Aria Environmental, Inc.
INDUSTRIAL HYGIENE & SAFETY CONSULTANTS

December 5, 2017

Mr. Jeff Klenk
Howard County Public School System (HCPSS)
10910 Route 108
Ellicott City, MD 21043

RE: Indoor Air Quality Assessments during Renovations at Waverly Elementary School
Project #J17-1037 (November 2, 10, 16 and 29, 2017)

Dear Mr. Klenk,

Aria Environmental, Inc. (AE) is pleased to present this report of findings for indoor air quality assessments conducted at Waverly Elementary School (Waverly). Jeff Klenk of HCPSS requested AE make frequent visits to Waverly to monitor indoor air quality that may be affected by the current major renovation of the school. The visits discussed in this report were performed on November 2, 10, 16 and 29, 2017 and included work site observations, and real-time measurements for particles, indoor air quality parameters (temperature, humidity, carbon monoxide (CO) and carbon dioxide (CO_2)) and volatile organic compounds (VOCs). These assessments were performed by Julie Barth, CIH, CSP, LEED Green Associate and Tony Schwegmann, Industrial Hygienist, of AE. Presented below are observations and recommendations made based upon conditions readily observed on the reported dates.

Particles

Particulate matter or PM is the term for a mixture of solid particles and liquid droplets found in the air. It does not distinguish between the types of particles in the air (e.g., pollen, skin cells, soil, etc.). Particulate matter includes "inhalable coarse particles," with diameters larger than 2.5 micrometers and smaller than 10 micrometers (PM10) and "fine particles," with diameters that are 2.5 micrometers and smaller (PM2.5). A micrometer is also called a micron and is one millionth of a meter. To put these particle diameters in perspective, the average human hair is about 70 micrometers in diameter – making it 30 times larger than the largest fine particle. Particle loads expected to be a part of the school environment include carpet and clothing fiber, soil tracked in from outside, paper dust and dust and fibers from building materials.

ANSI/ASHRAE Standard 62.1–2016 suggests target indoor concentrations for PM2.5 and PM10 of 15 µg/m^3 and 50 µg/m^3, respectively. These concentrations are taken from the EPA's National Ambient Air Quality Standards (NAAQS) based on annual arithmetic means deemed acceptable for outdoor air quality. Occupational standards and guidelines for particles are nearly an order of magnitude higher than concentrations typically found in non-occupational settings and are not appropriate for comparison. Particle measurements were taken with an Aerocet 531 particulate monitor. The particle monitor takes a two minute averaged sample of particle concentrations in 5 size fractions (PM1, PM 2.5, PM 7, PM10 and total suspended particles (TSP)). Results of particulate monitoring are presented in Tables 1, 2, 3 and 4.

Discussion of Particle Results for November 2, 2017

The PM2.5 particle concentrations ranged from 0 to 10 µg/m³ and PM10 particle concentrations ranged from 2 to 83 µg/m³ in the hallways outside the construction zones and in non-construction areas. The school was occupied as usual for a normal school day. PM 2.5 concentrations were below the target concentration in all areas monitored. PM 10 concentrations were above the target concentrations in three locations near the construction containment walls. Results of particulate monitoring are presented in Table 1.

Table 1 – Results of Particulate Monitoring Waverly Elementary School on November 2, 2017

Location	Time	PM1 (µg/m³)	PM2.5 (µg/m³)	PM7 (µg/m³)	PM10 (µg/m³)	TSP (µg/m³)
Front Lobby	12:51 PM	0	3	17	25	56
1st Containment	12:53 PM	0	5	39	**53**	88
Hall in MINC area	12:56 PM	0	3	16	21	37
2nd Containment	12:59 PM	0	7	36	**54**	88
3rd Containment (Small)	1:03 PM	1	10	68	**83**	110
Gym (40 or more students)	1:06 PM	0	1	4	6	9
Pod Center (630s)	1:009 PM	0	2	22	25	32
Media Center at doors to construction	1:12 PM	0	1	22	34	56
Pod Center (620s)	1:18 PM	0	5	32	45	66
2nd Floor Addition Center	1:23 PM	0	2	15	23	37
Classroom C208 (20 students)	1:26 PM	0	0	8	12	31
Classroom C203 (no students)	1:29 PM	0	0	2	2	6
1st Floor Addition Center	1:33 PM	0	0	5	8	19
Back Containment	1:36 PM	0	1	11	15	94
Outside	1:39 PM	0	1	15	18	25

Bold-faced results indicate results above target concentrations.

Discussion of Particle Results for November 10, 2017

The PM2.5 particle concentrations ranged from 0 to 9 µg/m³ and PM10 particle concentrations ranged from 2 to 63 µg/m³. PM 2.5 concentrations were below the target concentration in all areas monitored. PM 10 particle concentrations were above the target concentration in two locations near construction containment walls/doors, with student activity nearby and above the target concentration in one area near a full cafeteria. The building was occupied as usual for a normal school day. Results of particulate monitoring are presented in Table 2.

Table 2 – Results of Particulate Monitoring Waverly Elementary School on November 10, 2017

Location	Time	PM1 (µg/m³)	PM2.5 (µg/m³)	PM7 (µg/m³)	PM10 (µg/m³)	TSP (µg/m³)
Media Center at doors to construction	11:15	0	2	23	31	55
4th Grade Pod (50 students)	11:19	0	1	33	48	87
Classroom C203	11:24	0	0	0	2	9

Location	Time	PM1 (µg/m³)	PM2.5 (µg/m³)	PM7 (µg/m³)	PM10 (µg/m³)	TSP (µg/m³)
2nd Floor Addition Center	11:26	0	0	3	3	25
Classroom C208	11:29	0	0	5	6	24
Back Containment	11:33	0	0	25	39	76
1st Floor Addition Center	11:35	0	0	4	5	13
Lobby (cafeteria full of students)	11:38	0	7	47	**62**	93
1st Containment (students walking in hallway)	11:42	0	9	45	**63**	99
Hall in MINC Area	11:45	0	3	21	29	45
2nd Containment (students walking in hallway)	11:48	0	6	33	**61**	104
Gym	11:52	0	1	7	10	15
3rd Containment (Small)	11:55	0	0	42	50	77
Outside	12:00	0	0	1	1	5

Bold-faced results indicate results above target concentrations

Discussion of Particle Results for November 16, 2017

The PM2.5 particle concentrations ranged from 0 to 61 µg/m³ and PM10 particle concentrations ranged from 4 to 497 µg/m³. Particle concentrations were above the target concentration in eight areas. Four of the areas were near construction containment walls/doors and four of the areas were in non-construction areas with student activity. It was reported that grinding and sanding activities had been taking place that day which may have been affecting dust concentrations in these areas. The building was occupied as usual for a normal school day. Results of particulate monitoring are presented in Table 3.

Table 3 – Results of Particulate Monitoring Waverly Elementary School on November 16, 2017

Location	Time	PM1 (µg/m³)	PM2.5 (µg/m³)	PM7 (µg/m³)	PM10 (µg/m³)	TSP (µg/m³)
Lobby	12:32	1	**16**	94	**127**	180
1st Containment	12:34	5	**61**	285	**497**	793
Hall in MINC Area	12:38	2	**20**	117	**152**	197
2nd Containment	12:40	0	8	74	**101**	133
3rd Containment	12:43	1	**17**	78	**119**	176
Gym	12:46	1	10	53	**78**	112
Media Center at doors to construction	12:50	0	12	66	**89**	125
4th Grade Pod	12:53	0	8	59	**79**	115
1st Floor Addition Center	12:56	0	0	12	18	36
Back containment	13:00	0	1	6	7	49
Classroom C203	13:02	0	0	7	8	11
2nd Floor Addition Center	13:05	0	2	12	17	23
Classroom C208	13:08	0	0	2	4	9

Location	Time	PM1 (µg/m³)	PM2.5 (µg/m³)	PM7 (µg/m³)	PM10 (µg/m³)	TSP (µg/m³)
Outside	13:14	0	0	3	4	6

Bold-faced results indicate results above target concentrations

Discussion of Particle Results for November 29, 2017

The PM2.5 particle concentrations ranged from 0 to 28 µg/m³ and PM10 particle concentrations ranged from 6 to 285 µg/m³ in the areas monitored. PM 2.5 measurements were above the target concentrations in three areas, all near construction containment walls/doors. PM 10 particle concentrations were above the target concentrations in five locations; three locations near construction containment walls/doors and two in areas with student activity. On the day of monitoring, a book fair was being set up in the media center. The numerous occupants, books and cardboard boxes being moved around is most likely the cause of the elevated measurements in the Media Center. It was reported that earlier in the day fireproofing had been sprayed inside the construction area near the containment walls/doors, likely contributing to the elevated measurements observed. The building was occupied as usual for a normal school day. Results of particulate monitoring are presented in Table 4.

Table 4 – Results of Particulate Monitoring Waverly Elementary School on November 29, 2017

Location	Time	PM1 (µg/m³)	PM2.5 (µg/m³)	PM7 (µg/m³)	PM10 (µg/m³)	TSP (µg/m³)
Lobby	11:14	0	4	20	24	29
1st Containment	11:17	2	**28**	165	**234**	318
Hall in MINC Area	11:21	1	9	61	**71**	101
2nd Containment	11:23	2	**19**	129	**176**	259
3rd Containment	11:26	3	**25**	210	**285**	374
Gym	11:28	1	7	25	30	48
Media Center at doors to construction	11:35	0	0	156	**212**	318
4th Grade Pod	11:38	0	5	36	50	75
1st Floor Addition Center	11:41	0	1	11	15	25
Back containment	11:44	0	2	16	29	50
Classroom C203	11:47	0	0	3	6	13
2nd Floor Addition Center	11:50	0	0	6	9	18
Classroom C208	11:52	0	0	11	15	53
Outside	11:58	1	2	6	7	13

Bold-faced indicates results outside of recommended comfort ranges or target concentrations.

Indoor Air Quality Measurements

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by the American National Standards Institute (ANSI) and the American Society for Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) standard 55-2013. These ranges are presented in Table 5. The U.S. Environmental Protection Agency (EPA) recommends maintaining indoor relative humidity below 60% and ideally between 30 and 50%. Low humidity is expected in buildings that do not add humidity during the heating season. The comfort ranges are only set for the Summer and Winter seasons when temperatures are usually consistent. There

are no Fall or Spring ranges because these seasons can include both heating and cooling modes of HVAC operation. Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build-up of carbon dioxide indicates inadequate ventilation. Results of temperature, relative humidity, carbon dioxide and carbon monoxide monitoring are presented in Tables 6-9 below.

Table 5- Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter[a]

Relative Humidity	Winter Temperature	Summer Temperature
30%	68.5°F – 76.0°F	74.0°F – 80.0°F
40%	68.5°F - 75.5°F	73.5°F – 79.5°F
50%	68.5°F - 74.5°F	73.0°F – 79.0°F
60%	68.0°F - 74.0°F	72.5°F – 78.0°F

[a]adapted from ASHRAE Standard 55-2013

Real Time Volatile Organic Compounds Measurements

Instantaneous measurements for volatile organic compounds (VOCs) were collected using a ppbRae 3000 monitor calibrated using isobutylene gas. This instrument is used as a screening tool for VOCs in general with a limit of detection of 1 ppb. VOCs include a variety of chemicals, some of which may cause adverse health effects. Concentrations of many VOCs are generally higher indoors than outdoors. VOCs are emitted by many common products including paints, paint strippers, cleaning supplies, building materials, furnishings, fuels, office equipment and supplies, glues, and permanent markers, as well as cosmetics, perfumes and other personal hygiene products. These products can release organic compounds while being used or stored. It is important to note that the measurements taken are instantaneous and are intended to aid the inspector in detecting potential sources of VOC contamination. A VOC source is suspected when the measured concentration is significantly higher than the outdoor concentration or if a spike in concentration is seen in one location compared to others. Results of VOC monitoring are also presented in Tables 6-9 below.

Discussion of IAQ and VOC Measurements for November 2, 2017

The indoor temperatures for November 2, 2017 ranged from 68.7°F to 72.4°F. Temperature measurements in classrooms and occupied areas of the school were within the recommended comfort ranges. Indoor relative humidity measurements ranged from 37.1% to 43.2%. All were within the recommended range of 30 to 60%.

Carbon dioxide concentrations ranged from 433 to 852 ppm within indoor occupied areas. The concentration of concern for carbon dioxide is set by ANSI/ASHRAE standard 62.1 as 700 ppm above outdoor air. On the day of monitoring, the outdoor air concentration of carbon dioxide was 276 ppm; therefore, concentrations were below the target concentration in all areas monitored. Measurements were made during a normal school day.

Carbon monoxide is mainly attributed to incomplete combustion. Indoor concentrations of CO ranged from 0.0 ppm to 1.2 ppm and the outdoor concentration was 0.0 ppm. All measurements were below the ASHRAE concentration of concern (9 ppm).

Indoor concentrations of VOCs measured ranged from 0 to 418 ppb, and the outdoor measurement was 0 ppb. The measurements are considered low and do not indicate any obvious source of VOCs above a normal building background level. Results of IAQ and VOC monitoring are presented in Table 6.

Table 6 – Results of Indoor Air Quality (IAQ) Measurements at Waverly Elementary School on November 2, 2017

Location	Time	Temperature (°F)	Relative Humidity (Rh%)	Carbon Monoxide (CO)	Carbon Dioxide (CO_2)	Volatile Organic Compounds (VOCs)
Front Lobby	12:51 PM	68.7	43.2	0.8	770	265
1st Containment	12:53 PM	69.9	40.9	1.2	787	331
Hall in MINC area	12:56 PM	70.0	43.1	0.9	715	418
2nd Containment	12:59 PM	69.9	40.9	0.8	805	379
3rd Containment (Small)	1:03 PM	69.5	41.2	0.9	736	373
Gym (40 or more students)	1:06 PM	68.7	38.0	0.0	433	137
Pod Center (630s)	1:009 PM	69.8	39.0	0.0	677	0
Media Center at doors to construction	1:12 PM	71.4	37.9	0.0	852	113
Pod Center (620s)	1:18 PM	72.0	37.7	0.0	840	40
2nd Floor Addition Center	1:23 PM	69.9	38.3	0.0	596	0
Classroom C208 (20 students)	1:26 PM	70.5	40.0	0.0	807	0
Classroom C203 (no students)	1:29 PM	72.4	37.1	0.0	575	0
1st Floor Addition Center	1:33 PM	69.2	40.1	0.0	657	0
Back Containment	1:36 PM	69.5	40.0	0.0	641	0
Outside	1:39 PM	57.9	53.1	0.0	276	0

Bold-faced indicates results outside of recommended comfort ranges or target concentrations.

Discussion of IAQ and VOC Measurements for November 10, 2017

The indoor temperatures for November 10, 2017 ranged from 67.5°F to 70.4°F. Measurements in classrooms and occupied areas of the school were within the recommended comfort ranges, with exception of the area near the 1st containment and the center of the 1st floor addition. Indoor relative humidity measurements were all between 21.9% and 36.9% with some measurements slightly below the recommended range of 30 to 60%.

Carbon dioxide concentrations ranged from 460 to 816 ppm within indoor occupied areas. The concentration of concern for carbon dioxide is set by ANSI/ASHRAE standard 62.1 as 700 ppm above outdoor air. On the day of monitoring, the outdoor air concentration of carbon dioxide was 274 ppm; therefore, concentrations were below the target concentration in all areas monitored. Measurements were made on a normal school day.

Carbon monoxide is mainly attributed to incomplete combustion. Concentrations of CO ranged from 0.0 ppm to 0.9 ppm for all indoor and outdoor locations monitored and were below the ASHRAE concentration of concern (9 ppm).

Indoor concentrations of VOCs measured on November 10, 2017 ranged from 0 to 98 ppb, and the outdoor measurement was 0 ppb. The measurements are considered low and do not indicate any obvious source of VOCs. Results of IAQ and VOC monitoring are presented in Table 7.

Table 7 – Results of Indoor Air Quality (IAQ) Measurements at Waverly Elementary School on November 10, 2017

Location	Time	Temperature (°F)	Relative Humidity (Rh%)	Carbon Monoxide (CO)	Carbon Dioxide (CO_2)	Volatile Organic Compounds (VOCs)
Media Center at doors to construction	11:15	68.0	36.9	0.0	816	0
4th Grade Pod (50 students)	11:19	69.5	**26.8**	0.0	605	0
Classroom C203	11:24	69.1	**27.0**	0.0	525	0
2nd Floor Addition Center	11:26	69.1	**26.7**	0.0	496	0
Classroom C208	11:29	69.5	**25.9**	0.0	656	0
Back Containment	11:33	**67.5**	**24.3**	0.0	503	0
1st Floor Addition Center	11:35	**67.9**	**24.0**	0.0	470	0
Lobby (cafeteria full of students)	11:38	69.1	32.6	0.0	628	0
1st Containment (students walking in hallway)	11:42	69.9	31.3	0.0	596	47
Hall in MINC Area	11:45	70.3	33.7	0.0	664	98
2nd Containment (students walking in hallway)	11:48	70.4	32.0	0.0	680	68
Gym	11:52	70.2	**21.9**	0.0	460	41
3rd Containment (Small)	11:55	69.3	**23.4**	0.0	791	0
Outside	12:00	43.2	27.0	0.9	274	0

Bold-faced indicates results outside of recommended comfort ranges or target concentrations.

Discussion of IAQ and VOC Measurements for November 16, 2017

The indoor temperatures for November 16, 2017 ranged from 71.1°F to 74.1°F. Temperature measurements in classrooms and occupied areas of the school were within the recommended comfort ranges. Indoor relative humidity measurements ranged from 31.9% to 40.1%. All were within the recommended range of 30 to 60%.

Carbon dioxide concentrations ranged from 426 to 953 ppm within indoor occupied areas. The concentration of concern for carbon dioxide is set by ANSI/ASHRAE standard 62.1 as 700 ppm above outdoor air. On the day of monitoring, the outdoor air concentration of carbon dioxide was 265 ppm; therefore, concentrations were below the target concentration in all areas monitored. Measurements were made during a normal school day when the building was fully occupied.

Carbon monoxide is mainly attributed to incomplete combustion. Concentrations of CO ranged from 0.0 ppm to 0.8 ppm for all indoor and outdoor locations monitored and were below the ASHRAE concentration of concern (9 ppm).

Indoor concentrations of VOCs measured on November 16, 2017 ranged from 0 to 393 ppb, and the outdoor measurement was 0 ppb. The measurements are considered low and do not indicate any obvious source of VOCs. Results of IAQ and VOC monitoring are presented in Table 8.

Table 8 – Results of Indoor Air Quality (IAQ) Measurements at Waverly Elementary School on November 16, 2017

Location	Time	Temperature (°F)	Relative Humidity (Rh%)	Carbon Monoxide (CO)	Carbon Dioxide (CO_2)	Volatile Organic Compounds (VOCs)
Lobby	12:32	73.3	33.4	0.8	481	145
1st Containment	12:34	73.2	36.6	0.7	426	390
Hall in MINC Area	12:38	72.9	40.1	0.0	953	249
2nd Containment	12:40	72.8	37.9	0.0	535	136
3rd Containment	12:43	72.1	34.3	0.0	545	393
Gym	12:46	71.1	35.5	0.0	535	385
Media Center at doors to construction	12:50	73.6	33.5	0.0	485	0
4th Grade Pod	12:53	74.1	31.9	0.0	497	15
1st Floor Addition Center	12:56	72.9	34.8	0.0	795	0
Back containment	13:00	71.6	34.4	0.0	623	0
Classroom C203	13:02	71.6	34.2	0.0	597	0
2nd Floor Addition Center	13:05	71.9	37.9	0.0	771	0
Classroom C208	13:08	72.1	34.3	0.0	645	0
Outside	13:14	60.4	31.2	0.0	265	0

Bold-faced indicates results outside of recommended comfort ranges or target concentrations.

Discussion of IAQ and VOC Measurements for November 29, 2017

The indoor temperatures for November 29, 2017 ranged from 70.0°F to 73.6°F. Temperature measurements in classrooms and occupied areas of the school were within the recommended comfort ranges. Indoor relative humidity measurements ranged from 27.1% to 48.4% and were within the recommended range of 30 to 60%, with the exception of the measurement taken in the Lobby, that was 27.1%.

Carbon dioxide concentrations ranged from 405 to 1,584 ppm within indoor occupied areas. The concentration of concern for carbon dioxide is set by ANSI/ASHRAE standard 62.1 as 700 ppm above outdoor air. On the day of monitoring, the outdoor air concentration of carbon dioxide was 285 ppm; therefore, concentrations were below the target concentration in all areas except for the measurements taken in the 1st floor addition, classroom C203, Classroom C208 and the 2nd Floor addition. Classrooms C203 and C208 were unoccupied at the time of the measurements, however it is likely that the classrooms had previously been occupied, likely causing the elevated concentrations. Measurements were made during a normal school day when the building was fully occupied.

Carbon monoxide is mainly attributed to incomplete combustion. Concentrations of CO ranged from 0.0 ppm to 0.1 ppm for all indoor and outdoor locations monitored and were below the ASHRAE concentration of concern (9 ppm).

Indoor concentrations of VOCs measured on November 29, 2017 ranged from 0 to 229 ppb, and the outdoor measurement was 0 ppb. The measurements are considered low and do not indicate any obvious source of VOCs. Results of IAQ and VOC monitoring are presented in Table 9.

Table 9 – Results of Indoor Air Quality (IAQ) Measurements at Waverly Elementary School on November 29, 2017

Location	Time	Temperature (°F)	Relative Humidity (Rh%)	Carbon Monoxide (CO)	Carbon Dioxide (CO_2)	Volatile Organic Compounds (VOCs)
Lobby	11:14	73.6	**27.1**	0.0	405	0
1st Containment	11:17	72.5	30.4	0.0	495	35
Hall in MINC Area	11:21	72.1	34.1	0.0	526	95
2nd Containment	11:23	71.5	32.9	0.0	517	98
3rd Containment	11:26	71.7	34.1	0.0	576	125
Gym	11:28	70.0	33.1	0.0	557	229
Media Center at doors to construction	11:35	72.1	32.9	0.0	554	12
4th Grade Pod	11:38	72.7	30.9	0.0	568	0
1st Floor Addition Center	11:41	72.4	39.1	0.0	**1,244**	7
Back containment	11:44	71.2	36.6	0.0	884	0
Classroom C203	11:47	72.1	48.0	0.0	**1,584**	42
2nd Floor Addition Center	11:50	72.2	44.6	0.0	**1,271**	27
Classroom C208	11:52	72.6	48.4	0.0	**1,535**	36
Outside	11:58	67.4	29.3	0.1	285	0

Bold-faced indicates results outside of recommended comfort ranges or target concentrations.

Conclusions and Recommendations

Based upon our observations and sampling results on November 2, 10, 16 & 29, 2017 at Waverly Elementary School, measures are being taken to prevent construction dust and odors from entering the occupied areas of the school. Only a few measurements were above the recommended concentrations in a few areas during these 4 school visits. The school is fully occupied. Elevated concentrations are expected and are not entirely due to construction activities. The tiled floors were being kept clean of visible dust. Fluctuations of dust and VOC concentrations are influenced by the types of construction activities occurring and also by student and staff activities and are expected to vary over time. A floor plan with measurement locations for the school is attached.

AE will continue to make weekly visits to Waverly Elementary School as requested. Thank you for choosing Aria Environmental, Inc. for your industrial hygiene consulting needs. Should you have any questions about the information contained herein, please do not hesitate to contact us at 410-549-5774.

Sincerely,
Aria Environmental, Inc.

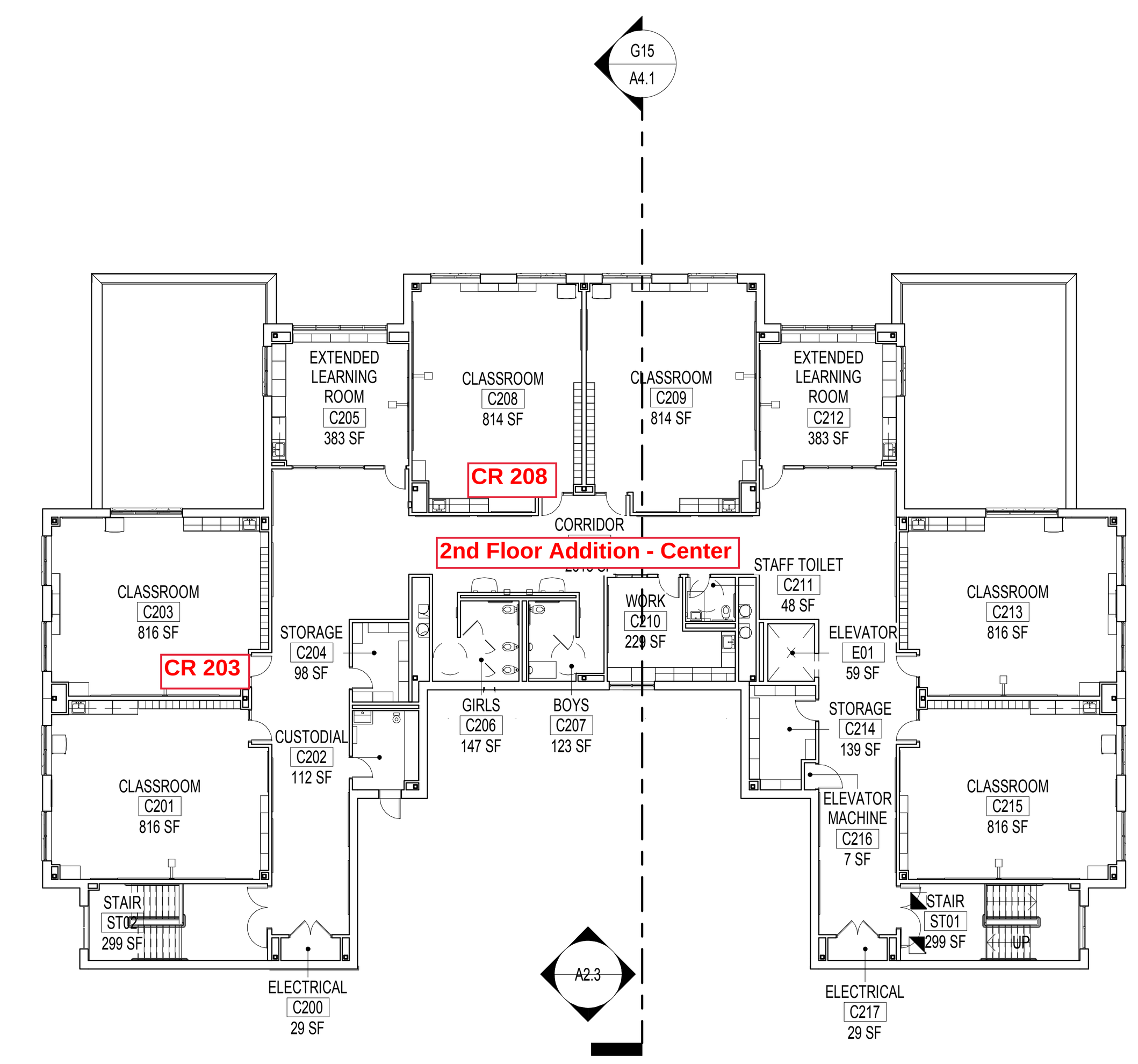
Julie Barth, CIH, CSP, LEED Green Associate

Attachments

A15 OVERALL FIRST FLOOR PLAN
1" = 20'-0"

FIRST FLOOR 104,414 SF

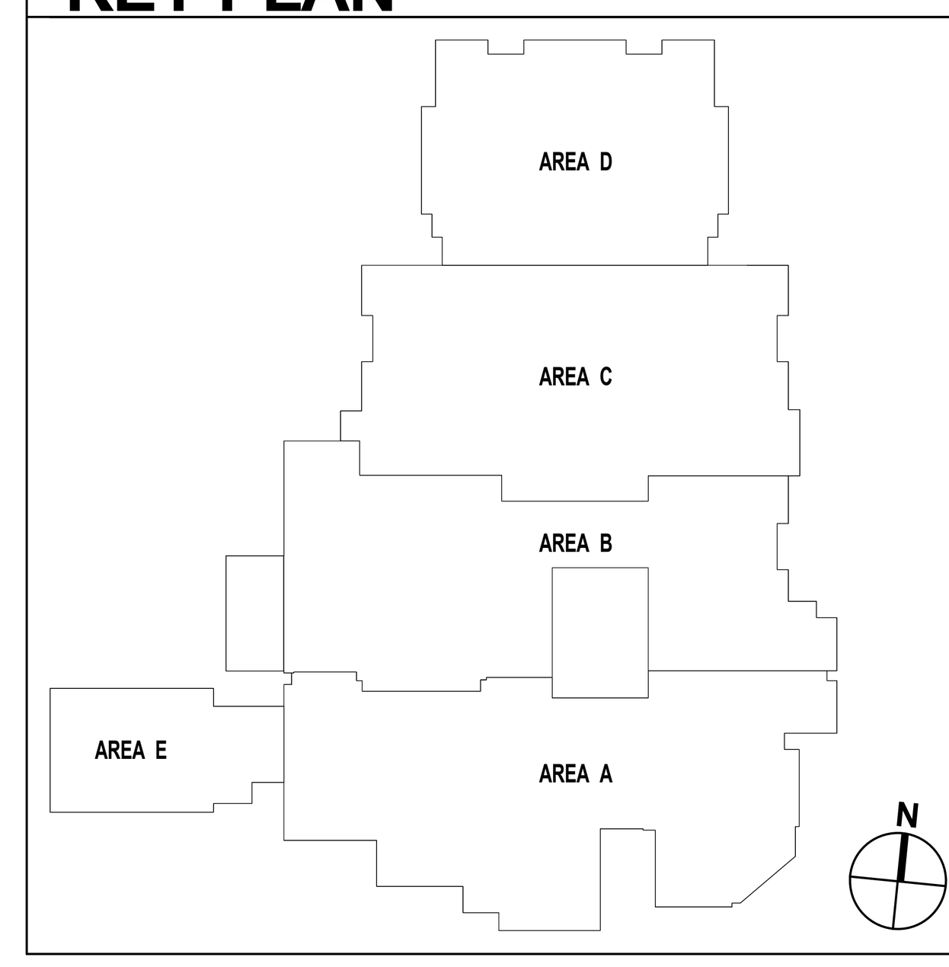
0 10' 20' 40'



A6 OVERALL SECOND FLOOR PLAN
1" = 20'-0"

SECOND FLOOR 11,328 SF

KEY PLAN



GENERAL NOTES

GENERAL NOTE APPLICABLE TO ALL DRAWINGS - ITEMS AND CONDITIONS DETAILED, NOTED OR OTHERWISE IDENTIFIED ON ONE OF THE SECTIONS OR DETAILS ARE APPLICABLE AND BINDING TO ALL OTHER SECTIONS AND DETAILS FOR IDENTICAL OR SIMILAR CONDITIONS.

1. ALL CONSTRUCTION AND WORK SHOWN ON THE COMPLETE SET OF DRAWINGS IS ASSUMED TO BE NEW AND FURNISHED AND INSTALLED BY THE CONTRACTOR.
2. IF A CONFLICT EXISTS BETWEEN DRAWINGS (AND/OR SPECIFICATIONS), THE MORE STRINGENT AND MORE COSTLY REQUIREMENT SHALL APPLY. ITEMS SHOWN ON THE DRAWINGS, BUT NOT SPECIFIED, SHALL APPLY AND BE FURNISHED AND INSTALLED BY THE CONTRACTOR. IF AN ITEM IS SHOWN ON THE DRAWINGS, BUT IS NOT INCLUDED IN THE SPECIFICATIONS, PROVIDE ITEM OF A QUALITY LEVEL CONSISTENT WITH THE GENERAL QUALITY LEVEL OF THE CONTRACT REQUIREMENTS. BRING CONFLICTS BETWEEN THE DRAWINGS AND SPECIFICATIONS TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.
3. WRITTEN INFORMATION TAKES PRECEDENT OVER DRAWING LINES. BRING CONFLICTS BETWEEN WRITTEN INFORMATION AND DRAWN LINES TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.
4. IF A CONFLICT EXISTS BETWEEN DRAWINGS OF DIFFERENT SCALES, CONSULT THE ARCHITECT FOR CLARIFICATION.
5. IN THE ABSENCE OF A WRITTEN DIMENSION, OR IN CASE OF DOUBT AS TO THE PROPER MEASUREMENT, CONSULT THE ARCHITECT FOR CLARIFICATION.
6. IF AN AREA OR SPACE IS SHOWN, BUT IS NOT CLEARLY DEFINED OR INDICATED BY NOTES, PROVIDE THE SAME MATERIALS AND FINISHES AS SCHEDULED OR DETAILED FOR AREAS OF SIMILAR USE ELSEWHERE IN THE BUILDING.
7. SECTIONS INDICATED ARE INTENDED TO SHOW THE SPECIFIC CONSTRUCTION WHERE REFERENCED AS WELL AS ESTABLISH THE GENERAL CONSTRUCTION DETAILS FOR SECTIONS THROUGHOUT THE PROJECT WHICH DO NOT HAVE SPECIFIC SECTIONS DRAWN. THE MOST SIMILAR SECTIONS SHALL BE ADAPTED TO ANY SECTIONS NOT DETAILED. ANY SPECIFIC QUESTIONS CONCERNING CONSTRUCTION NOT ADEQUATELY COVERED BY THE ABOVE SHOULD BE DIRECTED TO THE ARCHITECT DURING BIDDING.
8. TYPICAL DETAILS THROUGHOUT THE DRAWING SET SHALL APPLY FOR ALL APPLICABLE CONDITIONS EVEN IF NOT SPECIFICALLY SHOWN OR REFERENCED.
9. SEE STRUCTURAL DRAWINGS FOR ACTUAL STRUCTURAL STEEL AND BEARING ELEVATIONS.
10. REFER TO ARCHITECTURAL SITE PLAN FOR THE LAYOUT OF CONCRETE WALKS, MOW STRIPS, PAVING PATTERNS, ETC. IN THE BUILDING VICINITY. REFER TO CIVIL DRAWINGS FOR THE CONTINUATION OF THIS WORK.
11. UNLESS NOTED OTHERWISE, WALLS SHALL EXTEND TO THE ROOF OR FLOOR DECK ABOVE AND BE SEALED IN ACCORDANCE WITH GENERAL PLAN NOTE #2 ON SHEET A/1.1 AND WALL TERMINATION DETAILS ON WALL TYPE SHEET.
12. AT ALL OUTSIDE CORNERS OF INTERIOR CMU WALLS, COLUMN ENCLOSURES, PIPE CHASES OR OTHER WALL PROJECTIONS, PROVIDE MASONRY UNITS AND/OR GLAZED MASONRY UNITS WITH BULLNOSED (ROUNDED) EDGES WITH 1" RADIUS, UNLESS OTHERWISE NOTED OR WHERE SCHEDULED TO RECEIVE CERAMIC TILE. WHERE MASONRY CORNERS ALIGN WITH BULKHEADS, TRANSITION FROM BULLNOSE CORNER UNITS TO SQUARE CORNER UNITS.
13. UNLESS SPECIFICALLY NOTED OTHERWISE, ENCLOSE ALL VERTICAL MECHANICAL PIPES, RAIN LEADERS, ETC. WITH 4" CMU OR GYPSUM BOARD TO MATCH SURROUNDING FINISHES.
14. REFER TO PLANS AND ELEVATIONS FOR LOCATIONS OF CONTROL JOINTS (C.J.) AND EXPANSION JOINTS (E.J.) IN EXTERIOR MASONRY WALLS. IF A CONFLICT EXISTS BETWEEN JOINT LOCATIONS SHOWN ON THE ELEVATIONS AND PLANS, CONSULT THE ARCHITECT FOR CLARIFICATION PRIOR TO CONSTRUCTION. REFER TO FLOOR PLANS FOR LOCATIONS OF CONTROL JOINTS (C.J.) IN INTERIOR MASONRY WALLS.
15. ALL EXTERIOR CAVITY WALLS TO HAVE THRU-WALL FLASHING AT THE BOTTOM OF THE CAVITY WITH WEEP HOLES TO THE OUTSIDE. ALL FLASHING BUILT INTO WALLS SHALL BE LAPPED AND SEALED. REFER TO FLASHING DETAILS.
16. REFER TO BUILDING ELEVATIONS AND ELEVATION DETAILS FOR MASONRY PATTERNS.
17. INCLUDE PROJECTIONS, BEAM ENCLOSURES, RECESSES, BULKHEADS, PILASTERS AND SIMILAR ENCLOSURES AS PART OF WALL AND CEILING FINISHES AS SCHEDULED.
18. ALL APPURTENANCES BUILT INTO OR THROUGH WALLS, INCLUDING DOORS, DUCTS, WINDOWS, LOUVERS, GRILLES, MECHANICAL WORK, ETC. SHALL FIT TIGHT AND BE THOROUGHLY SEALED AROUND PERIMETERS. WORK AT EXTERIOR WALLS SHALL BE FLASHED OR OTHERWISE WATERPROOF SEALED.
19. SEE FURNISHING PLANS (A-9 SERIES) FOR CASEWORK, CABINETS, LOCKERS, DISPLAY BOARDS AND CASES AND SIMILAR ITEMS.
20. FIELD CHECK ROUGH AND/OR FINISHED DIMENSIONS FOR ACCURATE FITTING OF CABINETS, COUNTERS, LOCKERS, DOORS, WINDOWS, FIXTURES, SHELVING, GATES AND OTHER INSTALLATIONS PRIOR TO SHOP OR FACTORY FABRICATION. PROVIDE FILLER STRIPS, SCRIBE STRIPS, BASES, CLOSURE FINISHES AND TRIM FOR A COMPLETE INSTALLATION.
21. PROVIDE APPROPRIATE TRANSITION STRIPS AT CHANGES IN FLOOR ELEVATIONS. ALL TO BE ADA COMPLIANT.
22. EACH CONTRACTOR SHALL REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS AND BE RESPONSIBLE FOR WORK PERTAINING TO THEIR PARTICULAR TRADE. ALL CONTRACTORS SHALL COORDINATE THE WORK OF ALL TRADES AND FIELD CHECK AGAINST ANY CONFLICTS BETWEEN DRAWINGS. REPORT CONFLICTS TO THE ARCHITECT FOR CLARIFICATION.
23. REFER TO PLUMBING, HVAC AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DESCRIPTIONS OF ACCESS PANELS, LOUVER OPENINGS, VENTILATORS, GRILLES, VALVE CABINETS, FIRE DAMPERS OR OTHER APPURTENANCES AFFECTING WALLS, CEILINGS OR FLOORS. PROVIDE NECESSARY LINTELS, SUPPORT AND ANCHORAGE. SEE STRUCTURAL NOTES FOR LINTEL REQUIREMENTS.
24. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR LOCATIONS OF CONCRETE PADS TO BE PROVIDED BELOW OR AROUND EQUIPMENT.
25. INSTALL ELECTRIC SWITCHES, OUTLETS, THERMOSTATS, CONTROLS, CLOCKS, SPEAKERS, FLAGPOLE HOLDERS AND OTHER WALL-MOUNTED ACCESSORIES IN LOCATIONS WHICH ARE UNOBSTRUCTED BY CABINETS, COUNTERS, RACKS, DISPLAY BOARDS, FIXTURES, SHELVING OR OTHER FURNISHINGS OR EQUIPMENT DESIGNATED FOR SPACES SHOWN ON DRAWINGS. THESE DEVICES ARE SHOWN ON THE ARCHITECTURAL DRAWINGS TO ALERT OTHER SUB-CONTRACTORS OF THEIR PRESENCE. COORDINATE INSTALLATION WITH THE ELECTRICAL DRAWINGS. ADVISE THE ARCHITECT OF CONFLICTS IN LOCATION OR TYPES OF DEVICES SHOWN PRIOR TO INSTALLATION. DO NOT INSTALL WALL-MOUNTED ITEMS ON, THROUGH OR INTO ANY EQUIPMENT UNLESS INDICATED.
26. MOUNT ELECTRIC SWITCHES, THERMOSTATS AND OTHER ELECTRONIC CONTROLS LOCATED IN THE SAME VICINITY AT THE SAME HEIGHT ABOVE FINISHED FLOOR IN A UNIFORM, ORDERLY FASHION UNLESS NOTED OTHERWISE. ALL MOUNTING HEIGHTS TO BE ADA COMPLIANT.

DRAWING KEY

- GRID LINE
- DRAWING NUMBER / SIM / SHEET NUMBER — SECTION
- DETAIL NUMBER / SIM / SHEET NUMBER (1 / A101) — ENLARGED PLAN/SECTION OR DETAIL
- TYPICAL CMU PARTITION - SEE WALL TYPE SHEET FOR SPECIFIC WALL TYPES
- GYPSUM & MTL. STUD PARTITION - SEE WALL TYPE SHEET FOR SPECIFIC WALL TYPES
- EXISTING WALLS - VIF.
- DETAIL NUMBER / SHEET NUMBER — INTERIOR ELEVATION
- ROOM NAME B101a — ROOM NUMBER
- B101a — DOOR NO. ON PLAN
- ## — H.M. FRAME NO. ON PLAN
- # — REVISION: TYPE = A.S.I/P.R./C.C.D./ADD.
- DEPT. # — CASEWORK (FURNISHING PLANS ONLY)
- SF1 — ALUM. FRAME/WINDOW TYPE
- A3 — WALL TYPE

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF MARYLAND, LICENSE NUMBER 13303, EXPIRATION DATE 11/13/2016

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OVERALL PLANS

Δ#	DATE	DESCRIPTION
1	06/21/16	Addendum #1

A0.9

06/07/2016
BID SET