution: Under provisions of Section 260010: Basic Electrical Requirements.

#### 2.02 CONDUIT AND DUCT

- A. Refer to Section 260531: Conduit.
- B. Galvanized rigid steel conduit (GRS) in underground installations:
  1. PVC insulated galvanized rigid steel conduit (PVC GRS):
    - a. Conduit: Full weight, threaded, hot-dip galvanized steel, conforming to ANSI C80.1 and NEMA RN-1 with nominal 20 or 40 mil thermoplastic vinyl coating, heat fused and bonded to the exterior of the conduit.
    - b. Fittings: Conduit couplings and connectors shall be steel or malleable iron as required with factory PVC coating and insulated jacket equivalent to that of the coated material.

- A. Contractor shall thoroughly examine Project site conditions for acceptance of duct and manhole installation to verify conformance with Manufacturer and Specification tolerances. Do not commence with installation until all conditions are made satisfactory.

### 3.02 EARTHWORK

- A. Excavation and backfill: Conform to Division 31, Earthwork.
- B. Excavation for underground electrical structures: Conform to elevations and dimensions indicated within a tolerance of plus or minus 0.10 foot; plus, a sufficient distance to permit placing and removal of concrete formwork, installation or services, other construction and for inspection.
  - 1. Excavate, by hand, areas within dripline of large trees. Protect the root system for damage and dry-out. Maintain moist conditions for root system and over exposed roots with burlap. Paint root cuts of 1 inch in diameter and larger with emulsified asphalt tree paint.
  - 2. Take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed.
- C. Trenching: Excavate trenches for electrical installation as follows:
  - 1. Excavate trenches to the uniform width, sufficiently wide to provide ample working room and a minimum of 6 to 9 inches clearances on both sides of raceways and equipment.
  - 2. Excavate trenches to depth indicated or required.
  - 3. Limit the length of open trench to that in which installations can be made and the trench backfilled within the same day.
  - 4. Where rock is encountered, carry excavation below required elevation and backfill with a layer of crushed stone or gravel prior to installation of raceways and equipment. Provide a minimum of 6 inches of stone or gravel cushion between rock bearing surface and electrical installations.
- D. Backfilling and filling: Place soil materials in layers to required sub-grade elevations for each area classification, using materials and methods specified in Division 31: Earthwork.
  - 1. Under building slabs, use drainage fill materials.

### 3.03 CONDUIT AND DUCT INSTALLATION

- A. Install duct lines in accordance with Manufacturer's written instructions, as indicated on the Drawings and as specified herein.
- B. Application:
  - 1. Direct burial ducts: Schedule 40, minimum 24-inches below finished grade.
  - 2. Below building slab-on-grade: Schedule 40, minimum 4-inches below bottom of slab except that bends and penetrates through floor slab shall be insulated galvanized rigid steel conduit.
  - 3. Below roads and paved surfaces:
    - a. Schedule 80, minimum 36-inches below finished grade.
  - 4. Utility pole riser: Schedule 80.
  - 5. Penetrations of building and equipment slabs: Insulated galvanized rigid steel conduit .

SECTION 26 50 00

LIGHTING

**PART 1 - GENERAL**

1.01 SUMMARY

- A. Work included: Labor, materials, and equipment necessary to complete the installation required for the item specified under this Division, including but not limited to:
1. Exterior luminaires.
  2. Light-emitting diode (LED) assemblies.
  3. Drivers and transformers.
  4. Optical components; including diffusers, refractors, reflectors, and louvers.
  5. Poles and brackets.
- B. Related Work: Consult all other Sections, determine the extent and character of related Work, and properly coordinate Work specified herein with that specified elsewhere to produce a complete installation.
1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
  2. Division 03: Concrete; for cast-in place bases for lighting poles and bollards.

1.02 REFERENCES

- A. Comply with the latest edition of the following applicable Specifications and Standards except as otherwise indicated or specified:
1. American National Standards Institute (ANSI):
    - ANSI/IEC 60529; American National Standard for Degrees of Protection Provided by Enclosures (IP Code)
    - C137.0 Lighting System Terms and Definitions.
    - C137.1 0-10V Dimming Interface for LED Drivers and Controls
  2. Underwriters Laboratories, Inc. (UL):
    - UL 66; Fixture Wire.
    - UL 102.3; Standard Method of Fire Test of Light Diffusers and Lenses.
    - UL 844; Luminaires for Use in Hazardous (Classified) Locations.
    - UL 924; Emergency Lighting and Power Equipment.
    - UL924a; Auxiliary Power Supplies (for generator-backed systems.)
    - UL 1574; Track Lighting Systems.
    - UL 1598; Luminaires.
    - UL 1598C; Light-Emitting Diode Retrofit Luminaire Conversion Kits.

- A. Provide and install a fully functional and operating lighting system as indicated, complete with light engines, lamps, wiring, and securely attached to support system to meet all seismic code requirements.
- B. Where catalog number and narrative or pictorial descriptions are provided, the written description shall take precedence and prevail.

1.04 SUBSTITUTIONS

- A. Refer to Section 260010: Basic Electrical Requirements for specific Equipment requirements.
- B. Items specified under this Section and Luminaire Schedule are subject to the requirements, with the following qualifications:
  - 1. Items solely specified by Manufacturer name and catalog number, without qualifiers: Provide as specified – No Substitutions.
  - 2. Items specified by multiple Manufacturers, without qualifiers: Provide any listed manufacturer – No Substitutions.
  - 3. Items specified by sole or multiple Manufacturers, followed by “Or Approved Equal” or “Or Approved Equivalent”: Conform to substitution requirements outlined for Equipment.
  - 4. Items specified by sole or multiple Manufacturers, followed by “Or Equal” or “Or Equivalent”:  
Products that meet the salient requirements are acceptable to provide.
    - a. Equivalency is at the sole judgement of the Architect and Engineer.
    - b. Should a submitted, unspecified product fail to meet the requirements of Equivalency, provide specified products at no additional cost to the Owner.
- C. Equivalency shall be determined by review of the following luminaire characteristics where applicable. Lack of pertinent data on any characteristic shall constitute justification for rejection of the submittal or substitution.
  - 1. Performance:
    - a. Distribution.
    - b. Utilization.
    - c. Luminance distribution (Average brightness / maximum brightness.)
    - d. Spacing to mounting height ratio.
    - e. Overall luminaire efficiency.
  - 2. Construction:
    - a. Engineering.
    - b. Workmanship.
    - c. Rigidity.
    - d. Permanence of materials and finishes.
  - 3. Installation Ease:
    - a. Captive parts and captive hardware.
    - b. Provision for leveling.

Society published test procedures and shall contain candlepower distribution curves in five lateral planes for luminaires with asymmetric distributions and luminance data for vertical angles above 45 degrees from nadir.

- b. Coefficient of utilization table.
- c. Zonal lumen summary including overall luminaire efficiency.

8. Shop Drawings:

- a. Provide a detailed "point-by-point" photometric study based on final approved site conditions, and identify areas where minor changes to layout, lumen output, or IES distribution type may improve overall performance of the site lighting system.

1.06 OPERATION AND MAINTENANCE MANUAL

A. Supply operation and maintenance manuals in accordance with the requirements of Section 260010: Basic Electrical Requirements, to include the following:

- 1. An updated index per 1.05-A.
- 2. One complete set of final submittals of actual product installed, including product data and shop drawings.
- 3. Instructions for routine maintenance.
- 4. Pictorial parts list and parts number.
- 5. Telephone numbers for authorized parts and service distributors.

1.07 QUALITY ASSURANCE

- A. All materials, equipment and parts comprising the units specified herein shall be new, unused, and currently under production.
- B. Only products and applications listed in this Section may be used on the Project unless otherwise submitted.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery: Luminaires shall not be delivered to the Project site until protected storage space is available. Storage outdoors covered by rainproof material is not acceptable. Equipment damaged during shipment shall be replaced and returned to Manufacturer at no cost to Owner.
- B. Storage: Store in a clean, dry, ventilated space free from temperature extremes. Maintain factory wrapping or provide a heavy canvas/plastic cover to protect units from dirt, water, construction debris and traffic. Provide heat where required to prevent condensation.
- C. Handling: Handle in accordance with Manufacturer's written instructions. Be careful to prevent internal component damage, breakage, denting and scoring. Damaged units shall not be installed. Replace damaged units and return equipment to Manufacturer.

1.09 WARRANTY

- A. Units and components offered under this Section shall be covered by a 1-year parts and labor warranty for malfunctions resulting from defects in materials and workmanship. Warranty shall begin upon acceptance by the Owner.

**PART 2 - PRODUCTS**



2. Luminaire (including all painted component parts) shall be painted after fabrication unless specifically noted in the Luminaire Schedule.
- B. Extruded Aluminum Housings: One-piece housing of AA 6063 T5 extruded aluminum with 0.14 minimum thickness smooth and free of tooling lines in one uninterrupted section of 1-foot to 24-foot with the cross sectional dimensions as indicated in the Luminaire Schedule.
- C. Die-Cast Aluminum Housings:
  1. Single-piece casting to ensure water tightness.
  2. Low copper (<0.7% Cu) aluminum alloy.
  3. Minimum Class 4 Consumer Grade per NADCA Standards.
- D. All surfaces shall be cleaned and dressed to eliminate all exposed sharp edges or burrs.
- E. All intersections and joints shall be formed true and of adequate strength and structural rigidity to prevent any distortion after assembly.
- F. End Plates: Die cast end plates shall be mechanically attached without exposed fasteners. End caps shall be minimum 0.125" thick.
- G. All mitered corners or joints shall be accurately aligned with abutting intersecting members. Sheet metal Work shall be properly fabricated so that planes will not deform (i.e. become concave or convex) due to normal expected ambient and operating conditions.
- H. Ferrous mounting hardware and accessories shall be finished using either a galvanic or phosphate primer/baked enamel process to prevent corrosion and discoloration of adjacent materials.
- I. Fasteners shall be manufactured of galvanized steel.
- J. Finish:
  1. All exposed aluminum surfaces shall be treated with an acid wash and clear water rinse prior to painting. The luminaire shall then be electrostatically painted, or powder coated, and oven baked in the color indicated in the Luminaire Schedule.
  2. All exposed steel surfaces shall be treated with an acid wash and clear water rinse, then prime coated. The luminaire shall then be electrostatically painted, or powder coated, and oven baked in the color indicated in the Luminaire Schedule.

#### 2.04 LED ARRAYS

- A. Minimum lumen maintenance per LM-80 measurements and TM-21 calculations: L90 at 60,000 hours.
- B. Maximum burnout: B90 at 200,000-hours.
- C. Free of mercury and toxic materials; RoHS compliant.
- D. Linear LED boards: LED pitch shall be consistent throughout the luminaire and shall remain consistent from the end of one board to the start of the next. LED pitch shall be the same from the endcap of the luminaire to the last LED on the board as the LED pitch throughout the luminaire. Luminaire shall have a continuous luminous appearance – bright or dark spots are not acceptable.
- E. White LEDs:
  1. Exterior

- F. Grounding lug: Provide grounding lug for grounding conductor with access through handhole.
- G. Pole bases: Anchor type with galvanized steel hold-down or anchor bolts, leveling nuts and bolt covers.
- H. Anchor bolt covers: Spun or two-piece gravity held unless otherwise specified.
- I. Pole-top tenons: Fabricated to support the luminaire indicated and securely fastened to the pole top.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Contractor shall thoroughly examine Project site conditions for acceptance of luminaire installation to verify conformance with Manufacturer and Specification tolerances. Do not commence with installation until all conditions are made satisfactory.

#### **3.02 PREPARATION**

- A. Architectural, Civil, and Landscape Plans shall govern exact site conditions and mounting conditions for all site lighting. Coordinate with other trades to avoid conflict.

#### **3.03 ARCHITECTURAL COORDINATION**

- A. Where luminaires are mounted in landscape areas, the Contractor shall coordinate exact location with landscape architectural plans to avoid conflict with trees.

#### **3.04 INSTALLATION**

- A. Install luminaires in accordance with Manufacturer's written instructions, as indicated on the Drawings and as specified herein.
- B. Contractor shall be responsible for all supports, hangers, and hardware necessary for a complete installation.
- C. Luminaires shall be plumb, level, square, in straight lines and without distortion.
- D. Remedy light leaks that may develop after installation of recessed or enclosed luminaires.

#### **3.05 INSTALLATION OF POLES**

- A. General: Store poles on decay-resistant treated skids at least 1-foot above grade and vegetation. Support pole to prevent distortion and arrange to provide free air circulation.
- B. Metal poles: Retain factory-applied pole wrappings until just before pole installation. For poles with nonmetallic finishes, handle with web fabric straps.
- C. Pole installation: Use fabric web slings (not chain or cable) to raise and set poles.

#### **3.06 CONCRETE FOUNDATIONS**

- A. Construct concrete foundations conforming to Division 03, Section "Cast-In-Place Concrete."
- B. Utilize manufacturer's bolt templates to properly position anchor bolts.
- C. Provide leveling nut to anchor bolt prior to pole base. After pole leveling, pack non-shrink grout between pole base and concrete foundation.
- D. Comply with details and Manufacturer's recommendations for reinforcing, anchor bolts, nuts and washers.

SECTION 27 00 00  
COMMUNICATIONS BASIC REQUIREMENTS

**PART 1 - GENERAL**

1.01 SUMMARY

- A. This Section specifies the common administration basic requirements and common methods for all low voltage systems installation work included under Division 27 and 28 and where those requirements differ from the requirements of this section, the more stringent shall govern.

1.02 STANDARDS, REGULATIONS, AND CODES REFERENCES

- A. The following Standards, Regulations and Codes apply to work specified in the Contract Documents.
1. Applicable State and Local Codes.
  2. California Building Code and California Electrical Code, Current Editions.
  3. BICSI TDMM (Telecommunications Distribution Methods Manual), 11th Edition 2006.
  4. ANSI/TIA/EIA-568-B.1. Commercial Building Telecommunications Cabling Standard,
  5. ANSI/TIA/EIA-568-B.1-2. Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements, Addendum 2, Grounding and Bonding Specifications for Screened Balanced Twisted-Pair Horizontal Cabling.
  6. ANSI/TIA/EIA-568-B.1-3. Commercial Building Telecommunications Cabling Standard.
  7. ANSI/TIA/EIA-568-B.1-4. Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements, Addendum 4, Recognition of Category 6 and Category Cat 6A and 50 nm Laser-Optimized 50/125 um Multimode Optical Fiber Cabling.
  8. ANSI/TIA/EIA-568-B.1-2. Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted-Pair Cabling Components.
  9. ANSI/TIA/EIA-568-B.2-1. Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted-Pair Cabling Components, Addendum 1, Transmission Performance Specifications for 4-Pair 100 Ohm Category 6 Cabling.
  10. ANSI/TIA/EIA-568-B.2-10 (draft 2.0). Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted-Pair Cabling Components, Addendum 10, Transmission Performance Specifications for 4-Pair 100 Ohm Augmented Category 6 Cabling.
  11. ANSI/TIA/EIA-568-B3.3 Optical Fiber Cabling Components Standard.
  12. TIA-569-B. Commercial Building Standard for Telecommunications Pathways and Spaces.
  13. ANSI/TIA/EIA-606-A. Administration Standard for Commercial Telecommunications Infrastructure.
  14. ANSI/TIA/EIA-607-A. Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.

## COMMUNICATION BASIC REQUIREMENTS

27 00 00 - 3

5. **Cable Tray:** Vertical or horizontal open supports, usually made of aluminum or steel, that are fastened to a building ceiling or wall. Cables are laid in and fastened to the trays. A cable tray is not a raceway.
6. **Campus:** Grounds and buildings of a multi-building premises environment.
7. **Channel:** The end-to-end transmission path between two points at which application specific equipment is connected; may include one or more links, cross-connect jumper and/or patch cords, and work area station cords. Does not include connection to active equipment.
8. **Cross-Connect:** Equipment used to terminate and tie together communications circuits.
9. **Cross-Connect Jumper:** A cluster of twisted-pair conductors without connectors used to establish a circuit by linking two cross-connect termination points.
10. **Fiber Optic Distribution Unit (FDU):** Cabinet with terminating equipment used to develop fiber optic cross-connect facilities. Also known as LIU.
11. **Grounding:** a conducting connection to earth, or to some conducting body that serves in place of earth.
12. **Hinged Cover Enclosure:** Wall-mounted box with a hinged cover that is used to house and protect electrical devices.
13. **Horizontal:** Pathway facilities and media connecting communications rooms to Telecommunications Outlets.
14. **Intermediate Distribution Frame (IDF):** Data networking equipment rack and/or location that serves individual buildings. Downstream from MDF.
15. **Jack:** Receptacle used in conjunction with a plug to make electrical contact between communications circuits, e.g., eight-position/eight-contact modular jacks.
16. **Link:** A transmission path between two points, not including terminal equipment, work area cables, and equipment cables; one continuous section of conductors or fiber, including the connecting hardware at each end.
17. **Local Area Network (LAN):** Data transmission facility connecting several communicating devices, e.g., serial data, Ethernet, token ring, etc. Typically, the network is limited to a single site.
18. **Main Distribution Frame (MDF):** Initial (main) data network equipment rack and/or location. Only one MDF occurs per site and may serve many downstream IDFs.
19. **Media:** Twisted-pair, coaxial, and fiber optic cable or cables used to provide signal transmission paths.
20. **Minimum Point of Entry (MPOE):** The location where the service provider hands off connection and responsibility for service to on premise customer owned equipment.
21. **Modular plug:** For Cat6A an eight-position end-of-wire electrical connector.
22. **Passive Equipment:** Non-electronic hardware and apparatus, e.g., equipment racks, cable trays, electrical protection, wiring blocks, FDUs, etc.
23. **Patch Cord:** A length of wire or fiber cable with connectors on one or both ends used to join communications circuits at a cross-connect.
24. **Patch Panel:** System of terminal blocks or connectors used with patch cords that facilitate the administration of cross-connect fields.

3. Have performed successful installation and maintenance of at least three projects similar in scope and size. Be able to provide project references for these three projects, including scope of Work, project type, owner/user contact name and telephone number.
4. The contractor selected for this project must be certified by the manufacturer of the products and utilize these components for completion of work.
5. Holds and maintains a valid California C-7 or C-10 State Contractors License and can exhibit validity upon request.
6. A list of test equipment proposed for use in verifying the installed integrity of copper and fiber optic cable systems used.
7. A technical resume of experience for the contractor's Project Manager and on-site installation supervisor who will be assigned to this project.
8. A list of technical product training attended by the contractor's personnel that will install the specified manufacturer system.
9. List of Sub-Contractor(s) who will assist the contractor in performance of this work.

#### 1.07 SEQUENCING AND SCHEDULING

- A. For the proper execution of the work, cooperate with other trades and contracts as needed.
- B. To avoid installation conflicts, thoroughly examine the complete set of Contract Documents. Resolve conflicts with Project Manager/Designer prior to installation.
- C. Prior to installation of communications cable to equipment requiring connections, examine the manufacturer's shop drawings, wiring diagrams, product data, and installation instructions. Verify that the electrical characteristics detailed in the Contract Documents are consistent with the electrical characteristics of the actual equipment being installed. When inconsistencies occur request clarification from Project Manager/Designer.

#### 1.08 SHOP DRAWINGS

- A. Shop Drawings: When requested by individual Sections provide shop drawings which include physical characteristics, electrical characteristics, device layout plans, point-to-point wiring diagrams for all connections, and the like. Refer to individual Specification Sections for additional requirements for the shop drawings.

#### 1.09 WARRANTY

- A. Provide an extended manufacturer's warranty on the Backbone and Horizontal Communications systems as specified in other sections of Division 27.

#### 1.10 CLOSE OUT DOCUMENTS

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Provide like items from one manufacturer, such as wire/cable, jacks, modular plugs, patch panels, equipment connection cords, wall plates, and the like. See individual sections for detailed information.

**2.02 MATERIALS**

- A. Provide new electrical materials of the type and quality detailed, listed by UL, bearing their label wherever standards have been established. Indicated brand names and catalog numbers are used to establish standards of performance and quality.
- B. Provide material and equipment that is acceptable to AHJ as suitable for the use indicated. For example, provide plenum rated cable in ceilings that are utilized as air return plenums.
- C. Include special features, finishes, accessories, and other requirements as described in the Contract Documents regardless of the item's listed catalog number.
- D. Provide incidentals not specifically mentioned herein or noted on Drawings, but needed to complete the system, in a safe and satisfactory working condition.

SECTION 27 05 00  
COMMON WORK RESULTS FOR COMMUNICATIONS

**PART 1 - GENERAL**

1.01 SUMMARY

- A. This section specifies the basic materials and methods for all low voltage pathways installation work included under Division 27 and 28 and where those requirements differ from the requirements of this section, the more stringent shall govern.
- B. This section adds refinements to Division 26 that apply to Communications and extra-low-voltage systems.

1.02 SCOPE

- A. Materials and/or methods for the following.
  - 1. Communication services
  - 2. Grounding
  - 3. Fasteners
  - 4. Hangers and supports
  - 5. Conduits/Backboxes/Raceways
  - 6. Underground
  - 7. Sleeves and penetrations

1.03 SUBMITTALS

- A. Submittals shall be done in accordance with District – Submittal Procedures

1.04 RELATED REQUIREMENTS

- A. 26 00 10 – Basic Electrical Requirements
- B. 27 00 00 – Communications Basic Requirements

1.05 REFERENCES

- A. ANSI American Nation Standards Institute
- B. UL Underwriters Laboratory
- C. California Building Code (CBC)

## COMMON WORK RESULTS FOR COMMUNICATIONS

27 05 00 - 3

1. Orange corrugated HDPE (High Density Polyethylene) Innerduct shall be used for fiber optic cable protection in interior locations.
2. Fabric multi-cell innerduct is approved for underground conduits 2" and larger.

### C. FITTINGS:

1. See Division 26 for requirements.
2. Conduit bodies and any sharp bend fittings are strictly prohibited for communication Cat6A and fiber optic cables. Appropriate conduit sweeps are required.

### D. PULL LINE

1. Minimum 1/8" diameter, or larger braided line of polypropylene or continuous fiber polyolefin. The minimum breaking strength of 1/8 in. line is 200 lbs.

## 2.05 BACKBOXES, JUNCTION BOXES AND FLOOR BOXES

- A. Galvanized one-piece or welded pressed steel type. Boxes for fixture shall not be less than 4" square and shall be equipped with fixture stud. Boxes shall be at least 2-1/8" deep, 4" square for 1 or 2 gang devices, with device rings. Boxes mounted in wall or ceiling finished with gypsum board shall be furnished with 5/8" deep device rings. Provide blank cover for all boxes without fixture or device.
- B. Junction boxes, larger than 8", located indoors shall be hinged, NEMA-1 rated.
- C. Junction boxes, larger than 8", located outdoors, or in wet or damp locations shall be hinged, NEMA-3R.
- D. Provide and install tamper-proof screws for all exterior boxes.
- E. Junction boxes used for Fire Alarm systems are to be red in color with red colored cover plates.

## 2.06 GROUND BOXES

- A. See Division 26 for requirements.
- B. Approved manufactures are Jensen, Christy or approved equal.



- B. Hanger spacing shall be 48" or less and within 12" of sleeves and/or junction/back boxes.

### 3.04 LOW VOLTAGE PATHWAY/RACEWAYS

- A. EMT conduit may be used at following locations (see Division 26 for exact requirements):
  - 1. In dry locations in furred spaces.
  - 2. In partitions other than concrete or solid masonry.
  - 3. In protected exterior locations not exposed to direct weather.
- B. Rigid steel conduit and fittings shall be used for vertical risers and on top of all roofs, overhangs, walkways, canopies, or any other location exposed to direct weather. See Division 26 for exact requirements.
- C. Furnish and install pull lines in all unused (empty) conduits or raceways. All pull lines shall be permanently tagged with identification at both ends.
- D. Install exposed conduit neatly, parallel to or at right angles to structural members. Maintain a minimum of 12 inches of clearance from steam or hot water pipes. All installed strut channel supports should allow for future conduit attachments. The width of strut channel to match the width of the closest attached junction box. See design document details for attachment requirements.
- E. Supports: Support conduit with two-hole straps or strut channel where shown in design documents and/or specified. Coordinate supports with architectural details. Secure to wood structure by means of bolts or lag screws, to metal by means of shallow self-tapping screws, to concrete by means of insert or expansion bolts, to brickwork by means of expansion bolts, and to hollow masonry or stucco by means of toggle bolts.
- F. Spacing for all EMT and rigid steel conduit supports shall be as follows unless otherwise specified in design documents details:
  - 1. Surface conduit spacing and supports and unless otherwise specified or shown on drawing details:
    - a. EMT – Size 3/4" to 2" – 4' maximum spacing (3 each supports per 10' conduit length) and 12" from each end of conduit at coupling, connector or 90-degree bend.
    - b. Rigid steel – Size 3/4" to 2" – 4' maximum spacing (3 each supports per 10' conduit length) and 12" from each end of conduit at coupling, connector or 90-degree bend.
- G. If conduit is designated for low voltage use, no more than a total of 360 degrees of conduit bend radius will be allowed between pull boxes.

## COMMON WORK RESULTS FOR COMMUNICATIONS

27 05 00 - 7

- E. Installation of conduit and outlet boxes in fire-resistive walls, floors, floor-ceiling or roof-ceiling assemblies shall comply with Title 24, Part 2, Section 713.

### 3.06 UNDERGROUND BOXES

- A. To be installed per Division 26 requirements.
- B. Provisions to be made for supporting cables from the box sides (i.e. j-hooks, d-rings)

### 3.07 SLEEVES AND CONDUIT PENETRATIONS

- A. Where conduit passes through walls, ceilings, or floors with connection points to junction boxes or raceways mounted to the same wall as the penetration provide a threaded conduit and secured in place with locking rings on both sides. Bend radius requirements shall be maintained where penetrations are made through the back of raceways; junction boxes with adequate depth shall be installed to comply with this requirement.
- B. Where conduit passes through walls, ceilings, or floors with connection points to junction boxes or raceways not mounted to the same wall as the penetration, provide EMT conduit and secured in place with strut channel. Box connectors shall always be used to connect EMT to junction boxes and raceways.
- C. FIRE STOPPING
  - 1. Seal all conduit penetrations through fire rated walls and floors fire and smoke tight in conformance with current CBC and current CEC.
- D. DRAFT STOPPING
  - 1. All non-fire rated walls must be draft stopped and sealed. Submit method to be used for approval by inspector and/or project manager. Mineral wool is one product that may be used.
- E. WEATHER SEALING
  - 1. All exterior penetrations shall be sealed watertight. The contractor shall use silicon rubber caulk or other approved methods and materials. Submit method and material with inspector and/or project manager.

### 3.08 CLEANING

- A. Clean all work prior to concealing, painting, and acceptance. Performed in stages if directed.

SECTION 31 00 00

EARTHWORK

**PART 1 - GENERAL**

1.01 SUMMARY

A. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00, Construction Facilities and Temporary Controls.
3. Section 01 57 13, Erosion Control
4. Section 31 23 33, Trenching and Backfilling.
5. Section 32 12 00, Asphalt Concrete Paving.
6. Section 32 16 00, Site Concrete.
7. Section 32 80 00, Irrigation.
8. Section 33 40 00, Site Drainage.
9. Section 31 32 00, Soil Stabilization

1.02 SUBMITTALS

- A. Refer to Section 01 33 00.
- B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

1.03 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.
- C. The representatives of the Owner's testing lab will not act as supervisor of construction, nor will they direct construction operations. Neither the presence of the Owner's testing lab representatives nor the testing by the Owner's testing lab shall excuse the contractors or subcontractors for defects discovered

requirement of the governmental agencies having jurisdiction, and shall not begin until all of those governing authorities have been notified.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Transport, store and handle in strict accord with the local jurisdiction.
- B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.07 PROJECT CONDITIONS

- A. Existing civil, mechanical and electrical improvements are shown on respective site plans to the extent known. Should the Contractor encounter any deviation between actual conditions and those shown, he is to immediately notify the Architect before continuing work.
- B. Excavation dewatering may be necessary. Contractor shall provide any and all tools, equipment and labor necessary for excavation dewatering no matter what the source. Dewatering shall be continuous until all site utilities are installed and backfilled.

1.08 EXISTING SITE CONDITIONS

- A. Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

1.09 ON SITE UTILITY VERIFICATION AND REPAIR PROCEDURES

- A. Ground-breaking requirements:
  - 1. All underground work performed by a Contractor must be authorized by the District's Construction Manager or the Low Voltage Consultant prior to start of construction.
  - 2. The Contractor is to obtain and keep the original School's construction utility site plans on site during all excavation operations. Contractor can contact the District's Construction Manager, Facilities Manager, or the Low Voltage Consultant to procure the drawings.
- B. Underground Utility Locating:
  - 1. The contractor shall hire an Underground Utility Locating Service to locate existing underground utility pathways in areas affected by the scope of work for excavation.
  - 2. Contractor must use an underground utility locator service with a minimum of 3 years' experience. The equipment operator must have demonstrated experience.
  - 3. The Underground Utility Locator Service must have the use of equipment with the ability to locate by means of inductive clamping, induction, inductive metal detection, conductive coupling, or TransOnde (Radio detection) to generate signals, passive locating (free scoping) for "hot" electric, and metal detector.

creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.

- F. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
- G. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.

#### 1.11 SEASONAL LIMITS

- A. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by rains, fill operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.
- B. Excessively wet fill material shall be bladed and aerated per section 3.08, B.

#### 1.12 TESTING

- A. General: Refer to Section 01 45 00 – Quality Requirements.
- B. Geotechnical Engineer: Owner is retaining a Geotechnical Engineer to determine compliance of fill with Specifications, and to direct adjustments in fill operations. Costs of Geotechnical Engineer will be borne by Owner; except those costs incurred for re-tests or re-inspection will be paid by Owner and back charged to Contractor.
  - 1. If Contractor elects to process or mine onsite materials for use as Suitable Fill, Aggregate Sub Base, Aggregate Base, Rock, Crushed Rock or sand the cost of all testing of this material shall be paid for by the Contractor.
  - 2. Testing of import fill for compliance with Department of Toxic Substance Control (DTSC) shall be paid for by the Contractor.

#### 1.13 ARCHEOLOGICAL AND CULTURAL RESOURCES

- A. If archeological or cultural resources are discovered during the Work, the Contractor must cease all construction operations in the vicinity of the discovery until a qualified archeologist can assess the value of these resources and make recommendations to the State Historic Preservation Officer. Archeological and cultural resources include artifacts, large amounts of bone, shell, or flaked stone, and other evidence of human activity. If the State Historic Preservation Officer or the Owner directs that work be temporarily ceased at the location of an archeological or cultural find, the Contractor must temporarily suspend work at the location.

### **PART 2 - PRODUCTS**

#### 2.01 MATERIALS

- A. Engineered Fill Materials: All fill shall be of approved local materials supplemented by imported fill if

4. Reports/ Documentation

- a. Results of the testing analysis shall be sent to the Owner; Architect; Project Inspector, Project Civil Engineer, DTSC, and DSA. Letter shall reference DSA file and application numbers.

C. Landscape Backfill Material:

- 1. The top 3" of native topsoil stripped from the site may be used for landscape backfill material provided it meets the requirements as specified in Section 329000.
- 2. Imported Topsoil may be required to complete work. See Section 329000 for requirements. Proposed Topsoil material shall comply with DTSC guidelines to include Phase 1 environmental site assessment and related tests. Refer to the October 2001 DTSC Information Advisory for clean imported fill material.

D. Water: Furnish all required water for construction purposes, including compaction and dust control. Water shall be potable.

E. Aggregate Base: Provide Class 2 3/4" Aggregate Base conforming to standard gradation as specified in Cal Trans Standard Specifications, Section 26,-1.02A.

F. Decomposed Granite: Decomposed Granite shall be well graded mixture of fine to 1/8" particles in size with no clods. The material shall be free of vegetation, other soils, debris and rock. The material shall be reddish-tan to tan in color.

G. Decomposed Granite Solidifier: PolyPavement or equal.

**PART 3 – EXECUTION**

3.01 INSPECTION LAYOUT AND PREPARATION

- A. Prior to installation of the work of this Section, carefully inspect and verify by field measurements that installed work of all other trades is complete to the point where this installation may properly commence
- B. Layout all work, establish grades, locate existing underground utilities, set markers and stakes, setup and maintain barricades and protection facilities; all prior to beginning actual earthwork operations. Layout and staking shall be done by a licensed Land Surveyor or Professional Civil Engineer.
- C. Verify that specified items may be installed in accordance with the approved design.
- D. In event of discrepancy, immediately notify Owner and the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.02 PERFORMANCE

A. GENERAL:

meeting the requirements of Section 32 90 00 may be used in landscape areas only.

### 3.06 CUTTING

- A. Building pads that are located within a cut/fill transition area will have to be overexcavated to provide a semi-uniform fill beneath the building pad. The portions of building pads located in cut areas shall be overexcavated to provide no more than 1 foot difference in fill placed in the same building pad.
- B. Do all cutting necessary to bring finish grade to elevations shown on Drawings.
- C. When excavation through roots is necessary, cut roots by hand.
- D. Carefully excavate around existing utilities to avoid unnecessary damage. The contractor shall anticipate and perform hand work near existing utilities as shown on the survey, without additional claims or cost.

### 3.07 STRUCTURAL EXCAVATION

- A. General: Excavate to bear on firm material at contract depth shown on Structural Drawings.
- B. Footings: All footing excavations shall be of sufficient width for installation of formwork, unless earth will retain its position during concreting. All portions of footings above grade must be formed.
- C. Unsuitable Ground: Any errors in structural excavation, soft ground, or clay soils found when excavating shall be reported to Architect. In no case shall work be built on any such soft or clayey unsuitable surface without direction from the Architect. Restore excavations to proper elevation with engineered fill material compacted to 90% of dry density.

### 3.08 SUBGRADE PREPARATION

- A. Grade compact and finish all subgrades within a tolerance of 0.10' of grades as indicated on Drawings and so as not to pool water. Subgrade within building pads and concrete walks shall be within 0.05' of grades indicated.
- B. After clearing, grubbing and cutting, subsurface shall be plowed or scarified to a depth of at least 12", until surface is free from ruts, hummocks or other uneven features and uniform and free from large clods. Moisture condition to 1-3% above optimum moisture content and recompact to at least 90% of the maximum dry density as determined by ASTM Test Method D1557. If the existing soils are at a water content higher than specified, the contractor shall provide multiple daily aerations by ripping, blading, and/or disking to dry the soils to a moisture content where the specified degree of compaction can be achieved. After seven consecutive working days of daily aerations, and the moisture content of the soil remains higher than specified, the contractor shall notify the architect. If the existing soils have a moisture content lower than specified, the contractor shall scarify, rip, water and blade existing soil to achieve specified moisture content. The contractor shall make proper allowance in schedule and methods to complete this work.
- C. Subgrade in areas to receive landscaping shall be compacted to 90%.
- D. Where Contractor over-excavates building pads through error, resulting excavation shall be

3.12 DECOMPOSED GRANITE COMPACTION AND STABILIZATION

- A. Decomposed granite paving, paths or track shall be placed uniformly to the required depth and treated with PolyPavement or approved equal. Apply PolyPavement using Application Method 1 or a mixed application method.

3.13 SLOPE CONSTRUCTION

- A. Cut slopes shall be constructed to no steeper than 2:1 (horizontal:vertical). Fill slopes shall be constructed to no steeper than 2:1 (horizontal:vertical). Prior to placement of fill on an existing slope the existing slope shall be benched. The benches shall be in a ratio of 2 horizontal to 1 vertical. The face of the fill slopes shall be compacted as the fill is placed, or the slope may be overbuilt and then cut back to the design grade. Compaction by track walking will not be allowed.

3.14 FINISH GRADING

- A. At completion of project, site shall be finished graded, as indicated on Drawings. Finish grades shall be "flat graded" to grades shown on the drawing. Mounding of finish grades will not be allowed unless otherwise directed on the landscape drawings. Tolerances for finish grades in drainage swales shall be +- 0.05'. Tie in new and existing finish grades. Leave all landscaped areas in finish condition for lawn seeding. Landscaped planters shall be graded uniformly from edge of planter to inlets. If sod is used for turf areas the finish grade on which it is placed shall be lowered to allow for sod thickness.

3.15 SURPLUS MATERIAL

- A. Excavated material not required for grading or backfill shall be removed from site at contractor's expense.

3.16 CLEANING

- A. Refer to Section 01 77 00.
- B. Remove from fill all vegetation, wood, form lumber, casual lumber, and shavings, in contact with ground; buried wood will not be permitted in any fill.

END OF SECTION



manufacturer as to contents for inspection.

B. Trunk Protection constructed of:

1. 20-foot long 2x6 wood boards or length needed to protect the trunk if tree trunk is shorter than 20'.
2. Metal wire. Gauge strong enough to tie the boards around the trunk of the tree.

C. Tree Protection Zone Fencing:

1. 4-foot-tall snow fencing or 6-foot-tall metal chain link construction fencing per the discretion of the Landscape Architect or District Representative.

D. Bark Mulch: Untreated, shredded cedar.

**PART 3 – EXECUTION**

**3.01 PREPARATION**

A. Maintain pre-existing moisture levels.

B. Maintain areas inside the fenced tree protection area including lawn mowing, leaf removal, operation and repair of irrigation.

C. Protect root systems from flooding, erosion, excessive watering and drying resulting from dewatering or other operations:

D. Prohibitions - DO NOT:

1. Allow run off or spillage of damaging materials in vicinity of root systems,
2. Rinse tools or equipment under trees,
3. Store materials, stockpile soil, park or drive vehicles within drip lines or in areas with plants,
4. Cut, break skin or bark, bruise roots or branches,
5. Allow fires under and adjacent trees and plants,
6. Discharge exhaust under foliage,
7. Secure cable, chain, or rope to trees,
8. Change grade within drip line of trees without Landscape Architect's approval,
9. Lime shall not be used.

**3.02 INSTALLATION**

A. Tree Trunk Protection

1. Conform to requirements for trees and plants to be retained, per 3.01, above.
2. Install boards vertically around tree and bind together with wire to protect the bark 360 degrees

3. to ISA Pruning Standards.
- C. Replace repaired trees where repair has not restored them to health or aesthetics:
1. within 6 months of request to replace,
  2. to the satisfaction of Landscape Architect,
  3. with replacement plants of a size and variety matching those that were removed
- D. Replaced trees and plants shall be the responsibility of Contractor to maintain in good health and aesthetics for the duration of the project from installation.
1. Contractor shall submit to Landscape Architect comprehensive maintenance plan for replacement tree, including but not limited to provisions for irrigation system independent of existing system.
- E. Where suitable replacement of trees and plants are not available:
1. Contractor shall provide affidavits to Landscape Architect that they are not available.
  2. Contractor shall provide compensation to the State at the following rates:
    - a. \$2000 for each caliper inch of any tree or plants removed under 12 inches.
    - b. \$4000 for each caliper inch of any tree or plants removed 12 inches or more.
    - c. Caliper of trees and plants measured at 6 inches above grade.
    - d. Caliper defined here as thickness of diameter, measured in inches.
- F. Soil Contamination:
1. Contractor shall remove soil that has been contaminated during the performance of the Work by oil, solvents, and other materials which could be harmful to trees and plants, and replace with good soil, at Contractor's expense.

END OF SECTION

1.06 DELIVERY, STORAGE AND HANDLING

- A. Transport, store and handle in strict accord with the local jurisdiction.
- B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.07 PROJECT CONDITIONS

- A. Contractor shall acquaint himself with all existing site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.
- B. Field verify that all components, backing, etc. by others are installed correctly to proceed with installation of products as herein specified.
- C. Trench dewatering may be necessary. Contractor shall provide any and all tools, equipment and labor necessary for trench dewatering no matter what the source. Dewatering shall be continuous until all site utilities are installed and backfilled.

1.08 PROTECTION

- A. Adequate protection measures shall be provided to protect workers and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations. Repair all trenches in grass areas with new sod (seeding not permitted) and "stake-off" for protection.
- B. Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.
- C. Any construction review of the Contractor's performance conducted by the Architect or Owner is not intended to include review of the adequacy of the Contractor's safety measures, in, on or near the construction site.
- D. Provide shoring, sheeting, sheet piles and or bracing to prevent caving, erosion or gulying of sides of excavation.
- E. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid creating nuisance to adjacent areas. Keep all excavations free from water during entire progress of work, regardless of cause, source or nature of water.
- F. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

**PART 3 – EXECUTION**

**3.01 INSPECTION**

**A. Verification of Conditions:**

1. Examine areas and conditions under which work is to be performed.
2. Identify conditions detrimental to proper or timely completion of work and coordinate with General Contractor to rectify.

**3.02 COORDINATION**

- A.** General Contractor shall coordinate work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades.

**3.03 INSTALLATION**

- A.** Perform work in accordance with pipe manufacturer's recommendations, as herein specified and in accordance with drawings.

**3.04 TRENCHING**

- A.** Make all trenches open vertical construction with sufficient width to provide free working space at both sides of trench around installed item as required for caulking, joining, backfilling and compacting; not less than 12 inches wider than pipe or conduit diameter, unless otherwise noted.
- B.** Carefully excavate around existing utilities to avoid unnecessary damage. The contractor shall anticipate and perform hand work near existing utilities as shown on the survey, without additional claims or cost.
- C.** Trench straight and true to line and grade with bottom smooth and free of edges or rock points.
- D.** Where depths are not shown on the plans, trench to sufficient depth to give minimum fill above top of installed item measured from finish grade above the utility as follows:
- |                                  |               |
|----------------------------------|---------------|
| 1. Sewer pipe:                   | depth to vary |
| 2. Storm drain pipe:             | depth to vary |
| 3. Water pipe - Fire Supply:     | 36 inches     |
| 4. Water pipe – Domestic Supply: | 30 inches     |
- E.** Where trench through existing pavement saw cut existing pavement in straight lines. Grind existing asphalt on each side of trench 3" wide x ½ the depth of the section. Apply tack coat to vertical surfaces before installing new asphalt. Replace asphalt and concrete pavement sections to matched existing conditions. In concrete pavement provide expansion and control joints to match existing joint layout.

**3.05 BACKFILL**

3.06 TRENCH AND SITE RESTORATION

- A. Finished surface of trenches shall be restored to a condition equal to, or better than the condition as existed prior to excavation work.

3.07 PROTECTION

- A. Protect existing surfaces, structures, and utilities from damage. Protect work by others from damage. In the event of damage, immediately repair or replace to satisfaction of Owner.
- B. Repair existing landscaped areas to as new condition. Replant trees, shrubs or groundcover with existing materials if not damaged or with new materials if required. Replace damaged lawn areas with sod, no seeding will be permitted.
- C. Replace damaged pavement with new compatible matching materials. Concrete walks to be removed to nearest expansion joint and entire panel replaced. Asphalt to be cut neatly and replaced with new materials.
- D. Any existing materials removed or damaged due to trenching to be returned to new condition.

3.08 SURPLUS MATERIAL

- A. Remove excess excavated material, unused materials, damaged or unsuitable materials from site.

3.09 CLEANING

- A. Refer to Section 01 74 00.
- B. Contractor will keep the work areas in a clean and safe condition so his rubbish, waste, and debris do not interfere with the work of others throughout the project and at the completion of work.
- C. After completion of work in this section, remove all equipment, materials, and debris. Leave entire area in a neat, clean, acceptable condition.

END OF SECTION

compaction are the responsibility of the contractor.

6. Failures due to the lack of continuous moisture control during the curing period will be the sole responsibility of the contractor.
7. Any trenching through the finished cured lime/cement section will result in the contractor having to backfill trench with class 2 aggregate base rock, or cement/sand slurry,

1.03 SUBMITTALS

- A. Refer to Section 01 33 00.

1.04 WARRANTY

- A. Refer to General Conditions and Section 01 78 36.

1.05 QUALITY ASSURANCE

- A. General: All Quality Assurance procedures specified on the drawings shall apply to this Section in addition to those shown below.
- B. Testing:
  0. Geotechnical Engineer: Owner is retaining a Geotechnical engineer to determine compliance of Lime/Cement Stabilization Treatment with Specifications, and to direct adjustments in fill operations. Costs of Geotechnical Engineer will be borne by Owner; except that costs incurred for re-tests or re-inspection will be paid by Owner and back charged to Contractor.
- C. Inspection: Work shall not be performed without the physical presence and approval of Geotechnical Engineer. The Contractor shall notify the Geotechnical Engineer at least two working days prior to commencement of any aspect of site earthwork.
- D. Field Density: Field density and phenolphthalein reaction tests shall be made by the Geotechnical Engineer after completion of compaction. Where compaction equipment has disturbed the surface to a depth of several inches, density tests shall be taken in the compacted material below the disturbed surface.

1.07 SUBMITTALS

- A. Weighmaster Certificates: Provide certificates as required in Section 2.01B.

**PART 2 - PRODUCTS**

2.01 MATERIALS

- A. Lime/Cement Treated Engineered Fill: The materials to be treated shall consist of on-site soils or approved import material as described in Section 31 00 00.

- A. Lime/cement shall be added to the material to be treated at a rate of 3.0 pounds lime and 3.0 pounds cement per square foot based on a soil unit weight of 110 pcf.
- B. Lime/cement shall be spread by equipment that will uniformly distribute the required amount of lime/cement for the full width of the prepared material. The rate of spread per linear foot of blanket shall not vary more than five percent (5%) from the designated rate.
- C. The spread lime/cement shall be prevented from blowing by suitable means selected by the Contractor. Quicklime shall not be used to make lime slurry. The spreading operations shall be conducted in such a manner that a hazard is not present to construction personnel or the public. All lime spread shall be thoroughly mixed into the soil the same day lime spreading operations are performed.
- D. The distance which lime/cement may be spread upon the prepared material ahead of the mixing operation will be determined by the Geotechnical Engineer.
- E. No traffic other than the mixing equipment and water truck will be allowed to pass over the spread lime/cement until after the completion of mixing. After mixing, grading and compacting are completed, only the water truck is allowed on the treated area to maintain the optimum moisture for curing.
- F. Mixing equipment shall be equipped with a visual depth indicator showing mixing depth, an odometer or footmeter to indicate travel speed and a controllable water additive system for regulating water added to the mixture.
- G. Mixing equipment shall be of the type that can mix the full depth of the treatment specified and leave a relatively smooth bottom of the treated section. Mixing and re-mixing, regardless of equipment used, will continue until the material is uniformly mixed free of streaks, pockets, or clods of lime/cement), and moisture is at approximately two percent (2%) over optimum and the mixture complies with the following requirements:

<u>Minimum Sieve Size</u>	<u>Percent Passing</u>
1-1/2"	100
1"	95
No. 4	60

- H. Non-uniformity of color reaction when the treated material, exclusive of one inch or larger clods, as tested with the standard phenolphthalein alcohol indicator, will be considered evidence of inadequate mixing.
- I. Lime/cement-treated material shall not be mixed or spread while the atmospheric temperature is below 35°F. The entire mixing operation shall be completed within seventy-two (72) hours of the initial spreading of lime, unless otherwise permitted by the Geotechnical Engineer.

### 3.06 SPREADING AND COMPACTING

- B. Leave all areas in suitable condition for subsequent work.
- C. Excess materials not needed for final grading operations shall be removed from the site.

3.07 CURING

- A. The surface of compacted and finish graded lime/cement treated soil shall be kept moist for at least 3 days after final trimming, rolling and compacting. No equipment or traffic shall be permitted on the lime treated material during the 3 day cure, except for the water truck to keep the treated area at or above the optimum moisture. After the 3 day cure apply aggregate base. Maintain moisture curing at optimum level until aggregate base is placed

END OF SECTION



1.04 SUBMITTALS

- A. Refer to Section 01 33 00.
- B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

1.05 WARRANTY

- A. Refer to General Conditions and Section 01 78 36.

1.06 REFERENCES AND STANDARDS

- A. ANSI/ASTM D698-00 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.
- B. ANSI/ASTM D1556-00 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- C. ANSI/ASTM D1557-02 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. (4.54 Kg) Rammer and 18 inch (457 mm) Drop.
- D. ANSI/ASTM D 3017-05 Test Methods for Moisture Content of Soils and Soil-Aggregate Mixture by Nuclear Methods (Shallow Depth).
- E. ANSI/ASTM D 4318-05 Test Method for Liquid Limit, Plastic Limit, and Plasticity Limit.
- F. CALTRANS Standard Specifications.
- G. CAL-OSHA, Title 8, Section 1590 (e).
- H. Any work within the street, highway or right-of-way shall be performed in accordance with the requirement of the governmental agencies having jurisdiction, and shall not begin until all of those governing authorities have been notified.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Transport, store and handle in strict accord with the local jurisdiction.
- B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.08 PROJECT CONDITIONS

- A. Environmental Requirements:
  - 1. Base Course: Do not lay base course on muddy subgrade, during wet weather, or when

**PART 2 - PRODUCTS**

**2.01 MATERIALS**

- A. Sterilant: Soil sterilizer shall be CIBA GEIGY's Pramitol 25-E or Thompson-Hayward Casoron.
  - 1. Soil sterilizer shall be applied in strict accordance with manufacturer's instructions.
- B. Base Course Aggregate: State Specifications, Section 26, Class 2 aggregate base (3/4" max.).
- C. Asphalt Binder: Steam-refined paving asphalt conforming to State Specifications, Section 92, viscosity grade PG 64-10. Asphalt binder additives for HMA per Caltrans approved list of manufacturer's.
- D. Liquid Asphalt Tack Coat: Per CALTRANS section 94.
- E. Surface Course Aggregate: Mineral aggregates for Type "B" asphalt concrete, conforming to State Specifications 39-2.02, Type B, 1/2" maximum, medium grading. 3/8" maximum grading at Playcourt.
- F. Seal Coat: shall be a pre-mixed asphalt emulsion blended with select fillers and fibers such as:
  - 1. "Park-Top No. 302", Western Colloid Products.
  - 2. "OverKote", Reed and Gram.
  - 3. "Drivewalk", Conoco Oil.
- G. Wood Headers and Stakes: Pressure treated.
- H. Pavement Marking: Colors as directed by Architect. Colors of painted traffic stripes and pavement markings must comply with ASTM D 6628.
  - 1. Waterborne traffic line - colors white, yellow and red, State specification PTWB-01R3.
  - 2. Waterborne traffic line for the international symbol of accessibility and other curb markings – blue, red and green, Federal specification TT-P-1952F.
- I. Precast Concrete Bumpers: 3000 psi at 28 day minimum strength; 48" length unless otherwise indicated; provide with steel dowel anchors and concrete epoxy.
- J. Pavement Epoxy; K-Lite; Ktepx-590; Ennis Epoxy HPS2 or an approved equal.
- K. Crack Filler;
  - 1. Cracks up to 1/2": QPR model CAR08, 10oz asphalt crack filler; Star STA-FLEX Trowel Grade crack filler or approved equal.
  - 2. Cracks 1/2" – 1": "Docal 1100 Viscolastic, distributed by Conoco, Inc., Elk Grove, CA, (916) 685-9253, or approved equal.
  - 3. Cracks greater than 1": Hot Mix, Topeka.
- L. Reclaimed Asphalt Pagment (RAP). HMA Type A or Type B may be produced using RAP providing it does not exceed 15% of the aggregate blend.

header so they will not be visible on completion of job.

**B. Asphalt Paving:**

1. **Base Course:** Install in accord with State Specifications, Section 26. Compact to relative compaction of not less than 95%, ASTM D1557. The material shall be deposited on the subgrade in such a manner as to provide a uniform section of material within five percent tolerance of the predetermined required depth. Deposition will be by spreader box or bottom dump truck to prevent segregation of the material. The material so deposited on the subgrade shall have sufficient moisture which, in the opinion of the Architect is adequate to prevent excessive segregation. It shall then be immediately spread to its planned grade and cross section. Undue segregation of material, excessive drifting or spotting of material will not be permitted. If in the opinion of the site geotechnical engineer, the material is unsuitably segregated, it shall be removed or completely reworked to provide the desired uniformity of the material.
  - a. Moisture content and compaction of base material shall be tested immediately prior to placement of asphalt paving.
2. **Sterilant:** Apply specified material at manufacturer's recommended rate. Applicator of sterilant material shall be responsible for determining location of all planter areas. Apply specified material over entire base course area just prior to application of asphalt. Follow manufacturer's printed directions.
3. **Liquid Asphalt Tack Coat:** Apply as "tack coat" to all vertical surfaces of existing paving, curbs, walks, and construction joints in surfacing against which paving is to be placed.
4. **Asphalt Concrete Surface Course:**
  - a. Comply with State Specifications, 39-6 except as modified below.
    - 1) Final gradation shall be smooth, uniform and free of ruts, humps, depressions or irregularities, with a minimum density of 91% of the theoretical maximum specific gravity determined by California Test Method #309. Maximum variation 1/8 inch in 10' when measured with steel straightedge in any one direction. Test paved areas for proper drainage by applying water to cover area. Correct portions that do not drain properly by patching with plant mix. In no case shall accessible parking spaces or loading and unloading areas exceed 2% slope in any direction.
    - 2) Asphalt material shall be delivered to the project site in a covered condition to maintain acceptable temperature. Onsite inspector shall verify temperature of asphalt upon truck arrival to the site.
5. **Placement and adjustment of Frames, Covers, Boxes and Grates:** The Contractor shall set and adjust to finish grade all proposed and existing frames, covers, boxes, and grates of all manholes, drop inlets, drain boxes, valves, cleanouts, electrical boxes and other appurtenant structures prior to placement of asphaltic concrete.
6. **Water Testing:** All paved areas shall be water tested, to check drainage, in the presence of the project inspector prior to placement of seal coat. The surface of asphalt paving shall not vary more than 1/8 inch above or below the grade established on the plans. If variations in grade are present, they will be corrected by overlaying paving and/or pavement removal and replacement as directed by the Architect.
7. **Patching:** Cut existing paving square and plumb at all edges to be joined by new paving. In trenches; grind existing asphalt on each side of trench 3" wide x 1/2 the depth of the section. Apply tack coat to vertical surfaces before installing new work. Warp carefully to flush surface, with seal over joints, and feather edge. Sawcut, remove and patch existing paving where cutting is necessary for installation of piping or conduits under Divisions 2, 15 and 16.

- A. Exposed rock pockets on the finished surface that lack the # 8- #200 fines that is required per the sieve analysis.
- B. Asphalt not placed to the design grades.
- C. Asphalt that ponds water.
- D. Asphalt that was compacted below the minimum required temperature and is cracked.
- E. Asphalt that fails to meet the minimum compaction requirements.
- F. Asphalt that lacks the minimum thickness required per plan.
- G. New asphalt contaminated by a petroleum product, or spilled paint.
- H. Asphalt that has depressions, cracks, scored divits from dumpster wheels, heavy equipment use, heavy construction products,
- I. Asphalt placed on pumping, unstable sub-grades.

3.05 CLEANING

- A. Refer to Section 01 77 00.
- B. Upon completion of work of this Section promptly remove from the working area all scraps, debris and surplus material of this Section.
- C. Clean excess material from surface of all concrete walks and utility structures.

END OF SECTION

- C. Materials list: Submit to the Architect a complete list of all materials proposed to be used in this portion of the work. Submitted items should include but are not limited to sand, gravel, admixtures, surface treatments, coloring agents, sealers, fibers, cast-in-place accessories, forming and curing products and concrete mix designs.
- D. With concrete submittal, provide documented history of mix design performance.

1.04 QUALITY ASSURANCE

- A. Use only new materials and products.
- B. Use materials and products of one manufacturer whenever possible.
- C. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.
- D. Sieve analysis from testing laboratories identifying rock/sand percentages within the concrete mix; or class 2 aggregate base shall have the current project name and project location identified on the report. Outdated analytical reports greater than 90 days old will not be accepted

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations.
- D. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.
- E. Store cement in weather tight building, permitting easy inspection and identification. Protect from dampness. Lumpy or stale cement will be rejected.
- F. Aggregates: Prevent excessive segregation, or contamination with other materials or other sizes of aggregate. Use only one supply source for each aggregate stock pile.

1.06 WARRANTY

- A. Refer to General Conditions and Section 01 78 36.

1.07 TESTING

- A. General: Refer to Section 01 45 00 – Quality Requirements.

- G. Surface Retarder (for exposed aggregate finishes): Rugasol-S by Sika Corporation or approved equal.
- H. Form Coating: Material which will leave no residue on concrete surface that will interfere with surface coating, as approved by the Architect.
- I. Reinforcement Bars: New billet steel deformed bars conforming to requirements of ASTM A615 or ASTM A706; Grade 60. Dowels for installation through expansion joints or construction joints to existing sidewalks or concrete features shall be smooth or shall be sleeved on one end for slippage.
- J. Reinforcing supports: Galvanized metal chairs or spacers or metal hangers, accurately placed 3'-0" O.C.E.W. Staggered and each support securely fastened to steel reinforcement in place. Bottom bars in footings may be supported with 3" concrete blocks with embedded wire ties. Concrete supports without wire ties will not be allowed.
- K. Truncated Domes: Vitrified Polymer Composite (VPC), Cast-In-Place Detectable/Tactile Warning Surface Tiles; "Armor-Tile", "Access Tile Tactile Systems", or approved equal. Tiles shall comply with Americans with Disabilities Act and the California Code of Regulations (CCR) Title 24, Part 2, Chapter 11B (dome spacing shall be 2.35"). Install tiles as recommended by manufacturer. Color, federal yellow (FS 33538).
- L. Curing Compound (for exterior slabs only): Burke Aqua Resin Cure by Burke by Edoco, 1100 Clear by W.R. Meadows or accepted equal. Water based membrane-forming concrete curing compound meeting ASTM C 309 and C1315.
- M. Concrete Bonding Agent: Weld-Crete by Larson Products Corp., Daraweld C by Grace Construction Products or accepted equal.
- N. Patching Mortar: Meadow-Crete GPS, one-component, trowel applied, polymer enhanced, shrinkage-compensated, fiber reinforced, cementitious repair mortar for horizontal, vertical and overhead applications as manufactured by W.R. Meadows or accepted equal.
- O. Non-shrink Grout: Masterflow 713 Plus by Master Builders or approved equal. Premixed, non-metallic, no chlorides, non-staining and non-shrinking per CRD-C621, Corps of Engineers Specification and ASTM C 1107, Grades B and C.
- P. Aggregate Base: Class 2 AB per Caltrans specification section 26-1.02A.
- Q. Expansion Joint Material: Preformed 3/8" fiber material, full depth of concrete section, with bituminous binder manufactured for use as concrete expansion joint material, as accepted by the Architect.
- R. Joint sealant for expansion joints: Single component silicone sealant, Type S, ASTM D5893.
  - 1. Reference Standard: ASTM C920, Grade P, Class 25, Use T.
  - 2. Dow Corning 890-SL (self-leveling) Silicone, or accepted equal.
  - 3. Dow Corning 888-NS (non-sagging) Silicone, at slopes exceeding 5%. May not be used at asphalt surfaces.
  - 4. Color: Custom color as selected by Architect.

be placed more than 90 minutes from batch time.

6. Water may be added to the mix only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded. In no case shall more than 10 gallons of water shall be added to a full 9 yard load, or 1 gal. per yard on remaining concrete within the drum providing load tag indicates at time of mixing at plant will allow for additional water.

#### 2.04 MATERIALS TESTING

- A. Materials testing of concrete and continuous batch plant inspection may be waived in accordance CBC Sections 1704A.4.4 when approved by Structural Engineer and DSA.
- B. Testing of concrete shall be performed per article 3.12 of this specification.

#### 2.05 EQUIPMENT

- A. Handling and mixing of concrete: Project Inspector may order removal of any equipment which in his opinion is insufficient or in any way unsuitable.

### PART 3 - EXECUTION

#### 3.01 APPROVAL OF FORMS AND REINFORCEMENTS

- A. Forms and reinforcements are subject to approval by the Project Inspector, and notice of readiness to place first pour shall be given to DSA, Architect and Structural Engineer 48 hours prior to placement of concrete. Before placing concrete, clean tools, equipment and remove all debris from areas to receive concrete. Clean all reinforcing and other embedded items off all coatings oil, and mud that may impair bond with concrete.
- B. All reinforcing steel shall be adequately supported by approved devices on centers close enough to prevent any sagging.
- C. All reinforcing bar lap splices shall be staggered a minimum of 5 ft.
- D. Additional reinforcing steel shall be placed around all utility boxes, valve boxes, manhole frames and covers that are located within the concrete placements.
  1. The bars shall be placed so that there will be a minimum of 1 ½" clearance and a maximum of 3" clearance. The reinforcing steel shall be placed mid-depth of concrete slab.
- E. At all right angles or intersections of concrete walks, additional 2'x2' #5, 90 degree bars shall be added at all inside corners for additional crack control. The bars shall be placed 2" from concrete forms and supports at mid-depth of slab.

#### 3.02 PROTECTION

- A. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.

1. Expansion Joints: Install at locations indicated, and so that maximum distance between joints is 20' for exterior concrete unless otherwise shown. Expansion joint material shall be full depth of concrete section. Recess for backer rod and sealant where required. Expansion joints shall not exceed ¼ inch depth measured from finish surface to top of felt or sealant, and ½ inch width.
2. Curbs, Valley Gutter, and Curb & Gutter: Install expansion joints at 60' on center, except when placing adjacent to concrete walks, the expansion joints shall align with the expansion joints shown for the concrete walks. Expansion joint material shall be full depth of concrete section. Recess for backer rod and sealant will be required.
3. Isolation Joints: 3/8" felt between walls and exterior slabs or walks so that paved areas are isolated from all vertical features, unless specifically noted otherwise on plans.
4. Exterior Concrete Paving: Install expansion joints at 20' on center maximum, both directions, unless shown otherwise on plans.
5. Ramps; whether shown or not all ramps shall have control joints and expansion joints.
  - a. Control joints on ramps shall be aligned and be placed in between with the vertical posts for the handrails. The curbs, if required shall have control joints that align with the handrail posts.
  - b. Expansion joints shall be placed at the upper, intermediate, and bottom landings.

### 3.05 FORM COATING

- A. Before placement of reinforcing steel, coat faces of all forms to prevent absorption of moisture from concrete and to facilitate removal of forms. Apply specified material in conformance with manufacturer's written directions.
- B. Before re-using form material, inspect, clean thoroughly and recoat.
- C. Seal all cut edges.

### 3.06 INSTALLATION

- A. General: Reinforcement shall be accurately placed at locations indicated on the drawings within required tolerances and providing required clearances. Reinforcement shall be secured prior to placement of concrete such that tolerances and clearances are maintained. Coverage shall be in accordance with Section 1907A.7 of the CBC. Keep a person on the job to maintain position of reinforcing as concrete is placed. Reinforcement must be in place before concreting is begun. Install dowels as shown on drawings. Give notice whenever pipes, conduits, sleeves, and other construction interferes with placement; obtain method of procedure to resolve interferences. All expansion and construction joints in concrete shall have dowels of size and spacing as shown, or as approved by Architect.
- B. Placing Tolerances:
  1. Per ACI 301 or CRSI/WCRSI Recommended Practice for Placing Reinforcing Bars, unless otherwise shown.
  2. Clear distance between parallel bars in a layer shall be no less than 1", the maximum bar diameter not 1 ½ times the maximum size of coarse aggregate.



1. All flatwork shall be formed and finished to required line and grades. Flatwork shall be true and flat with a maximum tolerance of 1/8" in 10' for flatness. Flatwork which is not flat and are outside of the maximum specified tolerances shall be made level by the Contractor at no additional expense to the Owner.
  2. Thoroughly water and soak the flatwork subgrade as required to achieve required moisture content prior to the concrete pour. Provide damming as required to keep water within the formed area and to allow for proper saturation of the subgrade.
  3. Concrete vibrator shall be used to assist concrete placement. Contractor shall have spare concrete vibrator on site during concrete placement.
- I. Placing in hot weather: Comply with ACI 305R-10. Concrete shall not exceed 85 degrees F at time of placement. Concrete shall be delivered, placed and finished in a sufficiently short period of time to avoid surface dry checking. Concrete shall be kept wet continuously after tempering until implementation of curing compound procedure in accordance with this specification.
- J. Placing in cold weather: Comply with ACI 306R-16. Protect from frost or freezing. No antifreeze admixtures are permitted. When deposited concrete during freezing or near-freezing weather, mix shall have temperature of at least 50 degrees F but not more than 90 degrees F. Concrete shall be maintained at temperature of at least 50 degrees F for not less than 72 hours after placing or until it has thoroughly hardened. Provide necessary thermal coverings for any flat work exposed to freezing temperatures.
- K. Horizontal construction joint: Keep exposed concrete face of construction joints continuously moist from time of initial set until placing of concrete; thoroughly clean contact surface by chipping entire surface not earlier than 5 days after initial pour to expose clean hard aggregate solidly embedded, or by approved method that will assure equal bond, such as green cutting. If contact surface becomes contaminated with soil, sawdust or other foreign matter, clean entire surface and re-chip entire surface to assure proper adhesion.

### 3.09 CONCRETE FINISHES

- A. Concrete Slab Finishing: Finish slab as required by ACI 302.1R. Use manual screeds, vibrating screeds to place concrete level and smooth. Use "jitterbugs" or other special tools designed for the purpose of forcing the course aggregate below the surface leaving a thick layer of mortar 1 inch in thickness. Surface shall be free from trowel marks, depressions, ridges or other blemishes. Tolerance for flatness shall be 1/8" in 10'. Provide final finish as follows:
1. Flatwork, medium broom finish: Typical finish to be used at all exterior walks and stairs.
  2. Ramps, heavy broom finish: Concrete surfaces with slope greater than 5% including all ramps. Brooming direction shall run perpendicular to slope to form non-slip surface
  3. Under no circumstances can water be added to the top surface of freshly placed concrete.
- B. Curb Finishing: Steel trowel.
- C. Joints and Edges: Mark-off exposed joints, where indicated, with ¼" radius x 1" deep jointer or edging tool. Joints to be clean, cut straight, parallel or square with respect to concrete walk edge. Tool all edges of exposed expansion and contraction joints, walk edges, and wherever concrete walk adjoins

1. Concrete that does not match the approved mix design for the given installation type.
  2. Concrete not meeting specified 28-day strength.
  3. Concrete which contains rock pockets, voids, spalls, transverse cracks, exposed reinforcing, or other such defects which adversely affect strength, durability or appearance.
  4. Concrete which is incorrectly formed, out of alignment or not plumb or level.
  5. Concrete containing embedded wood or debris.
  6. Concrete having large or excessive patched voids which were not completed under Architect's direction.
  7. Concrete not containing required embedded items.
  8. Excessive Shrinkage, Traverse cracking, Crazing, Curling; or Defective Finish. Remove and replace if repair to an acceptable condition is not feasible.
  9. Concrete that is unsuitable for placement or has set in truck drum for longer than 90 minutes from the time it was batched.
  10. Expansion joint felt that is not isolating the full depth of the concrete section, and recessed as required for backer rod and sealant where required.
  11. Concrete that is excessively wet or excessively dry and will not meet the minimum or maximum slump required per mix design.
  12. Finished concrete with oil stains from equipment use, and or rust spots that cannot be removed.
  13. Control joints (weakened planed joints) that do not meet the required minimum depth shown on the drawings.
- F. Patching: Install specified Patching Mortar per manufacturer's recommendations. REPAIRS TO DEFECTIVE CONCRETE WHICH AFFECT THE STRENGTH OF ANY STRUCTURAL CONCRETE MEMBER OR COMPONENT ARE SUBJECT TO APPROVAL BY THE ARCHITECT AND DSA.

### 3.12 CONCRETE TESTING

- A. Comply with CBC Section 1903A, 1905A.1.16, 1910A and 1705A.3 and as specified in B. below. Costs of tests will be borne by the Owner.
- B. Four identical cylinder samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, or not less than once for each 50 cubic yards of concrete, or not less than once for each 2,000 square feet of surface area for slabs or walls. In addition, samples for strength tests for each class of concrete shall be taken for seven-day tests at the beginning of the concrete work or whenever the mix or aggregate is changed.
- C. Strength tests will be conducted by the Testing Lab on one cylinder at seven (7) days and two cylinders at twenty-eight (28) days. The fourth remaining cylinder will be available for testing at fifty-six (56) days if the 28-day cylinder test results do not meet the required design strength.
- D. On a given project, if the total volume of concrete is such that the frequency of testing required by paragraph B. above would provide less than five strength tests for a given class of concrete, tests shall be made from at least five randomly selected batches or from each batch if fewer than five batches are used.

SECTION 32 80 00

IRRIGATION

**PART 1 – GENERAL**

Construction Documents and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to this section.

1.01 SUMMARY

A. DESCRIPTION

1. Scope of Work: Furnish all labor, materials, tools, equipment, and transportation required to perform and complete the installation of an automatic sprinkler irrigation system, including all piping, sprinkler heads, controls, connections, testing, etc. as shown on the Drawings and as specified herein. The water source for this project is potable water [non-potable water].
2. Utilize and accept as standards manufacturer's recommendations and/or installation details for any information not specifically detailed on the Drawings.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 03 10 00 - Concrete Forming.
3. Division 26 – Electrical.
4. Section 31 00 00 – Earthwork.
5. Section 32 16 00 - Site Concrete.

1.02 SUBMITTALS

- A. Comply with requirements of Section 01 33 00 – Submittal Procedures.
- B. Product names are used as standards; provide proof as to equality of any proposed material and do not use other materials or methods unless approved in writing by the Owner's Representative. Submit no more than one request for substitution for each item. The decision of the Owner's Representative is final.
- C. Use equipment capacities specified herein as the minimum acceptable standards.
- D. List materials in the order in which they appear in Specifications; include substitutions. Submit the list for approval by the Owner's Representative.
- E. Make any mechanical, electrical, or other changes required for installation of any approved, substituted equipment to satisfaction of Owner's Representative and without additional cost to Owner. Approval by Owner's Representative of substituted equipment and/or dimensional drawing does not waive these requirements.

2. Furnish, without extra charge, additional material and labor required to comply with these rules and regulations, though the work may not be specifically indicated in the Specifications or Drawings.
  3. Where the Specification requirements exceed those of the above-mentioned codes and regulations, comply with the requirements in the Specifications.
- F. Comply with the requirements of Section 01 77 00 – Closeout Procedures.
- G. Inspection Requirements
1. Request and hold a pre-construction meeting prior to beginning the work of this Section. Parties required to be in attendance are the Landscape Contractor, Project Inspector, Owner’s Representative, and the Landscape Architect.
  2. Prior to commencement of the work of this Section, obtain written verification from the project Civil Engineer that the rough grade in landscape areas is in conformance with Section 31 00 00 - Earthwork.
  3. Obtain verification from Project Inspector for the following at the appropriate times during construction and prior to further progression of work in this Section:
    - a. Pressure testing of all mainlines (See “Hydrostatic Tests – Open Trench” in Part 3.05 of this Section),
    - b. Trench depth,
    - c. Sleeves under pavement,
    - d. Flushing of all mainlines,
    - f. Installation of Leemco joint restraints and bolts,
    - g. Backfill and pipe bedding,
  4. In case of failure to obtain any verification by the Project Inspector as required above, remove and replace work as necessary to obtain the verification at no additional cost to the Owner.

#### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Use all means necessary to protect irrigation system materials before, during, and after installation and to protect related work and material.
- B. Handle plastic pipe carefully, especially protecting it from prolonged exposure to sunlight. Store pipe on beds that are the full length of the pipe, and keep pipe flat and off the ground with blocks.

#### 1.05 PROJECT/SITE CONDITIONS

- A. Information on Drawings relative to existing conditions is approximate. During progress of construction, make deviations necessary to conform to actual conditions, as approved by Owner’s Representative, without additional cost to Owner. Accept responsibility for any damage caused to existing services. Promptly notify Owner’s Representative if services are found which are not shown on Drawings.
- B. Protect existing utilities within construction area. Repair damages to utility lines that occur as a

3. Upon successful completion of testing by the technician from [enter technician company], request that a checklist/certification be completed and signed by the technician. Deliver copies of the certification to both the Owner's Representative and the Landscape Architect prior to the commencement of the landscape maintenance period.
4. Run the system; record the flows per valve and report them to the Owner's Representative.

#### 1.08 MAINTENANCE

- A. Furnish three complete sets of operating maintenance instructions bound in a hardback binder and indexed. Start compiling data upon approval of list of materials. Do not request final inspection until booklets are approved by Owner's Representative.
- B. Incorporate the following information in these sets:
  1. Complete operating instructions for each item of irrigation equipment.
  2. Typewritten maintenance instructions for each item of irrigation equipment.
  3. Manufacturer's bulletins which explain installation, service, replacement parts, and maintenance.
  4. Service telephone numbers and/or addresses posted in an appropriate place as designated by Owner's Representative.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. Use materials as specified; any deviation from the Specifications must first be approved by the Owner's Representative in writing. All material containers or certificates shall be clearly marked by manufacturer as to contents for inspection.
- B. Automatic Controller: [see design standards].
- C. Master Valves and Flow Sensors: [see design standards].
- D. Drop Control Kit: [see design standards].
- E. Gate Valve: [see design standards].
- F. Pipe and Fittings:
  1. PVC pipe: for all mainline and lateral lines, PVC schedule 40 up to 3" size and PVC Class 200 for 4" and larger.
  2. PVC fittings three-inch (3") size and smaller: High impact, standard weight, Schedule 40, molded PVC as manufactured by George Fischer, Lasco, Spears, or approved equal. [LEEMCO APPLICATION - PVC fittings for mainline two inches (2") and smaller and all lateral lines: High impact, standard weight, Schedule 40, molded PVC as manufactured by George Fischer, Lasco, Spears, or approved equal.]
  3. All plastic pipe and fittings: Continuously and permanently marked with manufacturer's name,

- striped for the lead and white for the common.
2. Flow sensor wires are to be 14 AWG direct burial plastic polyethylene (PE) insulated wire, Paige Electric P7079D or approved equal. Wire color to be black for the lead and white for the common. If there are two flow sensors, the wires leading to each flow sensor is to be a different color.
- O. Sand for Trench Backfill: Natural sand, free of roots, bark, sticks, rags, or other extraneous material.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Locations of existing utilities and other improvements shown on the Drawings are approximate. Verify existing conditions and, should any utilities be encountered that are not indicated on the plans, notify the Owner's Representative immediately. Accept responsibility for any damages caused to existing services.

#### **3.02 PREPARATION**

- A. Scheduling: Notify the Project Inspector prior to commencing and/or continuing the work of this Section. Remove and replace, at no cost to Owner, any work required as a result of failure to give the appropriate notification.
- B. Examination: Examine conditions of work in place before beginning work; report defects.
- C. Measurements: Take field measurements; report variance between plan and field dimensions.
- D. Protection: Maintain warning signs, shoring and barricades as required. Prevent injury to, or defacement of, existing improvements. At no additional cost to Owner, repair or replace items damaged by installation operations.
- E. Existing Tree Protection:
  1. Avoid unnecessary root disturbance, compaction of soils within drip line, or limb breakage.
  2. Do not store material or dispose of any material other than clean water within the drip line.
  3. Provide adequate irrigation during construction.
  4. Replace any tree damaged during construction with a tree of equal size and value at no additional cost to Owner.
  5. Adjust trench locations in field to minimize damage to existing elements and plant roots of trees-to-remain at no additional cost to Owner.
- F. Surface Preparation: Prior to beginning sprinkler irrigation work, complete placement of topsoil as specified in Section 31 00 00 – Earthwork. Notify Project Inspector of irregularities if any.

6. **Wire Splicing:** Permit splicing only on runs exceeding 500 feet. Locate all splices within valve boxes.
7. **Wire Termination:** Install wire in a valve box with eighteen inches (18") of slack wire coiled and individually capped with approved waterproof sealing pack.
8. **Spare Wire:** Install two (2) spare wires along each wire path. If there is more than one wire path from the controller, the contractor to install two (2) spare wires per path. Provide eighteen inches (18") of slack wire at each automatic control valve.

E. Trace Wire

1. **General:** Install trace wire above sprinkler main line whenever possible; tape wire to mainline pipe at 10' intervals to ensure the wire remains adjacent to the pipe.
2. **Wire Connections:** Install wire connections in a waterproof sealing pack.
3. Trace wire access points shall be accessible at all automatic control valves.
4. At all mainline end caps, a minimum of six feet (6') of tracer wire shall be coiled and secured to the cap for future connections. The end of the tracer wire shall be spliced to the wire of a six-pound zinc anode and is to be buried at the same elevation as the irrigation mainline.
5. **Testing:** The contractor shall perform a continuity test on all trace wires in the presence of the client. If the trace wire is found to be not continuous after testing, Contractor shall repair or replace the failed segment of the wire.

F. Piping

1. **General:** Install in conformance with reference standards, manufacturer's written directions, as shown on Drawings and as herein specified.
2. **Workmanship:**
  - a. **General:** Install sprinkler irrigation equipment in planted areas throughout the site.
  - b. **Coordination:** Organize location of sleeves with other trades as required.
3. **Pipeline Assembly:**
  - a. **General:**
    - 1) **Cutting:** Cut pipe square; remove rough edges or burrs.
    - 2) **Solvent-welded Connections:** Use materials and methods recommended by the pipe manufacturer.
    - 3) **Brushes:** Use non-synthetic brushes to apply solvents and primer.
    - 4) **Cleaning:** Clean pipe and fittings of dirt, moisture, and debris prior to applying solvent or primer.
    - 5) **Assembly:** Allow pipe to be assembled and welded on the surface or in the trench.
    - 6) **Expansion and Contraction:** Snake pipe from side to side of trench to allow for expansion and contraction.
    - 7) **Location:** Locate pipes as shown on Drawings except where existing supply valves, utilities or obstructions prohibit or where slight changes are approved to better suit field conditions.
  - b. **Connections:**
    - 1) **Threaded Plastic Pipe Connection:**
      - a) Use Teflon tape or pipe joint compound.
      - b) When assembling to threaded pipe, take up joint no more than one full turn beyond hand-tight

C. Excavating And Trenching

1. General: Perform excavations as required for installation of work included under this Section, including shoring of earth banks to prevent cave-ins. Restore surfaces, existing underground installations, etc., damaged or cut as result of this work to their original condition and in a manner approved by the Landscape Architect.
2. Width:
  - a. Make trenches wide enough to allow a minimum of six inches (6") between parallel pipelines and three inches (3") between side of pipe and side of trench. Do not allow stacking of pipe within trench.
  - b. Allow a minimum clearance of twelve inches (12") in any direction from parallel pipes of other trades.
3. Preparation of Excavations: Remove rubbish and rocks from trenches. Bed pipe on a minimum of three inches (3") of clean, rock-free soil to provide a firm, uniform bearing for entire length of pipeline. Cover pipe with a minimum of three inches (3") of clean, rock-free soil. If clean, rock-free soil is not available, use sand for pipe bedding and three inches (3") of backfill above the pipe. The remainder of the trench backfill material can be native soil. Do not allow wedging or blocking of pipe.
4. Minimum depth of cover: Unless shown otherwise, provide the following minimums:
  - a. Mainline: twenty-four inches (24") cover.
5. Conflicts with other trades:
  - a. Hand-excavate trenches where potential conflict with other underground utilities exist.
  - b. Where other utilities interfere with irrigation trenching and piping work, adjust the trench depth as instructed by Owner's Representative.

D. Backfill And Compacting

1. General: Do not begin until hydrostatic tests are completed. When system is operating and after required tests and inspections have been made, backfill trenches under paving areas to the compaction rate specified in Section 31 00 00 – Earthwork.
2. Place backfill in six-inch (6") layers and compact with an acceptable mechanical compactor.
  - a. Compact backfill material in landscape areas to eighty-five percent (85%) maximum dry density of the soil.
  - b. If settlement occurs along trenches, make adjustments in pipes, valves, and sprinkler heads, soil, sod or paving as necessary to bring the system, soil, sod or paving to the proper level or the permanent grade, without additional cost to the Owner.
3. Excess Soil: Remove all rocks, debris, and excess soil that results from sprinkler irrigation trenching operations, landscape planting, and soil preparation operations off site at no additional cost to the Owner. If soil meets topsoil requirements in Section 31 00 00 – Earthwork, it may be used for finish grading.
4. Finishing: Dress-off areas to eliminate construction scars.

E. Flushing Lines

1. Thoroughly flush lines prior to installing valves, performing hydrostatic testing, or installing sprinklers. Divert water to prevent washouts.



3.07 CLEANING

Remove debris resulting from work of this Section.

END OF SECTION

- K. California Plumbing Code, latest edition.

1.03 SUBMITTALS

- A. Refer to Section 01 33 00.
- B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.
- C. Provide sieve analysis from accredited testing lab on pipe bedding material. Analysis shall have a current date not older than project contract signing date.
- D. Substitution: Provide all data of proposed material being submitted as a substitution. Provide comparison with specified product data and identify all differences. Failure to provide comparison will be reason for rejection.

1.04 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the drawings to be salvaged and re-used.
  - 1. Sun damaged or discolored PVC pipe will be rejected.
- B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.
- C. The representatives of the Owner's testing lab will not act as supervisor of construction, nor will they direct construction operations. Neither the presence of the Owner's testing lab representatives nor the testing by the Owner's testing lab shall excuse the contractors or subcontractors for defects or deficiencies discovered in their work during or following completion of the project. Correcting inadequate compaction is the sole responsibility of the contractor.
- D. Contractor shall be solely responsible for all subgrades built. Any repairs resulting from inadequate compaction or incorrect grades will be the responsibility of the contractor.
- E. Per 2022 NFPA 13 provide Contractor's material and test certificate to the Owner, Architect, Project Inspector and Local Fire Authority.

1.05 FEES, PERMITS, AND UTILITY SERVICES

- A. Obtain and pay for permits and service charges required for installation of Work. Arrange for required inspections and secure written approvals from authorities having jurisdiction.
- B. Upon completion of work within right-of-way, provide copies of written final approval to the Architect.

- G. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.
- H. Trees: Carefully protect existing trees that are to remain. Provide temporary irrigation as necessary to maintain health of trees.

1.10 SEASONAL LIMITS

- A. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by rains, fill operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.

1.11 RECORD DRAWINGS

- A. Keep a daily record of all pipe placed in ground, verified by Project Inspector.
- B. Upon completion of this Contract, furnish one tracing showing all outside utility lines, piping, etc., installed under this Contract. Locate and dimension all work with reference to permanent landmarks.
- C. All symbols and designations used in preparing "RECORD" drawings shall match those used in Contract drawings.
- D. Properly identify on as-builts and provide dimensions for all stubs for future connections. Provide concrete markers 6" dia. 12" deep, flush with finish grade at the ends of all stubbed pipes.

**PART 2 – PRODUCTS**

2.01 MATERIALS - GENERAL

- A. Provide each item listed herein or shown on drawings of quality noted or approved equal. All material shall be new, full weight, standard in all respects and in first-class condition. Insofar as possible, all materials used shall be of same brand or manufacture throughout for each class of material or equipment. Materials shall be of domestic manufacture and shall be tested within Continental United States.
- B. Grade or quality of materials desired is indicated by trade names or catalog numbers stated herein.
- C. Dimensions, sizes, and capacities shown are minimum and shall not be changed without permission of Architect.
- D. All materials in this section used for any public water system or domestic water for human consumption shall be lead free.
  - 1. For the purposes of this section, "lead free" means not more than 0.2 percent lead when used with respect to solder and flux and not more than 8 percent when used with respect to pipes and pipe fittings.
  - 2. All pipe, pipe or plumbing fitting or fixtures, solder, or flux shall be certified by an independent American National Standards Institute (ANSI) accredited third party, including, but not limited

1. Finish shall be flat mill finish
2. Factory Fabricated Fitting Covers; 45 and 90 degree elbows, tee's, valve covers, end caps, unions, shall be of the same thickness and finish of jacket.
3. The fittings shall be composed of 2-pieces
4. Adhesives; per the manufacturers requirements
5. Joint Sealant; shall be silicone, and shall be aluminum in color.

M. Sewer Forced Main; HDPE, DR 11, color gray with green stripe by JM Eagle or approved equal.

#### 2.04 SANITARY SEWER MANHOLES

A. Shall be constructed as shown on plan details.

#### 2.05 CLEANOUTS

- A. Cleanouts of same diameter as pipe up to 8" in size shall be installed in all horizontal soil and waste lines where indicated and at all points of change in direction. Cleanouts shall be located not less than 18" from building so as to provide sufficient space for rodding. No horizontal run over 100 feet shall be without cleanout whether shown on drawings or not.
- B. All cleanout boxes shall be traffic rated with labeled lid, Christy G05CT or approved equal. Lid shall be vandal proof with stainless steel screws

#### 2.06 UNIONS

- A. Furnish and install one union at each threaded or soldered connection to equipment and 2 unions, one on each side of valves on pipes ½" to 3".
- B. Locate unions so that piping can be easily disconnected for removal of equipment or valve. Provide type specified in following schedule:

##### Type of Pipe Union

Steel Pipe:	150 lb. Screwed malleable ground joint, brass, brass-to-iron seat, black or galvanized to match pipe.
Copper tubing:	Brass ground joint with sweat connections.
PVC Sch 80 pipe:	PVC union, FIPT X FIPT

#### 2.07 VALVES

- A. Provide valves as shown and other valves necessary to segregate branches or units. Furnish valves suitable for service intended. Valves shall be properly packed and lubricated. Valves shall be non-rising stem. Place unions adjacent to each threaded or sweat fitting valve. Install valves with bonnets vertical. All valves shall be lead free.
- B. Valves ½" thru 2"; shall be made of bronze, full size of pipe and lead free. Nibco S-113-FL Series; American G-300 Series; Matco 511 FL Series; Apollo 102T-FL Series. Brass valves of brass parts

### 3.01 DRAWINGS AND COORDINATION

- A. General arrangement and location of piping, etc., are shown on Drawings or herein specified. Install work in accord therewith, except for minor changes that may be necessary on account of other work or existing conditions. Before excavation, carefully examine other work that may conflict with this work. Install this work in harmony with other craft and at proper time to avoid delay of work.
- B. Verify invert elevations at points of connection to existing systems prior to any excavation. If invert elevations differ from that shown on drawings, notify Architect immediately.
- C. In advance of construction, work out minor changes if conflicts occur with electrical or mechanical. Relocate services to suit actual conditions and work of other trades to avoid conflict therewith. Any adjustments or additional fittings to make adjustments shall not be cause for additional costs to the owner.
- D. Execute any work or apparatus shown on drawings and not mentioned in specifications, or vice versa. Omission from Drawings or Specifications of any minor details of construction, installation, materials, or essential specialties does not relieve Contractor of furnishing same in place complete.
- E. Graded pipes shall take precedence. If conflict should occur while placing the domestic water and fire service piping, the contractor shall provide any and all fittings necessary to route the water lines over or under such conflicting pipes at no additional costs to the owner.

### 3.02 ACCESS

- A. Continuously check for clearance and accessibility of equipment or materials specified herein to be placed. No allowance of any kind shall be made for negligence on part of Contractor to foresee means of installing his equipment or materials into proper position.

### 3.03 EXCAVATING AND BACKFILLING

- A. Excavation and Bedding:
  - 1. General: Trench straight and true to line and grade with bottom smooth and free of irregularities or rock points. Trench width to be a minimum of 12" wider than outside diameter of pipe. Follow manufacturer's recommendations for use of each kind and type of pipe.
  - 2. Bedding: Provide a bedding as noted on drawing details for the full length of the pipe. Bedding shall have a minimum thickness beneath the pipe of 4" or 1/8 the outside diameter of the pipe, which ever is greater. Provide bell holes and depressions for pipe joints only of size required to properly make joint.
  - 3. If the trenches for the site utilities falls within areas to be lime treated, the piping shall be installed prior to any lime treatment operations, providing the elevation of the piping is below the treatment section.
    - a. If trenching is necessary in areas that have been previously lime treated the contractor shall backfill the trench with class 2 aggregate base, with minimum section equal to the lime treated section and compacted to 95%.
- B. Laying of Pipe:

at all points is at least 12" above top of sewer line and water line is placed on solid shelf excavated at one side of common trench with a minimum of 12 inch horizontal separation.

- G. Under no circumstance shall a fitting be located directly under a structural footing without prior approval from the Architect.
- H. In locations where existing domestic pipe is rerouted, the new pipe shall be assembled using restrained fittings at all joints including factory pipe joints. Tapped restrained blind flanges shall be temporarily installed at each end of the assembled pipes until testing and chlorination is completed and approved.

### 3.05 CLOSING IN OF UNINSPECTED WORK

- A. Do not allow or cause work installed to be covered up or enclosed before it has been inspected, tested, and approved. Should work be enclosed or covered up before it has been approved, uncover work at own expense. After it has been inspected, tested and approved, make repairs necessary to restore work of other contractors to condition in which it was found at time of cutting.

### 3.06 CARE AND CLEANING

- A. Repair or replace broken, damaged, or otherwise defective parts, materials, and work. Leave entire work in new condition satisfactory to Architect. At completion, carefully clean and adjust equipment, fixtures and trim that are installed as part of this work. Leave systems and equipment in satisfactory new operating condition.
- B. Drain and flush piping to remove grease and foreign matter.
- C. Sewer piping shall be balled and flushed.
- D. Clean out and remove surplus materials and debris resulting from the work, including surplus excavated material.
- E. Flush fire service piping in the presence of the project inspector. Flushing shall be continued for a sufficient time as necessary to ensure all foreign material has been removed. Flow rate shall be equal to site fire flow requirements.

### 3.07 SEWER INTERNAL INSPECTIONS

- A. Upon completion of construction and prior to final inspection, the Contractor shall clean the entire new pipeline of all dirt and debris. Any dirt or debris in previously existing pipes or ditches in the area, which resulted from the new installation, shall also be removed. Pipes shall be cleaned by the controlled balling and flushing method. Temporary plugs shall be installed and maintained during cleaning operations at points of connection to existing facilities to prevent water, dirt, and debris from entering the existing facility.

### 3.08 TEST OF PIPING

- A. Pressure Test piping at completion of roughing-in, in accord with following schedule, and show no loss in pressure or visible leaks after minimum duration or four (4) hours at test pressures indicated.

- B. Clean and disinfect all site water systems connected to the domestic water systems in accordance with AWWA Standard C651 and as required by the local Building and Health Department Codes, and EPA.
  - 1. Clean and disinfect industrial water system in addition to the domestic water system.
  - 2. Disinfect existing piping systems as required to provide continuous disinfection upstream to existing valves. At Contractors option, valves may be provided to isolate the existing piping system from the new piping system.
- C. Domestic water sterilization shall be performed by a licensed "qualified applicator" as required by CAL-EPA Pesticide Enforcement Branch for disinfecting and sterilizing drinking water.
- D. Disinfecting Agent: Chlorine product that is a registered product with Cal-EPA for use in California potable water lines, such as Bacticide, CAL-EPA Registration No. 37982-20001.
- E. Contractor to provide a 1" service valve connected to the system at a point within 2'-0" of its junction with the water supply line. After sterilization is complete Contractor to provide cap at valve.
- F. Sterilization Procedure to be as follows:
  - 1. Flush pipe system by opening all outlets and letting water flow through the system until clear water flows from all outlets.
  - 2. Inject disinfecting agent to provide a minimum chlorine residual concentration of at least 50 parts per million (ppm) of free chlorine at each outlet.
  - 3. Provide sign at all outlets which reads "Water Sterilization in Progress – Do not operate". Remove signs at conclusion of test.
  - 4. Close all outlets and valves, including valve connecting to water supply line and 1" service valve. Retain treated water in pipe for a minimum of twenty-four hours. Should chlorine residual at pipe extremities be less than 50 PPM at this time, pipe shall be re-chlorinated. As an option, the water systems may be filled with a water-chlorine solution containing a minimum of 200 PPM of chlorine and allowed to stand for three hours.
  - 5. After chlorination, flush lines of chlorinated water and refill from domestic supply. Continue flushing until residual chlorine is less than or equal to 0.2 ppm, or a residual the same as that of the test water.
- G. Chemical and bacteriological tests shall be conducted by a state-certified laboratory and approved by the local authorities having jurisdiction.
- H. Submit written report to Health Department as required by State Regulations. Provide a copy of report to Architect prior to completion of project.
- I. The costs of sterilization and laboratory testing shall be paid for by the contractor.

### 3.10 CLEANING

- A. Refer to Section 01 77 00.
- B. Upon completion of work of this Section promptly remove from the working area all scraps, debris and surplus material of this Section.

END OF SECTION

K. California Plumbing Code, latest edition.

#### 1.03 SUBMITTALS

- A. Refer to Section 01 33 00.
- B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.
- C. Provide sieve analysis from accredited testing lab on pipe bedding material. Analysis shall have a current date not older than project contract signing date.
- D. Substitution: Provide all data of proposed material being submitted as a substitution. Provide comparison with specified product data and identify all differences. Failure to provide comparison will be reason for rejection.

#### 1.04 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the drawings to be salvaged and re-used.
  - 1. Sun damaged or discolored PVC pipe will be rejected.
- B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.
- C. The representatives of the Owner's testing lab will not act as supervisor of construction, nor will they direct construction operations. Neither the presence of the Owner's testing lab representatives nor the testing by the Owner's testing lab shall excuse the contractors or subcontractors for defects or deficiencies discovered in their work during or following completion of the project. Correcting inadequate compaction is the sole responsibility of the contractor.
- D. Contractor shall be solely responsible for all subgrades built. Any repairs resulting from inadequate compaction or incorrect grades will be the responsibility of the contractor.
- E. Per 2022 NFPA 13 provide Contractor's material and test certificate to the Owner, Architect, Project Inspector and Local Fire Authority.

#### 1.05 FEES, PERMITS, AND UTILITY SERVICES

- A. Obtain and pay for permits and service charges required for installation of Work. Arrange for required inspections and secure written approvals from authorities having jurisdiction.
- B. Upon completion of work within right-of-way, provide copies of written final approval to the Architect.



provide pumps and all equipment necessary to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.

- F. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.
- G. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.
- H. Trees: Carefully protect existing trees that are to remain. Provide temporary irrigation as necessary to maintain health of trees.

#### 1.10 SEASONAL LIMITS

- A. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by rains, fill operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.

#### 1.11 RECORD DRAWINGS

- A. Keep a daily record of all pipe placed in ground, verified by Project Inspector.
- B. Upon completion of this Contract, furnish one tracing showing all outside utility lines, piping, etc., installed under this Contract. Locate and dimension all work with reference to permanent landmarks.
- C. All symbols and designations used in preparing "RECORD" drawings shall match those used in Contract drawings.
- D. Properly identify on as-builts and provide dimensions for all stubs for future connections. Provide concrete markers 6" dia. 12" deep, flush with finish grade at the ends of all stubbed pipes.

### **PART 2 - PRODUCTS**

#### 2.01 MATERIALS

- A. Pipe: Use one of the following, unless noted on the Drawings otherwise.
  - 1. Polyvinyl Chloride Pipe (PVC): SDR35 conforming to ASTM D3034 with elastomeric joints conforming to ASTM D3212. Sun damaged pipe will be rejected.
  - 2. High density polyethylene pipe (HDPE): The pipe shall be corrugated exterior/smooth interior pipe and water tight per ASTM D3212 with dual wall water tight gasket fittings.
- B. Perforated Pipe (for subdrains): Shall be ADS N12 pipe, 3 hole, ASTM F 405, AASHTO M 252; PVC ASTM D3034 SDR-35 storm drain pipe
- C. Manhole: Shall be as shown on the drawing details.

1. General: Trench straight and true to line and grade with bottom smooth and free of irregularities or rock points. Trench width in accordance with pipe manufacturer's recommendations and as per the drawings. Follow manufacturer's recommendations for use of each kind and type of pipe.
2. Bedding: Provide bedding as detailed on plans for the full length of the pipe. Bedding shall have a minimum thickness beneath the pipe of 4" or 1/8 the outside diameter of the pipe, whichever is greater. Provide bell holes and depressions for pipe joints only of size required to properly make joint.
3. If the trenches for the site drainage fall within areas to be lime treated, the piping shall be installed prior to any lime treatment operations.
  - a. If additional piping is added to previously lime treated areas, the contractor shall backfill the trench with class 2 aggregate base and compact to 95%.

D. Laying of Pipe:

1. General: Inspect pipe prior to placing. Set aside any defective or damaged material. Do not place pipe in water nor place pipe when trenches or weather are unsuitable. Lay pipe upgrade, true to line and grade.
2. Bell and Spigot Joints: Lubricate inside of bells and outside of spigots with soap solution or as recommended by manufacture. Wedge joints tight. Bell of bell and spigot pipe to be pointed upgrade.
3. Pipe shall be bedded uniformly throughout its length.
4. Pipe elevation shall be within 0.02 feet of design elevation as shown on plans.
5. Off Site Work: All work beyond the property lines shall be done in strict conformance with the requirements of the governing agency.

E. Backfilling:

1. General: Do not start backfill operations until required testing has been accomplished.
2. Trenches and Excavations: Backfill with material as detailed on plans, filling both sides of the pipe at the same time, carefully tamping to hold pipe in place without movement. Refer to Section 31 23 33 – TRENCHING AND BACKFILLING for fill above this layer.

F. Grouting of Pipes: Grout pipes smooth and water tight at drop inlet, manholes, and curb inlets. Grout back side of hood at curb inlets all grouting shall be smooth and consistent.

G. Off Site Work: All work beyond the property lines shall be done in strict conformance with the requirements of the local agency.

H. Cutting and Patching: Remove and replace existing surface features per applicable specification section (i.e. asphaltic concrete or concrete paving) where pipe is installed in areas of existing improvements.

3.03 TOLERANCES

A. Storm Drain structure grates

1. In landscape and lawn areas  $\pm 0.05'$ .
2. In sidewalk and asphalt pavement  $\pm 0.025'$ .