LS3P

ENGAGE **DESIGN** **TRANSFORM**

AIKEN COUNTY
PUBLIC SCHOOLS

Aiken High School Phase 2B

Construction Documents Submittal - August 2017
LS3P Commission No. 2201-147220

Contents
Aiken High School Phase 2B

ADMINISTRATION WING UNDER CONSTRUCTION BUILDING (PHASE 2A)

CLASSROOM WING UNDER CONSTRUCTION BUILDING (PHASE 2A)

"The mission of Aiken County Public School System is to create in students a passion for learning and achievement that will serve them as they compete and contribute in a global society."

- Aiken County Public School District's Purpose Statement

Design Statement

3-D RENDERING OF MUSIC / CULINARY / ROTC WING

3-D RENDERING OF AUXILIARY GYM / ART BUILDING

Our initial project scope was to develop a campus Master Plan based on Phasing to ultimately replace most or all of the existing academic facilities on the campus. Phasing plans were developed for renovations/additions to the campus, presented to the District Committee, and presented to the School Board by District Staff.

LS3P completed the design of Phase 1 of the Master Plan, which consisted of two new building additions: a two-story science classroom building and a one-story field house, construction of which were completed in 2013. Phase 2 is the logical second step, which seeks to develop and provide the following:

Phase 2A: New administration, general classrooms, media center, student dining/food service and business classrooms/labs.

Phase 2B: New auxiliary gym, art, child care, culinary, ROTC, band, and chorus.

Phase 2C: New auditorium and vocational facilities.

The Construction Documents Submittal of Phase 2B has resulted in a project that remains consistent with the original project goals and represents a refinement of the original master plan and the work undertaken during Phase 1 and previous development of Phase 2.

Site Plan

PHASE 2A UNDER CONSTRUCTION

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The site is the existing Aiken High School campus located at 449 Rutland Drive NW in Aiken, South Carolina. The new work will be phased in order to keep the school in operation as portions of the existing buildings are selectively demolished while new portions are constructed. The new wings will visually complement the existing Taylor Gymnasium elevation, and will build upon the design language of the building designed and constructed as part of Phase 1 and Phase 2A.

Vehicular circulation was largely re-designed in the previous Phase 2A, with new car and bus drop-off loops incorporated into the design. The parking area accessed from Rutland Drive, which was constructed during Phase I, is being reconfigured in Phase 2A to accomodate a new main entrance to the administration wing and parent drop-off loop. New parking areas will maintain parking accomodations while providing safer pedestrian connections between the existing buildings to remain and the new buildings.

Phase 2B site work will provide safe pedestrian connections from the new wings to the existing Taylor Gymnasium, the Field House, and the existing wings to remain occupied during phased construction.

Phasing Plans

EXISTING SITE PLAN

PHASE 2A SITE PLAN

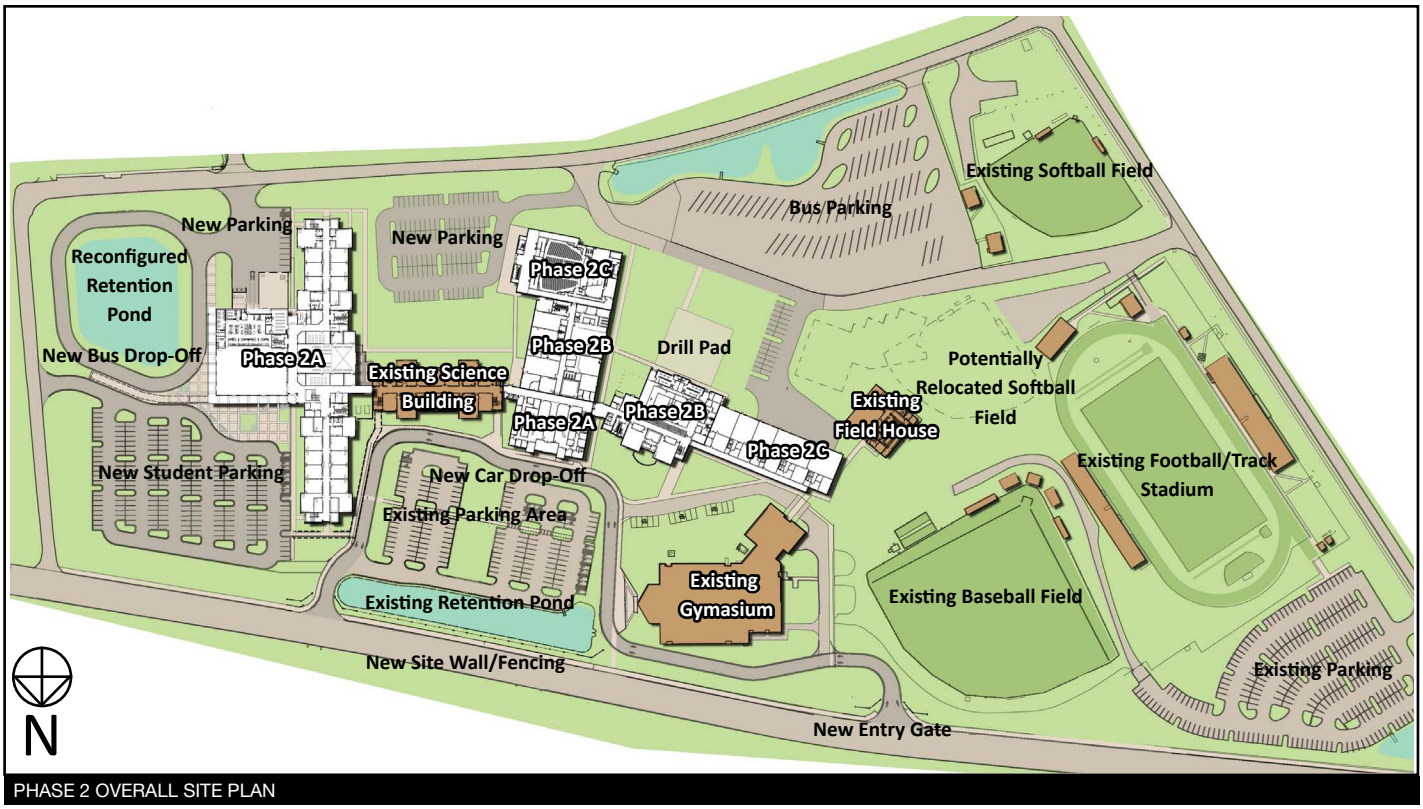
Phasing Plans

PHASE 2B SITE PLAN

PHASE 2C SITE PLAN

LS3P

Phase 2 Overall Site Plan

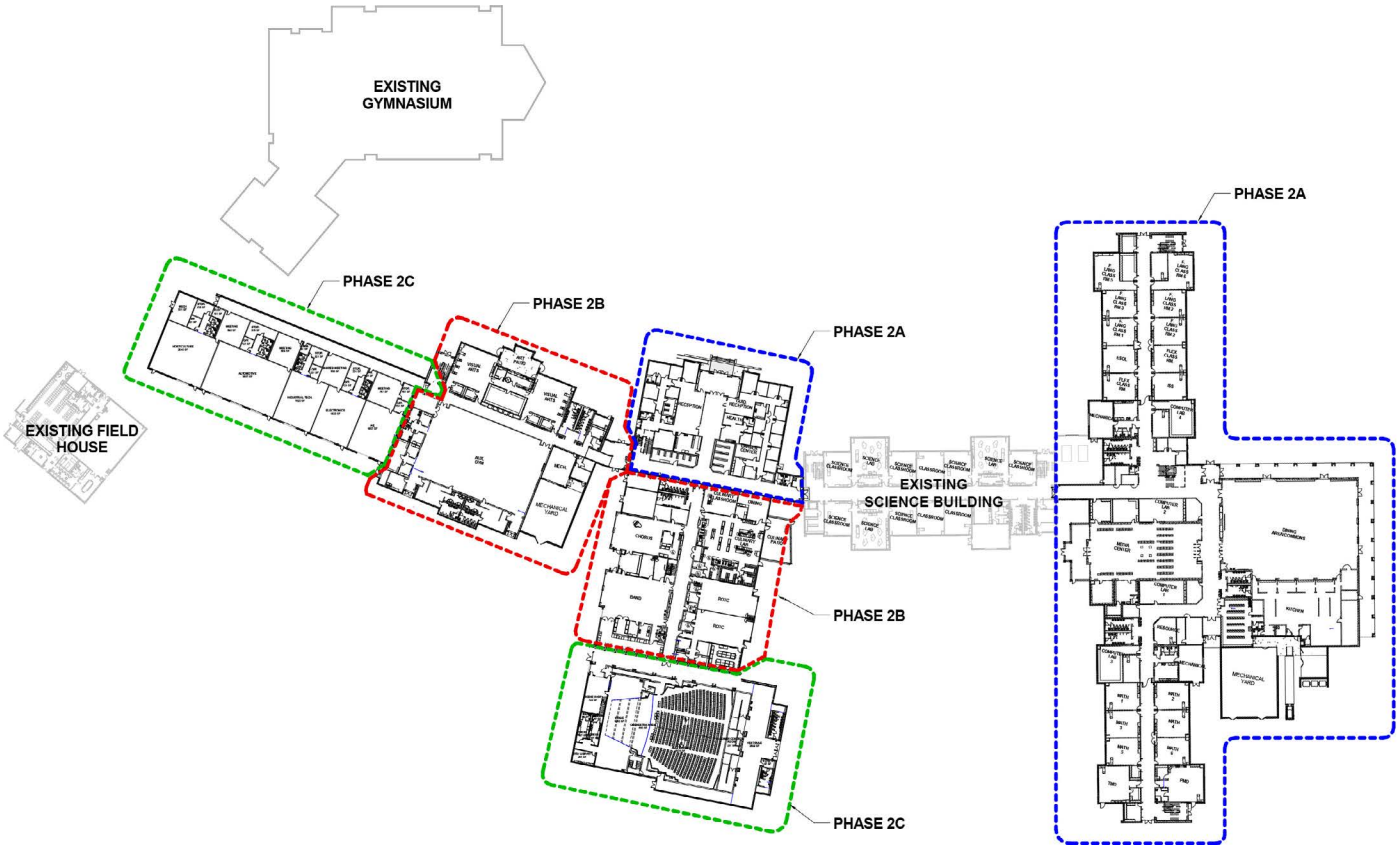


PHASE 2 OVERALL SITE PLAN

Program of Spaces

PHASE 2B						
SPACE	Number of Existing Spaces	Number of New Spaces	Number of Students (in each)	Student Capacity	GROSS SF	Notes
ARTS / MUSIC						
VISUAL ARTS		2	30	60		2 classrooms, outdoor patio and computer graphics room
BAND		1	110	110		Band, Chorus and associated support spaces
CHORUS		1	70	70		
ARTS / MUSIC						
VOCATIONAL/CAREER TECHNOLOGY						
CHILD CARE		1	30	30		
CULINARY ARTS		1	30	30		Includes indoor and outdoor dining
NJROTC		2	30	60		Includes ability to set up competition rifle range
VOCATIONAL/CAREER TECH						
NEW ATHLETICS						
AUXILLARY GYM		1	270	270		Seats 300 students and includes 135 locker rooms for Girls & Boys each and coaches' offices
NEW ATHLETICS						
SUPPORT						
RESOURCE		1	12	12		
FLEX CLASSROOM		1	30	30		
COMPUTER LAB		1	30	30		
NEW ATHLETICS						
TOTAL BUILDING GROSS SF - PHASE 2B				702	61,537	

Floor Plan - Full Build-Out



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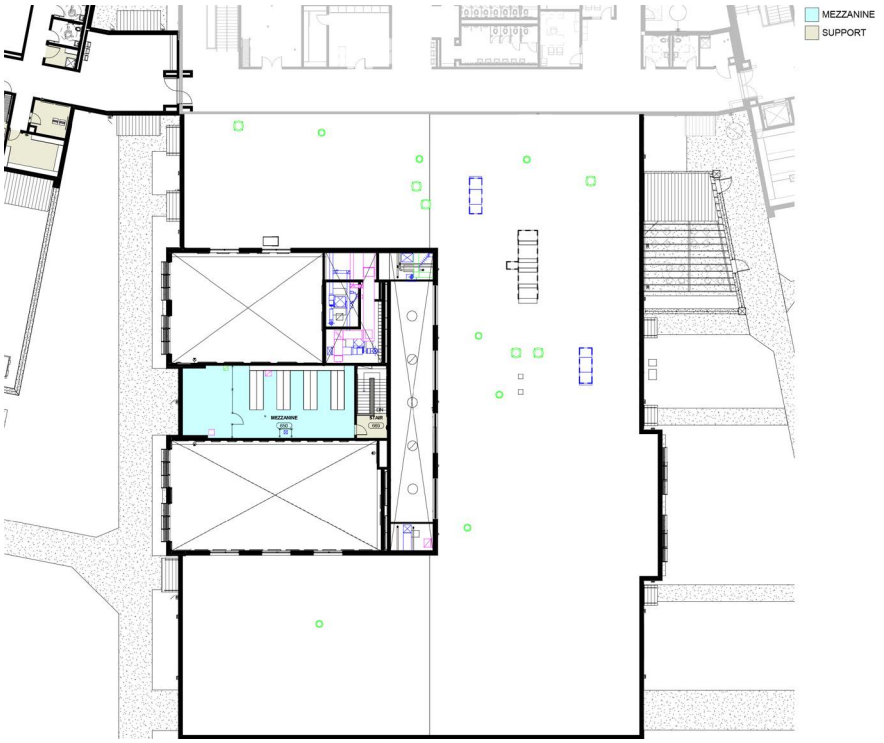
PHASE 2 OVERALL PLAN

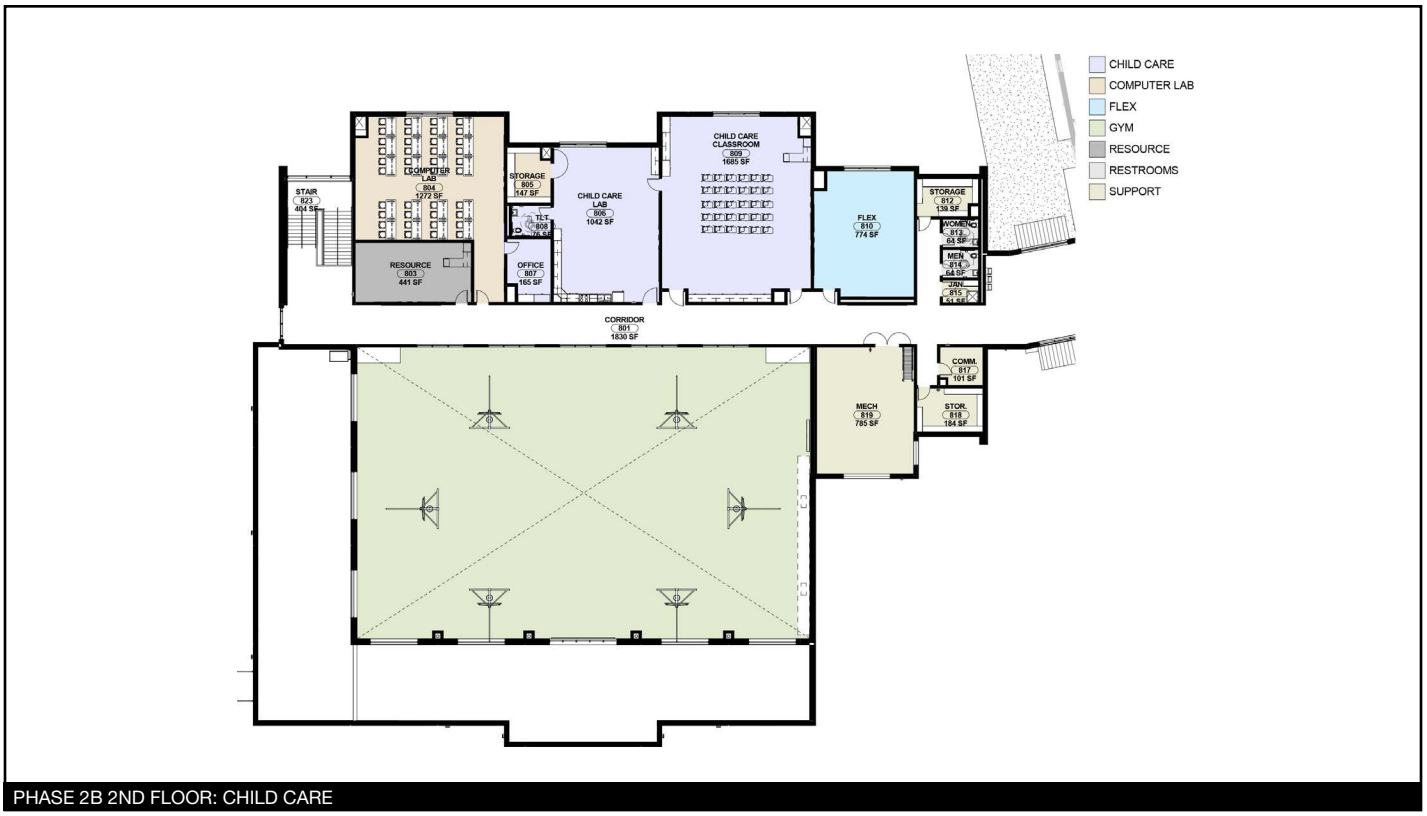
Phase 2B Floor Plans



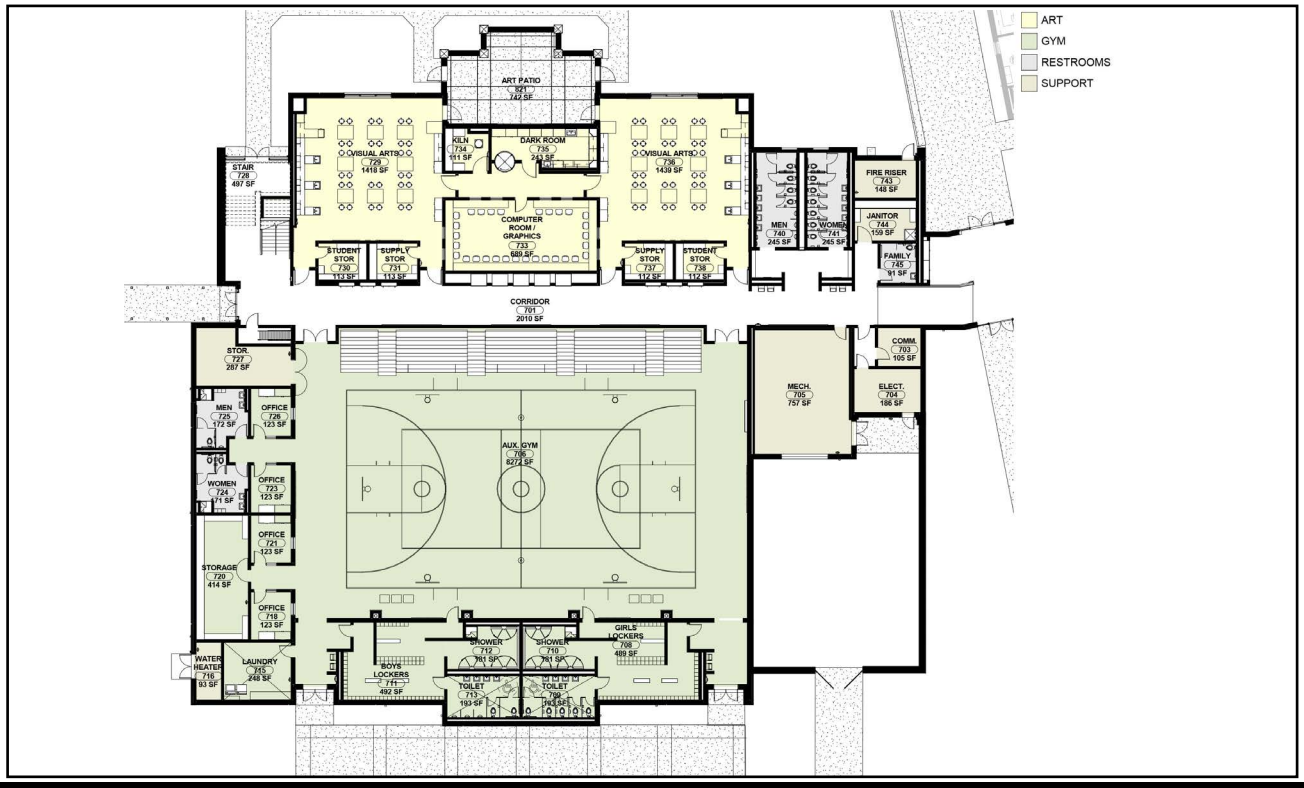
PHASE 2B 2ND FLOOR: STORAGE

PHASE 2B 1ST FLOOR: MUSIC, CULINARY AND ROTC

Phase 2B Floor Plans



PHASE 2B 2ND FLOOR: CHILD CARE



PHASE 2B 1ST FLOOR: AUXILIARY GYM AND ART

Elevations & Perspectives

EXISTING TAYLOR GYMNASIUM TO REMAIN

EXISTING SCIENCE BUILDING TO REMAIN

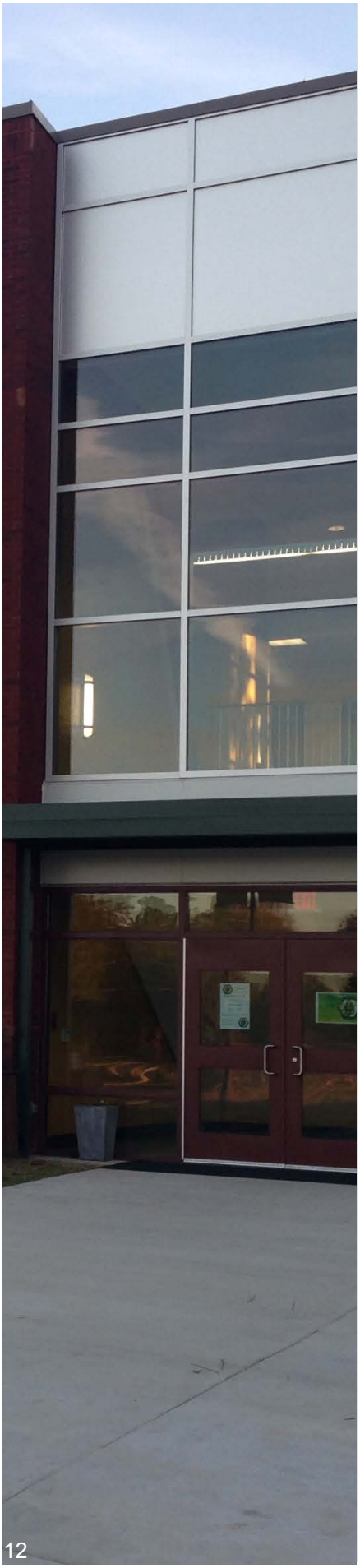
OVERALL RUTLAND DRIVE ELEVATION (PHASES 1 & 2)

OVERALL DUPONT DRIVE ELEVATION (PHASES 1 & 2)

MUSIC / CULINARY / ROTC WING - WEST ELEVATION (PHASE 2B)

MUSIC / CULINARY / ROTC WING - EAST ELEVATION (PHASE 2B)

AUXILIARY GYM / ART WING (PHASE 2B)



Materials and Systems

A. Structural System

The structural design will be in accordance with the 2012 IBC and ASCE 7-05 for wind, seismic and gravity loadings. The structural system will consist primarily of load bearing CMU (concrete masonry unit) walls of eight and twelve inch thickness as required by height. The exterior masonry walls will be vertically reinforced and grouted CMU with additional horizontal joint reinforcing with an integral veneer tie system. The interior CMU walls will also be vertically reinforced and grouted and contain horizontal joint reinforcing.

Elevated floors will consist of a welded wire mesh reinforced slab on composite metal deck. The slab and deck will be supported on composite steel beams which bear on the main load bearing lines to include exterior walls, corridor walls, and interior partition walls at isolated locations.

The roofs will be framed with steel joists spaced approximately five feet on center. Similar to the floor, the steel joists will bear at main bearing lines including exterior walls, and corridor walls. Areas of pitched roofs will be framed with galvanized structural steel framed on top of steel joists. Roof deck will consist of 1 1/2" galvanized steel.

Per the Geotechnical report, significant undercutting and fill placement will be required at the classroom building. With these ground modifications, conventional shallow spread and strip footings will be used with an allowable soil bearing pressure of 2500 psf. Continuous strip footings will be provided beneath all exterior walls and interior masonry walls. Larger spread footings will be used at isolated and integral cmu wall piers. All foundations will be constructed of reinforced concrete. The first floor construction will be a 4-inch welded wire mesh reinforced concrete slab on grade placed on a 15-mil vapor barrier.

Per the Geotechnical report, the site is a Site Class "D" resulting in a Seismic Design Category "C" classification for the structures. The code-applied wind and seismic lateral loads will be resisted by a system composed of the elevated concrete floor slab diaphragms, metal roof deck diaphragm and reinforced masonry shear walls.

B. Roofing

The insulation system within the new roof system assemblies will consist of polyisocyanurate roof insulation and perlite roof insulation with a minimum R-value of 30.

The roofing membrane on the low sloped roof areas will consist of three (3) plies of fiberglass felts adhered in hot asphalt and an Energy Star granule surfaced modified bitumen cap sheet adhered in cold adhesive. A three (3) year Contractor's Warranty and a twenty (20) year Manufacturer's Warranty will be provided for the low sloped roofing system.

All sheet metal components for both roofing systems will consist of pre-finished, minimum 24 gage Galvalume. Other specific flashing details will require other appropriate metal types.

The roofing systems will comply with the 2012 IBC and ACPS requirements.

C. Exterior and Interior Walls

The exterior facade of the new wings will consist of brick, decorative concrete masonry units (CMU), and metal panels with aluminum windows. The majority of the interior wall surfaces will be painted concrete block.

D. Doors and Windows

Exterior doors will be painted hollow metal (steel) while interior doors will typically be stained solid core wood. All door frames will be hollow metal (steel). Classroom windows will typically be aluminum, triple-glazed, with integral blinds. Aluminum storefront windows will be used at selected locations, such as stair towers and other specialized locations.

Materials and Systems

E. Wall Finishes

All interior walls will be primed and will have a minimum of two finish coats of paint applied. Waterbourne epoxy paint will be used on all CMU walls.

F. Floor Finishes

Vinyl composition tile will be used at the classrooms, labs, and corridors. The group toilets will feature an epoxy flooring. The flooring in the auxiliary gym will be a combination of a Grade 2 wood flooring at the basketball court and resiliant sports flooring at circulation areas. Quarry tile will be used at the culinary lab and locker rooms.

G. Ceilings

Acoustical ceiling tile (2'x2') will typically be provided throughout corridor and classroom spaces. Hard ceilings will be used in toilet and shower areas. No ceilings will typically be installed in janitor, electrical, data, mechanical, or fire riser rooms.

H. Accessories and Specialties

Marker and tack boards will be provided in all classroom and teaching areas. Signage will be provided to identify each space. Rough-ins will be provided for District-installed Smart Boards.

I. Casework and Millwork

Durable grade plastic laminate cabinets will be typically provided throughout. Display cabinets will be provised for ROTC, band, chorus, and art.

J. Mechanical System

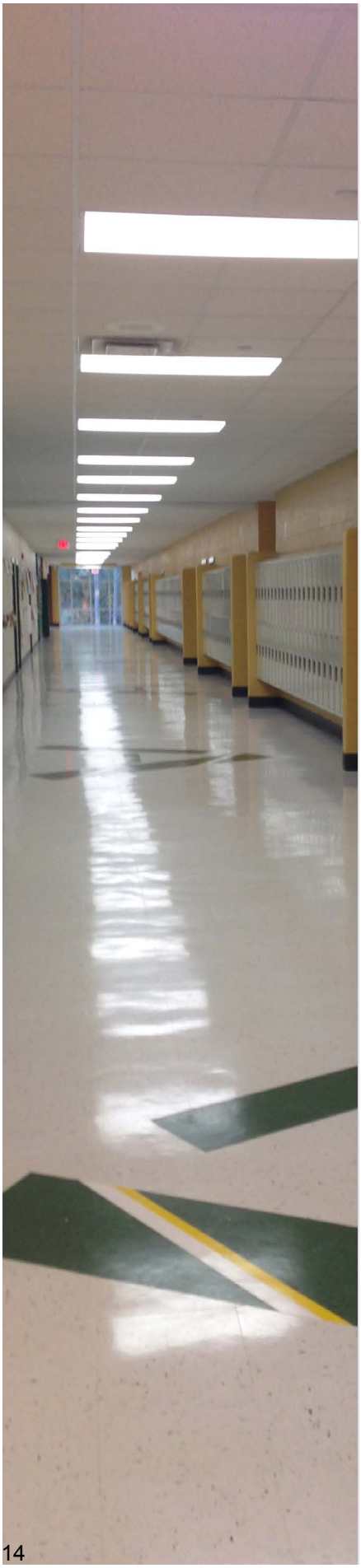
The HVAC system for the Phase 2B addition will include a new variable flow primary air cooled chiller plant with two (2) variable speed chillers, each sized for approximately 70% of the building cooling load in Phase 2B. A space will be left for a future 150 ton variable speed chiller to be installed when either the Vocational Wing or the Auditorium are constructed. The chiller plant in Phase 2B will include variable speed chilled water system pumps with each pump sized for 100% of the Phase 2B chilled water loads and the Vocational and Auditorium future chilled water loads.

The classrooms in G Wing and the Band, Choral, ROTC and associated spaces will be served with indoor, variable air volume (VAV) air handlers and terminal units with electric heat. The Culinary Lab and associated spaces will be served with a VAV rooftop unit and terminal units with electric heat. The Locker Rooms and Coaches' Offices will be served by three (3) rooftop constant volume air handlers. The Gym air handler will be an indoor, single zone, VAV air handler. Outside air will be provided by a 100% outside air unit dedicated to providing dehumidified air to the Gym. All air handlers will be dual wall with chilled water coils and SCR electric heaters.

The hoods in the Culinary Lab will be served by rooftop makeup air units with gas heat and exhaust fans. All fans will be variable speed controlled by heat sensors and variable speed fan drives provided with the hoods. The hood in the Culinary Classroom will be exhausted only with a variable speed fan. The range in the Child Care Lab will have a residential hood which is vented and has a fire suppression system.

Ducts will be rectangular or spiral galvanized sheetmetal with fiberglass insulation with FRP jackets. Exposed duct in the Gym and Visual Arts Labs will be dual wall duct. Piping will be schedule 40 black steel or Type L copper with polyiso insulation outdoors and in mechanical rooms and fiberglass insulation with ASJ jacket in other locations. Outdoor piping will have an aluminum jacket. Underground chilled water piping shall have polyurethane insulation with a PVC or FRP jacket.

The control system will be a web based control system by Automated Logic Controls. All components of the HVAC system will be controlled along with the common lighting zones (primarily corridors and exterior lighting).



Materials and Systems

K. Plumbing System

Wall hydrants will be surface mounted, loose key, and anti-freeze with backflow preventers. Hydrants shall be located at approximately 100-ft. intervals around the perimeter of the building. Roof hydrants will be provided at rooftop equipment for wash-down and maintenance purposes. Hose bibbs with loose keys and vacuum breakers will be located in all toilets with floor drains and in the mechanical room.

Large demand usage areas (i.e., kitchen, showers, etc.) will be provided with natural gas-fired instantaneous water heaters. Water heaters for lesser-usage areas shall be electric storage tank type water heaters. A hot water recirculation system shall be provided with a water heater when the hot water system piping exceeds 100 feet from water heater to last fixture.

Sanitary sewer shall be collected inside the building and extend 5'-0" outside the building for connection to site utility system. A food grease waste interceptor shall be provided for the culinary kitchen waste system.

Natural gas shall be provided to all gas fired equipment (i.e., building heating systems, domestic hot water heating systems, kitchen equipment, etc.).

Water Closets shall be floor-mounted flush valve type. Water closets installed in group restrooms shall have sensor operated flush valves. Sensor flush valves shall be of the self-generating Eco power system type. Urinals shall be the wall-hung flush valve type. Urinals installed in group toilet rooms shall have sensor operated flush valves. Lavatories shall be the wall-hung enameled cast iron type with hot and cold water faucets. Lavatory faucets shall be the self-generating Eco power type. Single adult restrooms shall have manual faucets with goose necks and 4" wrist blades.

Art Room sinks shall be stainless steel, 18 gauge, type 302 with hot water and cold water. Art Room sinks will be provided with above-floor sediment traps. Classroom sinks shall be stainless steel, 18 gauge, type 302 with hot and cold water. Water coolers shall be of the stainless steel wall hung vandal-resistant type. There shall be one water cooler with bottle filling station on each floor.

L. Fire Protection System

The Area F building (ROTC building) will be protected throughout by a wet pipe sprinkler system unless indicated otherwise. The wet pipe sprinkler system shall consist of two zones (one for first floor and one for second floor).

The fire sprinkler main shall be extended from Area E (Phase 2A Administration wing) in which piping was capped for the Phase 2B addition. In addition, Sprinkler main piping and Fire Department Connection piping for Future Auditorium shall be routed through Area F and capped for future connection.

The Area G building (Gym building) will be protected throughout by a wet pipe sprinkler system. The wet pipe sprinkler system shall consist of two zones (one for first floor and one for second floor). The riser room for this building shall have the incoming fire line (served from site fire pump system) and valve riser assemblies. Civil design will provide a freestanding post indicator valve and a freestanding fire department connection (FDC). A sprinkler main for the adjacent future design shall be provided and capped for future addition.

The mechanical rooms, electrical rooms, storage areas, janitor rooms and water heater rooms shall be designed for Ordinary Hazard Group I occupancy. The remainder of the building shall be designed for Light Hazard Occupancy.

Concealed sprinklers will be provided in all areas with finished ceilings. Upright sprinklers will be installed in mechanical rooms, electrical rooms, storage rooms, and similar rooms and any other space without ceilings. Upright sprinklers in the Auxiliary Gymnasium shall be provided with sprinkler guards.

Materials and Systems

M. Electrical System

Electrical service for the new addition will be obtained from a pad-mount transformer from SCE&G. Service voltage will be 277/480V 3 phase 4 wire. Surge protective devices (SPD) will be provided for the new electrical service and downstream distribution equipment.

Emergency power will be derived from the outdoor diesel generator set installed during Phase 2A.

Interior lighting will generally consist of specification grade LED lay-in lighting fixtures. Lighting levels in classrooms will be controlled via simple 0-10V dimming, inherent in contemporary LED driver design, and shall provide separate control for teaching wall.

Exterior lighting will consist of building-mounted LED architectural cut-off security fixtures.

Occupancy sensors for lighting control and energy savings will be used as much as possible. Commons areas such as corridors and exterior lighting will be controlled by the building automation system.

The addressable fire alarm system installed during Phase 2A will be extended into areas constructed during Phase 2B. The system is a voice-evacuation type manufactured by Silent Knight and utilizing strobes, speakers, and pre-recorded voice messages to notify occupants.

The premises wiring system installed during Phase 2A, including fiber optic backbone with CAT 6 copper drops, will be extended into areas constructed during Phase 2B. This will include a conduit and/or cable tray system for support of IT technology, wiring and equipment racks for installation of jack panels, and owner-installed electronics. Nominal outlet locations in instructional spaces shall be for two (9) drops per classroom, one for the teacher station, two for wireless access points, and 6 for student stations. Empty rough-ins for future premises wiring use will also be provided.

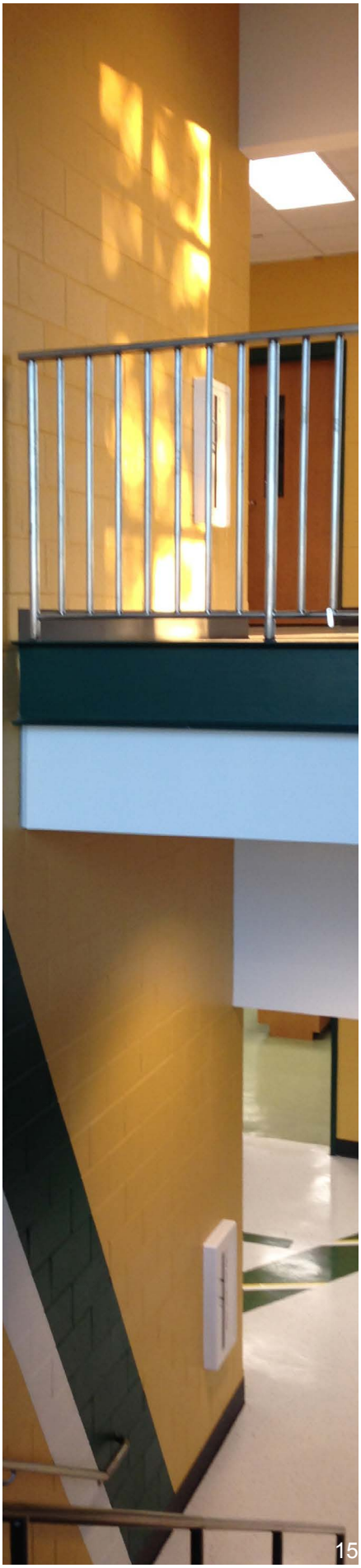
A cable tray system shall be for the sole use of IT, security, CCTV, and other systems installed outside the construction contract. HVAC controls will not be installed in the cable tray system. Cable tray shall be the aluminum ladder type.

Conduit pathway shall be provided within instructional spaces to support multi-media applications between the instructor's station and display equipment.

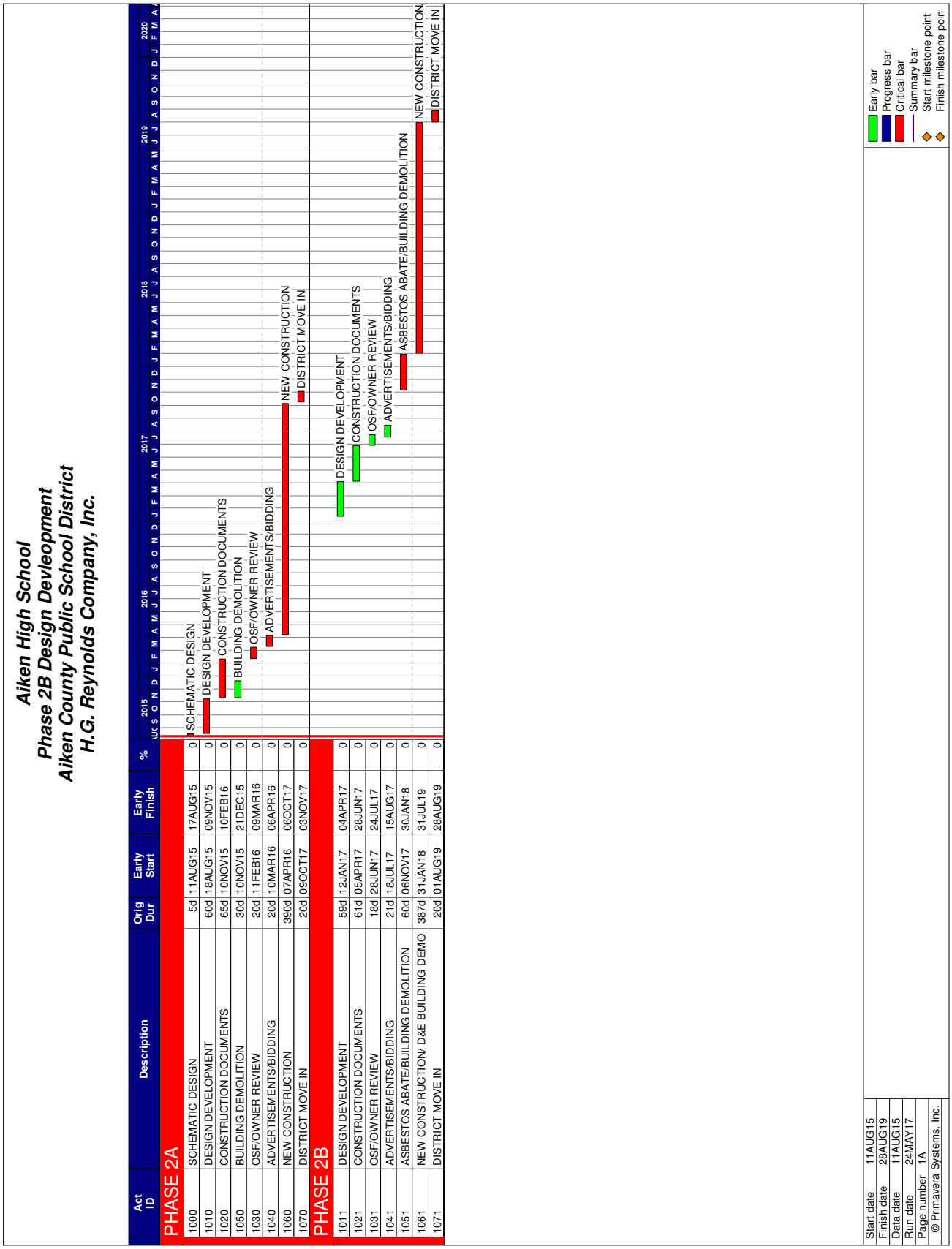
The IP based two-way school intercom system installed during Phase 2A (Rauland Borg TCU) shall be extended into areas constructed during phase 2B for calls to instructional areas and for general paging through the building. Call-back buttons shall be provided in classrooms and selected locations.

Sound reinforcement systems and rough-ins for an AV presentation system will be provided in the new auxiliary gymnasium. Sound reinforcement system design will be included in the base bid. Rough-in locations for the AV presentation system are to be provided by Unified A/V systems for incorporation into the contract documents.

Rough-ins for sound reinforcement systems will be provided in each classroom. Rough-ins will be coordinated with Unified AV systems.



Schedule


Aiken High School
Phase 2B Design Devleopment
Aiken County Public School District
H.G. Reynolds Company, Inc.
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PHASE 2A
1000 SCHEMATIC DESIGN 5d 11AUG15 17AUG15 0
1010 DESIGN DEVELOPMENT 60d 18AUG15 09NOV15 0
1020 CONSTRUCTION DOCUMENTS 65d 10NOV15 10FEB16 0
1050 BUILDING DEMOLITION 30d 10NOV15 21DEC15 0
1030 OSF/OWNER REVIEW 20d 11FEB16 09MAR16 0
1040 ADVERTISEMENTS/BIDDING 20d 10MAR16 06APR16 0
1060 NEW CONSTRUCTION 390d 07APR16 06OCT17 0
1070 DISTRICT MOVE IN 20d 09OCT17 03NOV17 0
PHASE 2B
1011 DESIGN DEVELOPMENT 59d 12JAN17 04APR17 0
1021 CONSTRUCTION DOCUMENTS 61d 05APR17 28JUN17 0
1031 OSF/OWNER REVIEW 18d 28JUN17 24JUL17 0
1041 ADVERTISEMENTS/BIDDING 21d 18JUL17 15AUG17 0
1051 ASBESTOS ABATE/BUILDING DEMOLITION 60d 06NOV17 30JAN18 0
1061 NEW CONSTRUCTION/ D&E BUILDING DEMO 387d 31JAN18 31JUL19 0
1071 DISTRICT MOVE IN 20d 01AUG19 28AUG19 0
2015
2016
2017
2018
2019
2020
SCHEMATIC DESIGN
DESIGN DEVELOPMENT
CONSTRUCTION DOCUMENTS
BUILDING DEMOLITION
OSF/OWNER REVIEW
ADVERTISEMENTS/BIDDING
NEW CONSTRUCTION
DISTRICT MOVE IN
DESIGN DEVELOPMENT
CONSTRUCTION DOCUMENTS
OSF/OWNER REVIEW
ADVERTISEMENTS/BIDDING
ASBESTOS ABATE/BUILDING DEMOLITION
NEW CONSTRUCTION
DISTRICT MOVE IN
Start date 11AUG15
Finish date 28AUG19
Data date 11AUG15
Run date 24MAY17
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Preliminary Project Budget Summary Estimate

24-May-17

Aiken High School - Phase 2B Construction Documents 1600 STUDENTS

Aiken County School District

LS3P Commission No.: 2201-147220

		Classrooms / Media / Admin		Actual Phase 2A (2015-2017)	Arts / Music / Career Tech / Aux Gym		HGR Estimate Phase 2B (2017-2018)
Description		*GSF*	*$/GSF*	*Totals*	*GSF*	*$/GSF*	*Totals*
Estimated Construction Costs							
Site Utility & Building Demolition	**(Bldg Demo)**						$872,601
	Phase 2A-partial Annex; Phase 2B-Annex,Bldgs A-E & Old Gym						
Site and Building Demolition				$119,000			$907,485
Building & Site							
New Building Construction		**153,854**		$28,810,639	**61,537**		$14,815,797
Projected Sub-Total Construction				**$28,810,639**			**$16,595,883**
GMP#1: Portables Abatement & Demo/removal				**$121,376**			
GMP#2: Annex 8 Classroom Demo				**$211,741**			
***Projected* Total Construction / Phase**				**$29,143,756**			**$16,595,883**
Professional/Technical/Inspection Fees	(Fees, surveys, inspections)						
Sub-total Professional/Technical/Inspections				**$2,032,175**			***$853,630***
Owner Soft Costs							
*Legal/Insurance **	*(Contracted through District)**	*estimated**		*$15,000*			*(in Phase 2A)*
*Soil Borings/Geotechnical Study**	*(Contracted through District)**	*estimated**		*$20,000*			*10,000*
Preconstruction CM@R Services	*(Contracted through District)**	*estimated**	*0.45%*	*$129,648*			*$74,681*
*Site/Tree Survey (by Hass & Hilderbrand) **	*(Contracted through District)**	*estimated**		*$20,000*			*(in Phase 2A)*
*Special Inspections/Const Materials Testing **	*(Contracted through District)**	*estimated**		*$450,000*			*$250,000*
TOTAL				**$2,666,823**			**$1,178,312**
Advertising							
Bid advertisements				*(included in CM@R)*			*(included in CM@R)*
Miscellaneous							
Fixtures, Furnishings and Equipment				$1,500,000			$1,000,000
Technology				$800,000			$450,000
TOTAL				**$2,300,000**			**$1,450,000**
Sub-Total				$34,110,579			$19,224,195
Overall Project Contingency	*3.00%*			$864,319			$500,000
ESTIMATED TOTAL				**$34,974,898**			**$19,724,195**
	Running TOTAL			*$34,974,898*			*$54,699,093*
Alternates							
Add'l. Construction Admin (LS3P weekly)	*OPTIONAL*	*24 mo*	$7,000	$168,000	*19 mo*	$7,000	$133,000
Add'l. Construction Admin (Consultants as req'd)	*OPTIONAL, hourly*	*24 mo*	*TBD*		*TBD*		
OVERALL PROJECT BUDGET				**$35,142,898**			**$19,857,195**
*Actual costs to be provided by District.	***Running TOTAL***			*$35,142,898*			*$55,000,093*
	Budget over/under $60M			*$24,857,102*			*$4,999,907*