



#### Captain John Bertram Athletic Field Phase 2 Improvements

Design Development Manual February 20, 2019

#### **Bertram Field Phase 2 Improvements Schematic Design Report**

**Executive Report** 

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Section 2	Stakeholders Meetings & Proposed Options
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#### **OVERVIEW**

#### **Purpose and Goals**

The purpose of this report is to provide recommendations regarding facility improvements to the Bertram Athletic Field. Support buildings address four distinct areas: concessions, public amenities, locker facilities for athletic participants, and barrier-free access to the press box. This study recommends the priorities, budgets, and overall schedule within which to achieve the goal of a state-of-the-art athletic facility for the City of Salem.

#### Methodology

The methodology to arrive at this schematic design incorporated public meetings, regular design progress meetings, and meetings with Salem police, fire, and plumbing officials. The design team visited nearby facilities in Danvers and Lynn, and met with other various field managers to learn from their operations and experiences.

A series of meetings were held with key administrative staff and interested members of the public (see section on Stakeholder Meetings). The initial meeting sought to confirm the actual programming needs. The following meeting introduced recommendations and comments which allowed the design team to refine the preferred design option represented in the schematic design.

#### Vision

The Bertram Athletic Field has been and always will be an icon for the City of Salem. The field has generated unforgettable memories for thousands of Salemites and their neighbors. Phase 1 improvements addressed the athletic surface and the lighting. This study focuses in on the additional improvements to the Bertram Field facility.

Bertram Field will be a facility which will serve a variety of sports and field organizations from Salem and the surrounding regions. The facility will provide visitors and athletes the safety, accessibility, and comfort of a first-class municipal facility for all amateur sporting events.

#### **PHASE 2 SCHEMATIC DESIGN**

The Bertram Athletic Field has a new turf field, but suffers from inadequate building facilities. The schematic design presented in this report defines the buildings and their locations.

The overall Design Criteria for the buildings are:

- Sustainable design and Net Zero Energy facility
- Separate pedestrians from vehicle access to the entry
- Separate the athletic changing area from the public amenity spaces
- Protect visitors from inclement weather by providing semi-sheltered areas
- Provide outdoor grilling area for informal food preparation
- Improve the architecture to present a unified, thematic aspect to the entry and the various facilities
- Provide a location for public art installations
- Provide 25 women's toilets and 16 men's toilets/urinals.
- The concessions stand will provide snacks and beverages. Pizza, hot dogs, and pre-packaged foods will be served. Hot beverages will be provided.
- The athletic changing facility will provide space for teams to prepare and gather away from the spectators.
- Provide accessibility to the press box

#### **Key Recommendations**

Management and Operations

- Provide coordinated management and supervision within the City through regular meetings with users and the Public Works department
- Determine the event scheduling and hours of operations
- Establish a capital improvement fund and seek resources through user's fees, grants, and other sources to undertake necessary improvements, repairs, and replacements
- Maintain all facilities so that they are always clean, repaired, and free from any debris
- Measure success by surveying visitors and modifying the operations as needed to always be sensitive to the community's desires for Bertram Field

#### CONTEXT

#### The Recent History of Bertram Field

Bertram Field has been providing the North Shore with a unique site for outdoor athletic events for over one hundred years. Tent cities sprang up on the field as part of the recovery from the Salem fire of 1914. The locker facilities were constructed in the 1930's. In 2012, the City Council approved funding for the renovation of the field. A complete renovation of the field complex was completed in the summer of 2013, adding a new turf field, a six-lane running track, scoreboard, and a new flag pole. The visitor's grandstand was removed. Neither the press box nor the locker rooms were renovated.

Bertram Field is used in the fall and spring by:

- The Salem High School Varsity field sports program
- The Salem High School Junior Varsity field sports program
- Salem High School Marching Band
- Salem Youth Field Sports Program
- Collins Middle School Physical Education
- Parks and Recreation Summer Programs
- Residents

There are approximately 100 events scheduled at the field during the fall and spring seasons. Bertram Field is maintained and administered by the Salem School Facilities Department (SSFD). The funding and revenue management is a collaboration between the City of Salem and the SSFD.

#### **Opportunities**

The strengths Bertram Field possesses were revealed during the evaluations of the site and the discussions with the working committee. Among the most notable strengths are:

- Ability to provide pedestrians with plaza space at the entry
- Enhanced pedestrian circulation around Collins Middle School
- Service entrance off of Bertuccio Avenue
- Undeveloped site to the north which could be improved for Collins Middle
   School and Bertram Field

#### **Constraints**

The constraints of the field lie primarily in the existing siting of the facility. Most of the manmade constraints, such as the toilet facilities and lack of barrier-free access are the focus of this report.

#### The Areas of Responsibility are:

- 1. Maintenance
  - Department of Public Works and the Salem School Department
- 2. Scheduling
  - Salem School Department
- 3. Revenue Management
  - Department of Parks and Recreation
- 4. Capital Improvements
  - Department of Parks and Recreation

#### **THE PRIORITIES**

#### Provide coordinated management and supervision with the City through regular meetings with users and selected departments within city government.

The management of Bertram Field is currently the responsibility of the Salem School Facilities Department. The scheduling, determination of fees, and the concession stands are duties shared between the Department of Public Works, Department of Parks and Recreation, and the School Department.

The operational responsibilities of Bertram Field need to be clearly defined by the City of Salem. The maintenance of the facility, scheduling of events, administering revenue, and monitoring the use of the concessions facilities are specific base line responsibilities which need to be discussed and assigned as soon as possible.

It is important one entity be responsible for supervising the operations and scheduling of Bertram Field. Other towns assign this responsibility to either the Parks and Recreation Department or the Community Development office. An individual should be designated to monitor the operations of the field on a daily basis. This is not a full-time responsibility; rather ten to fifteen percent of this persons time should be allocated to Bertram Field.



The existing press box is not accessible for all.



Proposed area for barrier-free access to the press

#### Determine the scheduling of events and the hours of operations.

The City should determine whether the School or Parks and Recreation Department will lead scheduling of all events at the field. It is recommended that a web-based calendar be available to confirm the event times are known to all users.

The city should consider the hours of operation. The park should not be open 24 hours, 7 days a week. Typically, facilities in neighboring communities are open from 6:00am till dusk, unless there are scheduled evening events.

#### Establish a capital improvement fund and seek resources through user's fees, grants, and others.

The City of Salem budget for the Department of Parks and Recreation (DPR) should establish a dollar amount for the DPR to manage with. This will define the financing of maintenance and upkeep. To supplement the budget, the DPR should seek alternative resources for capital improvements and major equipment replacement, such as grants and private corporate donations.

Setting fees for the use of the field should be considered. The concessions and ticket sales should be managed by the DPR and the revenues from each can be shared with the respective users.

#### A committee of users and representatives of city departments will be assembled to assist and monitor specific areas of operations. Suggested participants (not to exceed 8 members) of this committee are:

- Salem High School Athletic Director
- Salem High School Field Coaches
- Representatives from the Department of Public Works
- Representatives from the Parks and Recreation Department
- Representative from the Youth Sports Program
- Interested Citizens

### Measure success by surveying visitors and users. Modify the operations as needed to always be sensitive to the community's expectations.

Monitoring the opinions of users and visitors establishes a good metric with which to decide how to improve the care of Bertram Field. The survey should be done at the end of the fall season.

#### Bertram Field, Phase 2 Feasibility Study - BUDGET TRACKING

City of Salem Proje Bertram Field, Pha Project Director / N	sct # se 2 Feasibility Study - BUDGET TRACKING lanager: David Saindon / Adam Keane Period Ending Includes Invoice Summary Reimbursement Package	1/17/2018 xxxx n/a		Current Budget							E IN PROJECT N	
		<u>Budget</u> [A]	<u>Budget</u> <u>Changes</u> [B]	<u>Revised Budget</u> [C]	<u>Committed</u> <u>Costs</u> [D]	<u>Expended</u> [E]	<u>Unspent</u> [F]=[D]-[E]	<u>Remaining</u> <u>Budget</u> [G]=[C]-[D]	<u>% Complete</u> (against committ'd) [H]=[E]/[J]	CTC (beyond committed) [I]	Anticipated <u>C @ C</u> [J]=[D]+[I]	<u>Variance</u> (Under)/Over [K]=[J]-[C]
<b>0001 0000</b> 0001 0000	Owner's Project Manager Feasibility Study (Leftfield, LLC)	<b>\$26,766</b> \$26,766	<b>\$0</b> \$0	\$26,766 \$26,766	<b>\$26,766</b> \$26,766	<b>\$20,075</b> \$20,075	<b>\$6,691</b> \$6,691	<b>\$0</b> \$0	75%	<b>\$0</b> \$0	<b>\$26,766</b> \$26,766	<b>\$0</b> \$0
0002 0000	Designer	\$99,500	\$115,410	\$214,910	\$211,910	\$77,450	\$134,460	\$3,000		\$3,000	\$214,910	\$0
0002 0000	Feasibility Study (Beacon Architects)	\$99,500	\$0	\$99,500	\$99,500	\$77,450	\$22,050	\$0	78%	\$0	\$99,500	\$0
0002 0000	Early Release DD Work (Beacon Architects)	\$0	\$112,410	\$112,410	\$112,410	David: Value was \$98,050: value incr	reased/decreased	\$0	0%	\$0	\$112,410	\$0
0002 0000	Derking Otype at Calling site and adjacent areas (DLUC)	¢0	¢1 E00	¢1 500	¢0.	<ul> <li>Circulation planning decreas</li> </ul>	sed from \$6,000 to \$3,000	¢1 500		¢1 500	¢1 500	¢o
0002 0000	Parking Study at Collins site and adjacent areas (PLOG) Parking Study at Collins site (STANTEC) (PLUG)	\$0 \$0	\$1,500	\$1,500	\$0 \$0	<ul> <li>Cost estimating included at Landscape archtiecture inclu</li> </ul>	\$4,000 uded at \$4,860	\$1,500		\$1,500	\$1,500	<u>\$0</u> \$0
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0003 0000	Environmental, Site, Other	\$0	\$42,670	\$42,670	\$42,670	\$0	\$42,670	\$0		\$0	\$42,670	\$0
0003 0000	Subconsultants	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0003 0000	Tighe+Bond - GeoTechnical	<u>\$0</u>	\$15,200	\$15,200	\$15,200	\$0	\$15,200	\$U \$0	0%	\$U \$0	\$15,200	\$0
0003 0000	Tighe+Bond - ACM assessment	<u></u>	\$5,800	\$5,800	\$5,800	David:	\$17,700	30 \$0	0%		\$5,800	
0003 0000	BMC - Clean, inspect sanitary lines CCTV/JET	\$0	\$3,360	\$3,360	\$3,360	is \$390; thus commitment	\$3,360	\$0	0%	\$0	\$3,360	\$0
0003 0000	Metro-Swift - Hydrant flow test	\$0	\$610	\$610	\$610	is \$610	\$610	\$0	0%	\$0	\$610	\$0
0004 0000	OTHER	\$171,056	(\$158,080)	\$12,976	\$0	\$0	\$0	\$12,976		\$12,976	\$12,976	\$0
0004 0000	Owner's Contingency/Other	\$171,056	(\$158,080)	\$12,976	\$0	\$0	\$0	\$12,976		\$12,976	\$12,976	\$0
0004 0000	Need to carry misc costs for LEED registration, other, etc.	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0004 0000	****	\$U \$0	\$0	\$0 \$0	\$0 \$0	\$U\$0	\$U \$0	\$U \$0		\$U \$0	\$U \$0	\$U \$0
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FEASI	BILITY STUDY TOTALS	\$297,322	\$0	\$297,322	\$281,346	\$97,525	\$183,821	\$15,976		\$15,976	\$297,322	\$0
0100 0000	ADMINISTRATION	\$405,000	\$0	\$405,000	\$0	\$0	\$0	\$405,000		\$405,000	\$405,000	\$0
0101 0000	Legal Fees	\$25,000	\$0	\$25,000	\$0	\$0	\$0	\$25,000		\$25,000	\$25,000	\$0
0102 0000	Owner's Project Manager	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0102 0400	Construction Contract Doop	\$55,000	\$0	\$55,000	\$0	\$0	\$0	\$55,000		\$55,000	\$55,000	\$0
0102 0500	Bidding	\$30,000	\$0 \$0	\$30,000	30 \$0	30 \$0	30 \$0	\$30,000		\$35,000	\$30,000	
0102 0000	Construction Contract Administration	\$200,000	\$0	\$200,000	\$0	\$0	\$0	\$200,000		\$200,000	\$200,000	\$0
0102 0800	Closeout	\$10,000	\$0	\$10,000	\$0	\$0	\$0	\$10,000		\$10,000	\$10,000	\$0
0102 1000	Reimbursable & Other Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0102 1100	Cost Estimates	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0102 9900	Other Project Manager Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0103 0000	Advertising (bidding)	\$5,000	\$0	\$5,000	\$0	\$0	\$0	\$5,000		\$5,000	\$5,000	\$0
0104 0000	Permitting Fees (assumed waived)	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0105 0000	Owner's Insurance (Builder's Risk)	\$10,000	\$0	\$10,000	\$0	\$0	\$0	\$10,000		\$10,000	\$10,000	\$0
0199 0000	Other Administrative Costs	\$15,000	φU	\$15,000	φU	φU	φU	\$15,000		\$15,000	\$15,000	φυ
0200 0000	ARCHITECTURE & ENGINEERING	\$384,370	\$0	\$384,370	\$0	\$0	\$0	\$384,370		\$384,370	\$384,370	\$0
0201 0000	Basic Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0400	Design Development - Early Release (carried above)	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0410	Survey	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0420	LEED Admin	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0201 0430	Circulation Planning	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0440	Cost Estimation	\$U \$0	\$U	\$U \$0	\$U \$0	\$0	\$0	\$0		\$U \$0	\$U \$0	\$0
0450	Landscape Archtiecture	\$0\$0	\$0	\$0	\$0	\$0				\$0		\$0
0470	Integrated Design	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0500	Construction Contract Documents	\$120,370	\$0	\$120,370	\$0	\$0	\$0	\$120,370		\$120,370	\$120,370	\$0
0201 0510	Life cycle assessment	\$11,500	\$0	\$11,500	\$0	\$0	\$0	\$11,500		\$11,500	\$11,500	\$0
0520	Energy Modeling	\$3,000	\$0	\$3,000	\$0	\$0	\$0	\$3,000		\$3,000	\$3,000	\$0
0530	Commissioning LEED	\$6,500	\$0	\$6,500	\$0	\$0	\$0	\$6,500		\$6,500	\$6,500	\$0
0201 0600	Bidding	\$10,000	\$0	\$10,000	\$0	\$0	\$0	\$10,000		\$10,000	\$10,000	\$0
0201 0700		\$96,700	\$0	\$96,700	\$0	\$0	\$0	\$96,700		\$96,700	\$96,700	\$0
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0203 0000	Reimbursable and Other Services	φ≥0,000 \$0	\$0	φ∠0,000 ¢∩	\$U \$0	\$U .\$0	\$0 \$0				φ∠0,000 <u>\$</u> Ω	<u>\$0</u> \$0
0203 0100	Construction Testing (carried below)	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0203 0200	Printing (over minimum)	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0204 0000	Sub-Consultants	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0204 0200	Hazardous Materials (reporting and monitoring) PLUG	\$25,000	\$0	\$25,000	\$0	\$0	\$0	\$25,000		\$25,000	\$25,000	\$0
0204 0300	GeoTechnical & Geo-Environmental - PLUG	\$50,000	\$0	\$50,000	\$0	\$0	\$0	\$50,000		\$50,000	\$50,000	\$0

#### Bertram Field, Phase 2 Feasibility Study - BUDGET TRACKING

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City of Salem Proj Bertram Field, Pha Project Director / I	ect # ise 2 Feasibility Study - BUDGET TRACKING Manager: David Saindon / Adam Keane	Period Ending Includes Invoice Summary Reimbursement Package	1/17/2018 xxxx n/a		Current Budget								
			<u>Budget</u> [A]	<u>Budget</u> <u>Changes</u> [B]	<u>Revised Budget</u> [C]	Committed Costs [D]	Expended [E]	<u>Unspent</u> [F]=[D]-[E]	<u>Remaining</u> <u>Budget</u> [G]=[C]-[D]	<u>% Complete</u> (against committ'd) [H]=[E]/[J]	<u>CTC</u> (beyond committed) [1]	Anticipated <u>C @ C</u> [J]=[D]+[I]	Variance (Under)/Over [K]=[J]-[C]
0204 0400	Site Survey - PLUG		\$10,000	\$0	\$10,000	\$0	\$0	\$0	\$10,000		\$10,000	\$10,000	\$0
0204 0500	XXXXX		\$10,000	\$0	\$10,000	\$0	\$0	\$0	\$10,000		\$10,000	\$10,000	\$0
0500 0000	CONSTRUCTION CONTRACT		\$4 379 699	\$0	\$4 379 699	\$0	\$0	\$0	\$4 379 699		\$4 379 699	\$4 379 699	\$0
0501 0000	Pre-Construction Services (n/a)		\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0502 0000	Construction (per current estimate)		\$4 379 699	\$0	\$4 379 699	\$0	\$0	\$0	\$4 379 699		\$4 379 699	\$4 379 699	\$0
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0600 0000	MISCELLANEOUS PROJECT COST	S	\$95,000	\$0	\$95,000	\$0	\$0	\$0	\$95,000		\$95,000	\$95,000	\$0
0601 0000	Utility Company Fees - PLUG		\$20,000	\$0	\$20,000	\$0	\$0	\$0	\$20,000		\$20,000	\$20,000	\$0
	Utility Company - rebates/refunds (es	timated plug)	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0602 0000	Testing Services		\$50,000	\$0	\$50,000	\$0	\$0	\$0	\$50,000		\$50,000	\$50,000	\$0
0603 0000	Swing Space/Modulars		\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0699 0000	Other Project Costs - PLUG		\$25,000	\$0	\$25,000	\$0	\$0	\$0	\$25,000		\$25,000	\$25,000	\$0
0700 0000	FURNISHINGS & EQUIPMENT		\$40,000	\$0	\$40,000	\$0	\$0	\$0	\$40,000		\$40,000	\$40,000	\$0
0701 0000	Furnishings & Equipment (FF+E) - PL	UG	\$30,000	\$0	\$30,000	\$0	\$0	\$0	\$30,000		\$30,000	\$30,000	\$0
0702 0000	Technology Equipment - PLUG		\$10,000	\$0	\$10,000	\$0	\$0	\$0	\$10,000		\$10,000	\$10,000	\$0
0799 0000	Other Furnishings & Equipment		\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0
0800 0000	OWNER'S CONTINGENCY		\$484,188	\$0	\$484,188	\$0	\$0	\$0	\$484,188		\$484,189	\$484,189	\$1
0801 0000	Owner's Contingency (soft) 5%		\$46,219	\$0	\$46,219	\$0	\$0	\$0	\$46,219		\$46,219	\$46,219	\$1
0507 0000	Owner's Construction Contingency (ha	ard) 10%	\$437,970	\$0	\$437,970	\$0	\$0	\$0	\$437,970		\$437,970	\$437,970	\$0
PROJI	ECT TOTALS		\$6,085,579	\$0	\$6,085,579	\$281,346	\$97,525	\$183,821	\$5,804,233		\$5,804,234	\$6,085,580	\$1



#### **SPACE CRITERIA DOCUMENTATION**

Space Criteria is the foundation of a successful space program. This documentation establishes the needs, the spaces needing to be adjacent to it, and the size of the space. Each space was analyzed with the group and the stakeholders.

The spaces documented herein are:

Home and Visiting Team Satellite Locker Room Officials Locker Room Press Box Concession Station Public Toilets Pedestrian Entry First Aid / Training Facility



#### Home and Visiting Team Satellite Locker Room

FUNCTION OF SPACE: Pre-Game Preparation / Half Time Conference / Post Game Review ADJACENCIES TO OTHER SPACES: Toilets OCCUPANCY: 60 - 70 Players

#### Locker Room Characteristics per 2016 Feasibility Study

- Open area
- 700 800 square feet
- No fixed benches
- Clothing pegs on walls
- No lockers
- Good acoustics
- Marker board

#### **Questions / Answers Regarding the Salem Satellite Locker Rooms:**

#### 1. How do Salem athletes prepare for a game at Bertram Field?

Players dress for games at the school locker rooms and travel to Bertram via bus. Showers are taken in the school locker rooms. The building committee recommends perimeter seating, without lockers, and no fixed seating.

#### 2. What do Salem athletes leave behind in the locker room?

Backpacks with personal items. Secure storage for backpacks necessary. Athletes may bring their own personal locks.

#### 3. Do coaches use overhead projectors for half-time diagrams?

3 areas for whiteboard meetings should be provided. Teams split up in groups.

#### 4. Will there be any gender-neutral sports teams?

Yes - a room should be provided in the toilet area for gender privacy changing.

#### 5. How many toilets should be provided.

2 urinals and 3 toilets are recommended. There will be no showers.

#### 16 BERTRAM FIELD PHASE 2 RENOVATION SCHEMATIC DESIGN



Bertram Field Improvements Phase 2 Criteria and Questions December 11, 2018

#### **Officials Locker Room**

FUNCTION OF SPACE: Pre and Post Game Preparation for Male and Female Officials ADJACENCIES TO OTHER SPACES: Satellite Locker Rooms OCCUPANCY: 6 - 8 People

#### Officials Locker Room Characteristics per 2016 Feasibility Study

- Gender neutral. Minority gender will use enclosed room. Room to have toilet and lavatory. Sanitary facilities include private changing room
- Accessible (including changing room)
- Located in concessions building, remote from team locker rooms





#### **Press Box**

FUNCTION OF SPACE:

- Public Address Announcer Work Station (2)
- Reporters Work Station (2)
- Home Team Assistant Coaches Work Station (2)
- Visiting Team Assistant Coaches Work Station (2)
- Score Keeper
- Home Team Camera Platform
- Visiting Team Camera Platform

OCCUPANCY: 10 - 12 People

#### Press Box Characteristics per 2016 Feasibility Study

- Located at center of field within grandstands
- Clothing pegs on walls
- Acoustical isolation for work station
- Markerboards
- Accessible from grandstands
- Universal access via lift for press box and the public for higher seating
- Extension of roof to shelter grandstand and provide a site for solar panels

The 2015 IBC, section 1104.3.2 - States a press box greater than 500 sq.ft. and more than 12'-0" above grade does have to be accessible. The Bertram Field press box will be greater than 500 square feet and more than 12'-0" above grade.





Bertram Field Improvements Phase 2 Criteria and Questions December 11, 2018

#### **Concessions Station**

FUNCTION OF SPACE: Providing food and drink to visitors ADJACENCIES TO OTHER SPACES: Home Team Grandstand OCCUPANCY: 10 Staff

#### **Concessions Characteristics per 2016 Feasibility Study**

- Accessible serving stations
- Storage for food and beverage
- Preparation stations
- Menu board
- Cold water
- Dry goods storage
- Refrigeration
- 3-bay sink with grease trap



#### **Questions / Answers Regarding the Salem Concessions:**

#### 1. What foods will be served that will not be pre-packaged?

Pizza, hot dogs, coffee, and hot chocolate.

#### 2. Will food be cooked on-site?

A portable grill will be occasionally set up outside the concession stand. There will be no grilling or cooking in the concession area. Water will be heated for coffee and hot chocolate.

3. Will pots, pans, or reusable cooking utensils be used that must be cleaned?

No. Cooking will not be done

#### 4. Will concessions be managed by vendors or volunteers?

It will be managed by boosters and volunteers.

5. Will transactions be made by cash, credit/debit, or both?

Both.

# Snack Bar

Chips, Candy Bars, Packaged items. **Counter and Table** 

# Grab & Go

Pre-Packaged, Refrigerator

Display Case Refrigerated



## Warming **Kitchen**

Pre-packaged, heated.

- Refrigerator Commercial
- Toaster/Oven Electrical
- Soup Warmer& Chili Hater
  - Sandwich Grill

## Production Kitchen

Full Cooking

- Refrigerator Commercial

  - Fryer Griddles Gas oven
- Gas Range

# Concession Planning

How are Concessions provided ?

- · Table/Counter
  - · Food Truck
- Concession Window

Who is running concessions?

- volunteers
- outside Vendor
- paid Staff

What is the model?

- Improve game day experience
- Revenue generator
- Fundraising opportunity

# Impact on the Facility

22

# Snack Bar

Chips, Candy Bars, Packaged items.

BERTRAM FIELD PHASE 2 RENOVATION SCHEMATIC DESIGN

# • none

# Grab & Go Pre-Packaged,

Refrigerator

Refrigerated Display Case Hand washing Sink

### Warming Kitchen

Pre-packaged, heated.

- Refrigerator Grease Trap Commercial
- Hand wash sink
  - 3-bay sink
- Food service finishes

## Production Kitchen

Full Cooking

- Refrigerator Commercial
  - Grease trap
- Fire protection Ventilation



#### **Public Toilets**

#### Public Toilets Characteristics per 2016 Feasibility Study

- Baby changing station
- Universal accessibility
- Water efficient fixtures
- Waste water
- Indoor air quality
- Separated universal room

Tollet Requirements Based on 5,000 Spectators										
	2.500 men and 2.500 women									
	[									
Fixture	Existing	Code Ratio	Code Requirement	Recommendations with Variance						
Men's Toilets	3	1 per 60	13	7						
Men's Lavatories	6	1 per 150	17	9						
Men's Urinals	4	50% of toilets	13	7						
Women's Toilets	5	1 per 30	49	25						
Women's Lavatories	6	1 per 150	17	9						

Toilet Fixture Calculation based on a 5,000-seat grandstand (existing). Variance has been received.

The Commonwealth of Massachusetts Plumbing Code 248 CMR for A-5, Stadium occupancies requires toilets at 1:30 females and 1:60 males for the first 2,000 occupants. Above 2,000, the fixture ratios increase to 1:100 females and 1:200 men.

Men's Toilet/ Urinal Calculation	Occupants	Code Ratio	Code Require ment
	1000	60	16.67
	1500	200	7.50
Total	2,500		24.17

Women's Toilet Calculation	Occupants	Code Ratio	Code Requirement
	1000	30	33.33
	1500	100	15.00
Total	2,500		48.33



Toilet Fixture Calculation based on a 4,000-seat grandstand (potential alternate).

Toilet Requirements Based on 4,000 Spectators								
2,000 men and 2,000 women								
Fixture	Existing	Code Ratio	Code Requirement	Recommendations with Variance (50%)				
Men's Toilets	3	1 per 60	12	6				
Men's Lavatories	6	1 per 150	8	4				
Men's Urinals	4	50% of toilets	10	5				
Women's Toilets	5	1 per 30	44	22				
Women's Lavatories	6	1 per 150	8	8				

Men's Toilet/ Urinal Calculation	Occupants	Code Ratio	Code Requirement
	1000	60	16.67
	1000	200	5.00
Total	2,000		21.67

Women's Toilet	Occupants	Code Ratio	Code
Calculation			Requirement
	1000	30	33.33
	1000	100	10.00
Total	2,000		43.33



#### Entry

FUNCTION OF SPACE: Distribute Tickets ADJACENCIES TO OTHER SPACES: Home Team Grandstands OCCUPANCY: Drop-Off Area and Parking

#### **Entry Characteristics**

- Accessible
- Allows for group gathering
- Display merchandise
- Secure field
- Public art and identity



#### **Questions / Answers Regarding the Salem Entry:**

#### 1. How many ticket booths are needed?

Two.

#### 2. What is the pick-up and drop-off sequence? Who gets dropped off and where?

Buses will be dropping off teams, parents will be dropping off players, and spectators will be dropped off.

#### 3. What activities are visualized outside the gate?

Spectators waiting for other spectators, raffles, ticket sales, and table seating.



Bertram Field Improvements Phase 2 Criteria and Questions December 11, 2018

#### First Aid / Training Facility

FUNCTION OF SPACE: Care for Injured Players and Preparing Players for Games ADJACENCIES TO OTHER SPACES: Satellite Locker Rooms OCCUPANCY: 3 - 4 People

#### First Aid / Training Facility Characteristics

- 120 square feet
- (2) treatment tables
- Toilet facilities
- Ice machine
- EMT access
- Cabinet storage
- Visibility



Questions / Answers Regarding the Salem First Aid / Training Facility:

1. Will the facility be used for Physical Therapy?

No.

2. Will an ice bath be used?

No.



# VERALL SITE ANALYSIS NL. **APRIL 2, 2018**

ARCHITECTURAL ASSOCIATES, INC.







#### 30 BERTRAM FIELD PHASE 2 RENOVATION SCHEMATIC DESIGN

#### **STAKEHOLDERS MEETINGS**

Two stakeholders meetings were held. The first introduced the project to interested parties, reviewed the criteria documentation, the preliminary program, and the site constraints. The second meeting presented four options relating to building layouts and locations. This meeting also included a site visit to the field prior to discussing the options.

This section includes the minutes from those meetings and the associated graphics.



#### MEETING MINUTES

Meeting Minutes No. 1 – Stakeholders Meeting	
Project Name: Bertram Field Improvements Phase 2 Project No.: 18-877 Project Location: Salem, Massachusetts	Date: 4.11.2018
Attendees:	
🛛 J. Michael Sullivan, Beacon	Dominick Pangallo – City of Salem
🖾 Thomas Lassy, Beacon	🗆 Cynthia Napierkowski – Music Director
🛛 Jenna Ide – City of Salem	🗆 Lt. Bob Preczewski – Salem Police
🛛 Paul L'Heureux – Salem School Department	🗵 Captain Mark Losolfo – Salem Police
🗵 Joe Candelaria – Salem Parks Department	🗆 DC Gerry Giunta – Salem Fire
🗆 Patricia O'Brien – Salem Parks Department	🛛 Lisa Peterson – Ward 3 Councilor
Scott Connolly– Athletics Director	Dave Knowlton – City Councilor
🗆 Kristin Shaver - Salem School Department	Matt Smith – Director of Traffic & Parking
🗆 Michael Lutrzykowski - City of Salem	🗆 David Angeramo - Principal Salem HS
🛛 Richard Stafford – Salem Track Coach	🛛 Diego Fellows – stakeholder
🗆 Jerry L. Ryan - Stakeholder	🗆 Ron Miano – Football Pop Warner
🗆 Matt Bouchard - Football Coach	Michael Collins - Soccer Coach
☑ Chris Burke - Park and Recreation Commission	Steve Szpak - Ward 3 Neighbor
🗆 Cliff Goodman - Bertuccio Neighbor	🗆 Kelly Porter - Ward 3 Neighbor
🛛 Eric Papetti - Bike Committee member	Chris Cantone- Sustainability & Energy Board
🖾 Wally Mielcarz	🛛 Charles O'Donnell
🗆 Gary Lavoie	🖾 Melissa Barnes
🖂 Michelle Kiley - Resident	🖂 Shelly Bisegna – Salem Hospital

ITEM	DESCRIPTION	DATE TO BE COMPLETED	ACTION BY
01	This kick off meeting for the Bertram Field – Phase 2 focused on the		
	following items;		
	1. Discussion of various goals and visions for the project	On going	ALL
	2. Discussion of Barrier Free Access improvements		
	3. Establishing working objects for the next meeting.		
02	BAA will be responsible for keeping meeting minutes	On going	ALL
03	Project should aim to meet universal design standards	On going	ALL
04	<ul> <li>Project goal is for this to be a net zero energy project.</li> <li>PVs can be included on site/buildings</li> <li>Explore alternate option of expanded PV array</li> </ul>	On going	ALL



#### MEETING MINUTES

05	Existing Conditions		
	Site Constraints		
	1. Ledge		11/50
	2. Property line	On Going	INFO
	3. Existing structures (grandstands, ticket booths, field		
	house, fencing)		
06	Project/Construction Phasing		
	• Goal is to keep field open and operational during construction		
	Due to demolition of existing facilities the field not be available for	On Going	BAA
	games but has potential for practices.	U	
	<ul> <li>Phasing will be determined during the design process</li> </ul>		
07	Precedent Studies		
07	Bryant University - 4,400 seats total		
	North Andover High School – 4 000 Seats total		
	Winchester High School – 1 200 Seats total		
	City of Framingham Bowditch Field – 3 500 Seats Total	INFO	
	Endicott College Hempstead Stadium – 3 000 Seats total		
	<ul> <li>Triton Memorial Field Byfield MA – 1 512 seats &amp; Capacity for an</li> </ul>		
	additional standing room of up to 1 000 spectators		
	<ul> <li>Danvers High school – 2 600 Seats Total</li> </ul>		
08	Design Considerations - Programming		
08			
	• Area after entry tends to get congested – design should aim to		
	• Alea alter entry tends to get congested – design should aim to		
	Ticketing should be large enough for multiple staff members		
	Adjacent to other manage taking enerations for security		
	Aujacent to other money taking operations for security     Separate cales and ticketing could streamline entry		
	Concessions.		
	Estimates for warming kitchen and fur kitchen		
	Mianagement of Kitchen – Start VS Volunteers		
	<ol> <li>Capacity for 8+ concession workers</li> <li>Outplace area for svilla for an alving bot found (included in unarming)</li> </ol>		
	Outdoor area for grins for cooking hot roous (included in warning litcher eatier)	On going	
	kilchen option)	Ongoing	БАА
	Adjacent to other money taking operations for security		
	Public Tollets:		
	Code for public tollets require a significant amount of fixtures		
	1. Project will seek a variance		
	Considerations for future capacity		
	LUCKEI ROUITIS:		
	Unicials lockers		
	I. INCLUGE SNOWER		
	Home and visitors' locker rooms     Tailat Sixtures in lashen as (2 tailate asi.)		
	1. I ollet fixtures in locker room (3 tollets min)		
	2. Pegs and fixed benches with foot lockers area perimeter		
ĺ	<ol><li>Flexible seating provided (movable benches)</li></ol>		

BEACON ARCHITECTURAL ASSOCIATES

145 South Street, Third Floor, Boston, Massachusetts 02111 www.beaconarch.com | 617.357.7171

#### MEETING MINUTES

	First Aid and Training:		
	Single shared facility for both teams		
	Adjacent to the home and visitor locker rooms		
	Press Box:		
	Accessible access		
	<ul> <li>Improve facilities for staff and possibilities</li> </ul>		
	Heat & A/C – 3 season facilities		
	No need for use in winter months		
	Entry:		
	Accessible		
	Area for use for congregating and boosters		
	Site constraints are major considerations		
	• Player and spectator interaction is part of the experience		
	Provide access for emergency vehicles		
	• Parking goal is to keep as many parking spaces as possible		
	<ul> <li>Security cameras would be benefit for security</li> </ul>		
	Pedestrian access to site for neighbors		
	Booster and Merchandise Sales:		
	Exterior area on site		
	Storage area for tables		
	Storage:		
	Maintenance equipment		
	Additional machinery		
	Entry to storage from track level would be beneficial		
09	Schedule	INICO	
	Next meeting - TBD	INFO	

We believe these minutes accurately reflect the discussion of this meeting. Please notify the author if there are any comments, corrections, or additions within three (3) days of receipt.

Sincerely,

#### **BEACON ARCHITECTURAL ASSOCIATES**

Thomas Lassy, Job Captain

Attached: site analysis and program


### BERTRAM FIELD, SALEM, MA, PRECEDENT STUDIES, 2018-03-06

	NAME/LOCATION	CAPACITY	COST
1	Bryant Uni Beirne Stadium RI	4,400 (3,200-seat permanent bleacher comprises the backdrop for the home side of the field, while 1,200 additional seats are available on the visitor's side.)	
2	Lawrence High School Veterans Memorial Stadium Lawrence, MA	9,000 seats	
3	Roxbury Memorial High School White Stadium Boston, MA	10,000 seats	Constructed between 1945 and 1949 for a cost of \$2 million
4	North Andover High School Track and Field North Andover, MA	4,000 seats	
5	Winchester High School Field MA	1,200 seats	
6	Town of Framingham Bowditch Field MA	2,600 seats	
7	Endicott College Beverly, MA	3,000 seats	
8	The Triton Regional High School Triton Memorial Field Byfield, MA	The stadium will seat 1,512, with additional standing room that will increase capacity by approximately another 1,000 spectators.	
9	Danvers High School MA	2,600 seats	
10	Beverly High School Hurd Stadium MA	The new stadium seating has been reduced from 5,000 to 2,000. There will no longer be any stands and what was the home side of the field.	











leeting Minutes No. 2 – Stakeholders Meeting							
Date: May 9, 2018							

Attendees:	
🛛 J. Michael Sullivan – Beacon Architectural Associates	Dominick Pangallo – City of Salem
🗵 Jenna Ide – City of Salem	🗆 Cynthia Napierkowski – Music Director
🛛 Paul L'Heureux – Salem School Department	🗆 Lt. Bob Preczewski – Salem Police
🛛 Ryan Monks – Salem School Department	🖾 Captain Mark Losolfo – Salem Police
🗆 Joe Candelaria – Salem Parks Department	🗆 DC Gerry Giunta – Salem Fire
🗆 Patricia O'Brien – Salem Parks Department	🖾 Lisa Peterson – Ward 3 Councilor
Scott Connolly– Athletics Director	Dave Knowlton – City Councilor
🗆 Kristin Shaver - Salem School Department	Nick Dunig – Acting Director of Traffic & Parking
🗆 Michael Lutrzykowski - City of Salem	🗆 David Angeramo - Principal Salem HS
🛛 Richard Stafford – Salem Track Coach	🗵 Diego Fellows –Stakeholder
🗆 Jerry L. Ryan - Stakeholder	🖾 Ron Miano – Football Pop Warner
🗆 Matt Bouchard - Football Coach	Michael Collins - Soccer Coach
Chris Burke - Park and Recreation Commission	🗆 Steve Szpak - Ward 3 Neighbor
🗆 Cliff Goodman - Bertuccio Neighbor	🗆 Kelly Porter - Ward 3 Neighbor
🖾 Eric Papetti - Bike Committee member	🛛 Chris Cantone- Sustainability & Energy Board
🖾 Wally Mielcarz	🖾 Charles O'Donnell
🗆 Gary Lavoie	🗆 Melissa Barnes
🗆 Michelle Kiley - Resident	🗆 Shelly Bisegna – Salem Hospital

ITEM	DESCRIPTION	DATE TO BE COMPLETED	ACTION BY
01	Introductions were made, and then the group took a field trip to Bertram		
	Field. The tour focused on the approach to the field, and the critical		
	locations such as the area behind the grandstands, the press box, the		
	area east of the track, and the pedestrian's plaza immediately in front of		
	the field.		





0.2	The group potencial to the Calling Cafetonia to posicily the various actions	Ī
02	The group returned to the Collins Caleteria, to review the various options	
	presented by the City and BAA and to discuss specific concerns. The specific	
	concerns discussed included;	
	Parking	
	Security	
	Ledge Removal	
	Emergency Access	
	Storage	
03	Parking	 
05	<ul> <li>No not loss of spaces in the Collins Middle School Area. The project</li> </ul>	
	• No flet loss of spaces in the conins indule school Alea. The project	
	will reduce the parking in front of Bertran Field by 10 to 15 spaces.	
	Other spaces will be found to replace and/or to add to the existing	
	spaces.	
	Goal is to separate spectators/users walking to the field from	
	vehicles.	 
04	Sustainability	
	Similar for all buildings	
	Goal is zero net energy and LEED certification	
05	Security	
	Cameras will have proposed at strategic locations	
	• Try to maintain good sight lines from the entry to the field.	
	• The access from Bertuccio Ave will be improved for security and	
	emergency access	
	Access from Bertuccio will be secured during games and only used	
	for emergency and occasional maintenance nurnoses	
06		 
06	Leage Removal	
	• Ledge will be removed to expand access roads, building sites,	
	and/or parking spaces.	 
07	Emergency Access	
	Fire pump trucks will access from the main entry, ambulances will	
	access from both main entry and Bertuccio Ave.	 
08	Storage	
	There are two different storage needs.	
	1. Athletic Field Equipment	
	2. Maintenance Equipment	
	Portions of the area under the grandstands will be designated for	
	equipment that is resistant to weather	
	A storage enclosure will be in the north eastern portion of the site, with the	
	Option 4 athletic changing facility.	
09	The City and BAA presented four options for consideration and looked to	 
	stakeholders for pros/cons and a consensus	
1		1



10	Option 1- Development of the Southern Area		
	Pros:		
	Less congestion in entrance		
	Cons:		
	<ul> <li>Very remote from entry, no visual connection</li> </ul>		
	More expensive		
	Long utility lines		
	Ledge		
	This is the least preferred option.		
11	Option 2- Framing the Entry		
	Pros:		
	Less utility lines		
	Good visibility		
	Confined construction area		
	Maintains grassy area on eastern side		
	Cons:		
	Too congested		
	Requires significant ledge removal		
	Use of space immediately near field		
	<ul> <li>Athletics/spectators circulation intersection</li> </ul>		
	<ul> <li>Construction phasing will be difficult because the facilities are so</li> </ul>		
	close together		
	This option is the third preferred option.		
12	Option 3- New Building in the Grandstand		
	Pros:		
	Separates athletes and spectators		
	Enclosed elevator to press box		
	Landscape development of southern area for marching band		
	Improvement to area under the grandstand		
	Maintains grassy area on eastern side		
	Cons:		
	Poor visibility to entry		
	Highest projected cost		
	Impact of existing grandstand seating		
	This option is the second preferred option		
13	Ontion 4- Develon the Fastern Area		
	Pros:		
	Excellent site lines to entry		
	Separates athletes and spectators	On going	BAA
	Keens the entry plaza open	0.00008	
	<ul> <li>Emergency access to Bertuccio Ave possible</li> </ul>	1	





	<ul> <li>Improvement to area under the grandstand</li> <li>Cons:         <ul> <li>Impact of the javelin throwing area</li> <li>Potential blasting</li> <li>Impact of existing grandstand seating</li> </ul> </li> </ul>
	This option is the preferred option.
14	<ul> <li>Next Steps <ul> <li>This project will be presented to the Park and Recreation</li> <li>Committee Tuesday, May 15<sup>th</sup></li> <li>A variance for relief from Plumbing Fixture requirements will begin.</li> <li>The survey to be completed</li> <li>Design team to develop Option 4</li> <li>Develop Alternative Report – Option 3</li> <li>Funding for next phase of design</li> </ul> </li> </ul>

We believe these minutes accurately reflect the discussion of this meeting. Please notify the author if there are any comments, corrections, or additions within three (3) days of receipt.

Sincerely,

Bullin her

J. Michael Sullivan AIA< LEED AP BD+C

Attached: Options 1,2,3 and 4 site plans











## PROGRAM

### PROGRAM

The program was derived by interviews with the user groups, coaches, and stakeholders to the operations and maintenance of Bertram Field.

### Space Program City of Salem 9/1/2018

### BEACON ARCHITECTURAL ASSOCIATES

		Existi	ng			New Faciliti	es
		Population	Existing S.F.		Population	Proposed S.F.	Notes
	Ticket Sales	2	30	Ticket Booth	2	64	
lmenity Building	Concessions Concessions Storage Official's Room Official's Sanitary ( changing room) Sheltered Area Control Room	n/a n/a 1 n/a n/a	0 0 75 0 0	snoizzezno) Bnibling	6 6 1 1	226 64 83 83 72 38	
A oildu¶	Electrical Janitor Men's Public Toliets Women's Public Toilet Sheltered Area	7 Toilets 5 Toilets n/a	100 225 300 <b>930</b>	Public Amenity	25 Toilets 49 Toilets subtotal	114 167 557 557 1295 534 3765	16 provided, variance required 25 provided, variance required
	Home Team Locker Room	70	800		U2	780	
Bnib	Home Team Sanitary Visiting Team Locker Room	3	120 750		3 70	146 755	one changing room
Athletic Build	Visiting Team Sanitary Home Coaches Room Home Coaches Toilet & Sink Visiting Coaches Room Visiting Coaches Toilet & Sink First Aid	3	120 0 0 0 0 1 <b>790</b>		3 1 1 1 subtotal	146 73 73 73 49 49 262 2333	one changing room
Storage Buibling	Field & Sports Equipment Storage	-	0		0 subtotal	227 227	
Press Box	(2) Camera Platforms Head Coach Visiting Coach Announcers Reporters Entry w/ Limited Access Lift		120 30 30 30 <b>210</b>		1 1 1 subtotal	236 76 43 43 43 375 375	
		Existing Total	2,930	Prop	oosed Total	7,174	







### ATHLETIC CHANGING FACILITY

### **CONCESSIONS STAND**





### PUBLIC AMENITY BUILDING

**PRESS BOX** 

# CAPTAIN JOHN BERTRAM ATHLETIC FIEL

### Powder House Lane Salem, MA

BEACON ARCHITECTURAL ASSOCIATES 145 South Street Boston, Massachusetts 02111-2802

### ARCHITECTURAL DRAWINGS

X-001	TITLE SHEET
X-ØØ2	CODE ANALYSIS & EGRESS PLANS
A-1Ø1	SITE PLAN
A-102	ENLARGED PUBLIC FACILITIES BUILDING
A-1Ø3	ENLARGED ATHLETIC CHANGING FACILITY
A-104	ENLARGED CONCESSIONS BUILDING
A-105	ENLARGED PRESS BOX
A-106	DETAILS SHEET



		BEACON ARCHITECTURAL ASSOCIATES 145 South Street Boston, MA 02111 T 617.357.7171 www.beaconarch.com © 2018
		ISSUE DATES DATE BY DESCRIPTION 07-18-2018 • CMG • SCHEMATIC DESIGN • • • • • • • • • • • • • • • • • • •
use as Sa Jackson St	Pheodo St Phueodo St Phueodo St Phueodo St Pharbor St Harbor St Harbor St Harbor St Harbor St Harbor St	PROJECT
Captain John Bertram Athletic Field	te St Lafayatte St	Powder House Lane Salem, MA 01970
Salem Greens Course	Canal St	JOB NUMBER 18-677 SCALE 1/32" = 1'-0" DRAWING NAME TITLE SHEET DRAWING NO.
CUS PLA	$\neq \mid \searrow$	X-UU`I

### CODE ANALYSIS

APPLICABLE CODES:

180 CMR: MASSACHUSETTS STATE BUILDING CODE, 8TH EDITION (2009 INTERNATIONAL BUILDING CODE) (2009 INTERNATIONAL EXISTING BUILDING CODE)

521 CMR: MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REGULATIONS

RATIO

50 SQ. FT. GROSS

### PUBLIC FACILITIES

BUILDING SQUARE FOOTAGE: 2,133 SF OCCUPANCY: LOCKER ROOMS

SPACE -	IYPE
MEN'S	RESTROOM

WOMEN'S RESTROOM 50 SQ. FT. GROSS

USE GROUP: ASSEMBLY GROUP A-5

### TOILET FIXTURE ANALYSIS:

	REQUIRED			PROVIDED			RATIO		
SPACE	MEN'S TOILETS	WOMEN'S TOILETS	LAV.	MEN'S TOILETS	WOMEN'S TOILETS	LAV.	MEN'S TOILETS	WOMEN'S TOILETS	LAV.
WOMEN'S RESTROOM		49	Г		25	10		1 per 3Ø	1 per 15Ø
MEN'S RESTROOM	13		١٦	12		9	l per 60		

### MEANS OF EGRESS

EGRESS COMPONENT	CLEAR WIDTH	CAPACITY FACTOR	EXIT CAPACITY	OCCUPANCY
MEN'S EXTERIOR EGRESS DOOR	6'-Ø"	Ø.15	480	14
WOMEN'S EXTERIOR EGRESS DOOR	6'-0"	Ø.15	48Ø	25



SQUARE FOOTAGE

557 SQ. FT.

1,295 SQ. FT.

OCCUPANCY

14

25

### GENERAL NOTES

- 1. THE GOVERNING BUILDING CODES ARE LISTED UNDER THE CODE ANALYSIS.
- ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED IN THE FIELD, ANY DISCREPANCIES SHALL 2. BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR CLARIFICATION BEFORE PROCEEDING WITH AFFECTED PART OF THE WORK. SEE NOTE #11.
- 3. UNLESS NOTED OTHERWISE, DETAILS SHOWN ON ANY DRAWING SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.
- 4. ALL WOOD BLOCKING OR PLYWOOD USED IS TO BE FIRE-RETARDANT TREATED WOOD.
- IT IS NOT INTENDED THAT THE THE DRAWINGS SHOW ALL DETAILS OF CONSTRUCTION, BUT THE 5. GENERAL CONTRACTOR SHALL BE REQUIRED TO FURNISH AND INSTALL ALL MATERIALS NECESSARY TO COMPLETE THE SCOPE OF WORK IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, THE GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL PARTS WHICH MAY BE REQUIRED BY THE DRAWINGS AND OMITTED BY THE SPECIFICATIONS OR VICE VERSA, JUST AS THOUGH REQUIRED BY BOTH. SHOULD THERE APPEAR TO BE ANY DISCREPANCIES OR A QUESTION OF INTENT, THE G. C. SHALL REFER TO THE ARCHITECT FOR DECISIONS AND HIS INTERPRETATION SHALL BE FINAL, CONCLUSIVE AND BINDING.
- 6. ALL GWB TO BE HIGH-IMPACT GWB UNLESS NOTED OTHERWISE.
- GC TO PROVIDE BLOCKING IN WALLS WHERE NEW WALL-HUNG EQUIPMENT/FIXTURES ARE ٦. TO BE INSTALLED.
- 8. ALL NEW PARTITIONS SHALL BE BRACED FOR LATERAL FORCES AS REQUIRED BY BUILDING CODE.
- 9. PROTECT AREA OF WORK AND ADJACENT AREAS FROM DAMAGE DURING ALL PHASES OF DEMOLITION & CONSTRUCTION
- 10. PARTITIONS ARE DIMENSIONED FROM CENTER OF STUD UNLESS NOTED OTHERWISE.
- 11. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS GOVERN. IN CASE OF CONFLICT, CONSULT ARCHITECT.
- 12. MAINTAIN EXITS, EXIT LIGHTING, FIRE PROTECTIVE DEVICES, AND ALARMS IN CONFORMANCE WITH CODES AND ORDINANCES.
- 13. GC TO COORDINATE ALL UTILITY SHUTDOWNS WITH THE CITY OF SALEM.
- 14. GC TO VERIFY LEAD TIMES OF ALL FINISHES PRIOR TO SUBMITTING SHOP DRAWINGS. NOTIFY ARCHITECT OF ANY ISSUES THAT MAY AFFECT DELIVERY DATES AS SOON AS POSSIBLE.
- 15. AT ALL GLASS FRAMING, ALL GLAZING LITES AND UNITS SHALL BE TEMPERED IF ONE OF THE FOLLOWING OCCURS IN PART OR IN FULL: 1). GLASS IS WITHIN 18" OF A WALKING SURFACE, OR 2) GLASS IS ADJACENT TO OR WITHIN 12" OF THE PATH OF A SWINGING DOOR OR ITS HINGE.

SPACE TYPE RATIO HOME CHANGING 50 SQ. FT. GROSS VISITOR CHANGING 50 SQ. FT. GROSS TOTAL OCCUPANCY:

USE GROUP: ASSEMBLY GROUP A-5

OCCUPANCY:

MEANS OF EGRESS:

EGRESS COMP

HOME EXTERIO

VISITING EXTER

### ATHLETIC CHANGING

### BUILDING SQUARE FOOTAGE: 2,968 SF OCCUPANCY: LOCKER ROOMS

SQUARE FOOTAGE 78Ø SQ. FT. 755 SQ. FT.



SPACE	FLOOR AREA PER OCCUPANT	FLOOR AREA (SQ. FT.)	OCCUPANCY
HOME CHANGING	50 GR065	780	15
VISITOR CHANGING	50 GROSS	755	15

ONENT	CLEAR WIDTH	CAPACITY FACTOR	EXIT CAPACITY	OCCUPANCY
DR EGRESS DOOR	6'-Ø"	Ø.15	480	15 BY CODE 60-10 BY PROGRAM
RIOR EGRESS DOOR	6'-0"	Ø.15	48Ø	15 BY CODE 60-10 BY PROGRAM



### CONCESSIONS

BUILDING SQUARE FOOTAGE: 515 SF OCCUPANCY: --

SPACE TYPE	
CONCESSIONS	
OFFICIALS	

USE GROUP: ASSEMBLY GROUP A-5

### OCCUPANCY:

SPACE	FLOOR AREA PER OCCUPANT	FL <i>OC</i> (Se
CONCESSIONS	50 GROSS	
OFFICIALS	50 GR065	

### MEANS OF EGRESS:

EGRESS COMPONENT

CONCESSIONS EXTERIOR EGRESS DOOR

OFFICIAL'S EXTERIOR EGRESS DOOR



















### PRESS BOX PLAN





EXISTING PRESS BOX CONDITIONS NO SCALE







5 Alø5









2 Al06

	BEACONARCHITECTURAL ASSOCIATESAfs South Street Boston, MA 02111 T 617.357.7171 www.beaconarch.com © 2018
	ISSUE DATES DATE BY DESCRIPTION 07-18-2018 • CMG • SCHEMATIC DESIGN • • • •
	• •     • •     • •     • •     • •     • •     • •     • •     • •     • •     • •     • •     • •     • •     • •     • •     • •     • •     • •
COUNTER FLASHING WHITE EDFM ROOF INSULATION WOOD JOIST BASEBOARD	Bertram Field Improvements Phase II
MOVEMENT JOINT JOINT JOINT JOINT JOINT JOINT JOINT JOINT JOINT MOISTURE BARRIER	Powder House Lane         Salem, MA 01970         JOB NUMBER       18-677         SCALE       AS NOTED         DRAWING NAME         DETAILS         SHEET
SED PUBLIC FACILITIES EXTERIOR WALL SECTION	drawing no. <b>A-106</b>



# **PARKING ANALYSIS - PHOTOS**



### **POWDER HOUSE LANE PARKING PHOTO 4**





### JACKSON STREET PARKING **PHOTO 2**

# **COLLINS MIDDLE SCHOOL FIRE LANE PHOTO 3**









Schematic Design Estimate

### **BERTRAM FIELD** IMPROVEMENTS PHASE II

Salem, MA

Prepared for:

**Beacon Architectural Associates** 

July 18, 2018

**PM&C LLC** 20 Downer Ave, Suite 1C Hingham, MA 02043 (T) 781-740-8007 (F) 781-740-1012


**BERTRAM FIELD** IMPROVEMENTS PHASE II Salem, MA

#### Schematic Design Estimate

MAIN CONSTRUCTION COST SUMMARY										
	Construction Start	Gross Floor Area	\$/sf	Estimated Construction Cost						
SITE IMPROVEMENTS	Jul-19									
TOILET BUILDING		2,540	\$368.23	\$935,313						
CHANGING FACILITY		2,925	\$323.32	\$945,703						
CONCESSIONS		600	\$519.85	\$311,908						
METAL STORAGE SHED		1,400	\$70.00	\$98,000						
PRESS BOX TO EXISTING GRANDSTAND		1	LS	\$200,000						
SITEWORK				\$853,589						
SUB-TOTAL		7,465	\$448.03	\$3,344,513						
ESCALATION	4.0%			\$133,781						
DESIGN AND PRICING CONTINGENCY	10%			\$334,451						
SUB-TOTAL		7,465	\$510.75	\$3,812,745						
GENERAL CONDITIONS				\$266,892						
GENERAL REQUIREMENTS				Incl						
BONDS	1.00%			\$38,127						
INSURANCE	1.40%			\$53,378 Waived						
				walveu						
OH+ Profit	5%			\$208,557						
TOTAL OF ALL CONSTRUCTION		7,465	\$586.70	\$4,379,699						



BERTRAM FIELD IMPROVEMENTS PHASE II Salem, MA

#### **Schematic Design Estimate**

This Schematic Design cost estimate was produced from drawings and narratives prepared by Beacon Architects Associates and their design team dated June 14, 2018. Design and engineering changes occurring subsequent to the issue of these documents have not been incorporated in this estimate.

This estimate includes all direct construction costs, general contractor's overhead, fee and design contingency. Cost escalation assumes start dates indicated.

Bidding conditions are expected to be public bidding under Chapter 149 of the Massachusetts General Laws to pre-qualified general contractors, and pre-qualified sub-contractors, open specifications for materials and manufacturers.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

#### ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

Land acquisition, feasibility, and financing costs All professional fees and insurance Site or existing conditions surveys investigations costs, including to determine subsoil conditions All Furnishings, Fixtures and Equipment Items identified in the design as Not In Contract (NIC) Items identified in the design as by others Owner supplied and/or installed items as indicated in the estimate Utility company back charges, including work required off-site Work to City streets and sidewalks, (except as noted in this estimate) Construction contingency (GMP Contingency is included) Contaminated soils removal, other than defined



#### BERTRAM FIELD IMPROVEMENTS PHASE II Salem, MA

Schematic Design Estimate

		CONSTRUCTI	ON COST SUMMA	RY		
	BUILDING	G SYSTEM	TOILET	CHANGING	CONCESSIONS	TOTAL
SITE IM	PROVEM	IENTS				
A10	FOUNI	DATIONS				
	A1010	Standard Foundations	\$53,789	\$116,283	\$23,249	\$193,321
	A1020	Special Foundations				
	A1030	Lowest Floor Construction	\$27,240	\$31,494	\$6,480	\$65,214
B10	SUPER	STRUCTURE				
	B1010	Upper Floor Construction				
	B1020	Roof Construction	\$47,250	\$54,060	\$19,605	\$120,915
B20	EXTER	IOR CLOSURE				
	B2010	Exterior Walls	\$131,946	\$154,165	\$85,960	\$372,071
	B2020	Windows	\$6,210	\$31,710	\$630	\$38,550
	B2030	Exterior Doors	\$15,240	\$22,360	\$11,580	\$49,180
B30	ROOFI	NG				
-0-	B3010	Roof Coverings	\$106,744	\$124,940	\$48,494	\$280,178
	B3020	Roof Openings				
C10	INTER	IOR CONSTRUCTION				
	C1010	Partitions	\$61,200	\$63,470	\$14,640	\$139,310
	C1020	Interior Doors		\$12.663	\$4.221	\$16.884
	C1030	Specialties/Millwork	\$71,125	\$39,391	\$33,040	\$143,556
C30	INTER	IOR FINISHES				
-0-	C3010	Wall Finishes	\$9,394	\$12,338	\$4,270	\$26,002
	C3020	Floor Finishes	\$3,201	\$3,201	\$725	\$7,127
	C3030	Ceiling Finishes	\$14,374	\$31,478	\$7,314	\$53,166
D10	CONVE	EYING SYSTEMS				
	D1010	Elevator				
D13	SPECIA	AL CONSTRUCTION				
Ū	D1313	Special Construction				
D20	PLUM	BING				
220	D20	Plumbing	\$209,800	\$43,400	\$21,700	\$274,900
D30	HVAC					
0-	D30	HVAC	\$88,900	\$102,375	\$18,000	\$209,275
D40	FIRE P	ROTECTION				
	D40	Fire Protection	\$o	\$o	\$o	<b>\$0</b>
D50	ELECT	RICAL				
	D5000	Electrical Systems	\$88,900	\$102,375	\$12,000	\$203,275
тот	AL DIRE	CT COST (Trade Costs)	\$9,35.313	\$945,703	\$311,908	\$2,192,924
	_		, , , , , , , , , , , , , , , , , , , ,	1210//-0		

PM&C
BERTRAM FIELD
IMPROVEMENTS PHASE II
Salem, MA

	DESCRIPTION	OTV	INT	UNIT	EST'D	SUB	TO
T BITT D	DESCRIPTION	Q1Y	UNII	cost	0.51	IUIAL	a
		٦					
GRUSS	FLOOK AREA CALCULATION	J					
	Toilet Building			2,540			
	TOTAL GROSS FLOOR AREA (GFA)				2,540	sf	
A10	FOUNDATIONS	]					
A1010	STANDARD FOUNDATIONS						
033000	CONCRETE						
	Strip Footings to retaining wall; 3' wide x 12" deep						
	Formwork	470	sf	12.00	5,640		
	Re-bar	1,450	lbs.	1.32	1,914		
	Concrete material; 3,000 psi	29	cy	132.00	3,828		
	Placing concrete	29	cy	90.00	2,610		
	Foundation wall; 16" thick						
	Formwork	1,410	sf	14.00	19,740		
	Re-bar	2,820	lbs.	1.32	3,722		
	Concrete material; 3,000 psi	36	cy	132.00	4,752		
	Fracting concrete	30	Cy	90.00	3,240		
070001	WATERPROOFING, DAMPPROOFING AND CAULK	ING	c		ND		
	Dampproofing foundation wall and footing	1,410	st	3.00	NK		
072100	THERMAL INSULATION						
	Insulation	1,410	sf	3.00	4,230		
312000	EARTHWORK						
	Continuous footings						
	Excavation	174	cy	10.00	1,740		
	Store on site for reuse	174	cy	8.00	1,392		
	Backfill with existing	109	cy	9.00	981	<b>50 7</b> 90	
	SUBTOTAL					53,709	
A1020	SPECIAL FOUNDATIONS						
	No work in this section						
	SUBTOTAL						
A1030	LOWEST FLOOR CONSTRUCTION						
033000	CONCRETE						
	New Slab on grade, 5" thick						
	Rigid insulation	2,540	sf	2.25	5,715		
	Vapor barrier	2,540	sf	1.00	2.540		
	Mesh reinforcing 15% lap	2.921	sf	1.00	2.921		
	Concrete - 5" thick; 4.000 psi	-,,,=1	cv	125.00	5.125		
	Placing concrete		cv	45.00	1.845		
	Finishing and curing concrete	9 E 40	cy of	45.00	2,810		
	Control joints - saw cut	2,540	sf	0.10	3,810		
	control jointo our cut	-,040		0.10	<u>~</u> 04		
312000	EARTHWORK						
	Slab on grade						
	Compacted gravel, 12"	94	cy	40.00	3,760		
	Compact existing sub-grade	2,540	sf	0.50	1,270		
	SUBTOTAL					27,240	

B10 SUPERSTRUCTURE

CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
TOIL	ET BUILD	ING						
63								
64	B1020	ROOF CONSTRUCTION						
65 66	061000	ROUGH CARPENTRY						
67	001000	Engineered wood beams w/ steel posts	3,150	sf	15.00	47.250		
68		SUBTOTAL	0,-00		-0.00	47,-0*	47,250	
69								<b>*</b>
70		TOTAL - SUPERSTRUCTURE						\$47,250
72								
73 74	B20	EXTERIOR CLOSURE						
75	B2010	EXTERIOR WALLS	2,688	SF		-		
7 <b>6</b> 77	042000	MASONRY						
78	042000	CMU, insulated, smooth face, 12", patterned/banding.	2.210	sf	35.00	77.350		
		reinforced	, -		00	///00-		
79		Premium for Hall of Fame Display	86	sf	20.00	1,720		
80		Premium for signage/graphics	2	loc	1,000.00	2,000		
		reinforced	4/0	81	28.00	13,304		
82 83	052000	MISC METALS						
84	-92	Miscellaneous metals at CMU for lintels etc.	2,688	sf	1.00	2,688		
85 86	0=0001		í I			,		
87	070001	WAIERFROOFING, DAMPPROOFING AND CAULKIN	9.688	ef	5.00	NR		
88		AVB at window openings	2,000	lf	5.00	NR		
89		Miscellaneous sealants	2,688	sf	0.50	1,344		
90 91	074200	WALL PANEL						
92	0,4200	Insulated metal panel, Alucobond	478	sf	70.00	33,460		
93		SUBTOTAL	• /		,	00/1	131,946	
94 95	Banan	WINDOWS		SE				
96	B2020	WINDOWS	55	51				
97	061000	ROUGH CARPENTRY						
98		Wood blocking at openings	63	lf	11.00	693		
99 100	070001	WATERPROOFING, DAMPPROOFING AND CAULKIN	G					
101		Backer rod & double sealant	63	lf	9.00	567		
102 103	080001	METAL WINDOWS	55	sf				
104		Clerestory	55	sf	90.00	4,950		
105		SUBTOTAL	00			1770	6,210	
106								
107	B2030	EXTERIOR DOORS						
109	061000	ROUGH CARPENTRY						
110		Wood blocking at openings	102	lf	11.00	1,122		
111 112	079200	JOINT SEALANTS						
113		Backer rod & double sealant	102	lf	9.00	918		
114								
115	081110	HOLLOW METAL						
110		HM door, frames and hardware - single	6	ea	2,000.00	12,000		
118	090007	PAINTING						
119		Finish doors and frames	6	ea	200.00	1,200		
120		SUBTOTAL					15.240	

2,540

GFA

PM&C BERTRAM FIELD IMPROVEMENTS PHASE II Salem, MA

			Г	UNIT	EST'D	SUB
	DESCRIPTION	QTY	UNIT	COST	COST	TOTAL
	TOTAL - EXTERIOR CLOSURE					
L						
B30	ROOFING					
B3010	ROOF COVERINGS					
070002	ROOFING AND FLASHING					
	Sloped roofing					
	Standing seam metal roof, insulated panel w/ perforated underside	2,340	sf	30.00	70,200	
	Membrane roof	810	sf	18.00	14,580	
	Miscellaneous Roofing					
	Metal fascia	221	lf	40.00	8,840	
	Roof edge	170	lf	22.00	3,740	
	Wood blocking at roof edge	1,564	lf	6.00	9,384	
	SUBTOTAL					106,744
	TOTAL - ROOFING					
Cia	INTEDIOD CONCTRUCTION	_				
C1010	PARTITIONS					
01010						
042000	MASONRY					
	6" CMU	380	sf	23.00	8,740	
	6" CMU, double plumbing chase	960	sf	46.00	44,160	
055000	MISCELLANEOUS METALS					
	Seismic clips	58	ea	120.00	6,960	
	Misc. metals to CMU	1,340	sf	1.00	1,340	
	SUBTOTAL					61,200
C1030	SPECIALTIES / MILLWORK					
070001	WATERPROOFING, DAMPPROOFING AND CAUL	KING				
	Miscellaneous sealants throughout building	2,540	sf	1.25	3,175	
102110	TOILET COMPARTMENTS			3	5, 75	
	ADA	л	еа	1.800.00	7.200	
	 Standard	4 99	ея	1 400 00	/,200	
	Urinal screen	3 <sup>2</sup> 8	ea	650.00	5,200	
102800	TOILET ACCESSORIES					
	Cang bethroom	~		F 000 00	10,000	
	Jang Datili UUII	2	11115	5,000.00	10,000	
		1	rm	750.00	750	71 105
	SUBIOTAL					/1,125
	TOTAL - INTERIOR CONSTRUCTION					
Cao	INTERIOR FINISHES	-				
230						
Cas	WALL FINISHES					
C3010	WALL FINISHES					
<b>C3010</b> 090007	WALL FINISHES PAINTING					

PM&C BERTRAM FIELD

Schemat	tic Design I	Estimate					GFA	2,540
CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
TOILE	T BUILD	ING		1 1			1	
	033000	CONCRETE						
		Sealed concrete	2,134	sf	1.50	3,201		
		SUBTOTAL					3,201	
	C3030	CEILING FINISHES						
	090007	PAINTING						
		Paint to GWB ceilings	839	sf	1.00	839		
		Paint to exposed structure	2,311	sf	1.50	3,467		
	092900	GYPSUM BOARD ASSEMBLIES						
		GWB ceiling	839	sf	12.00	10,068		
		SUBTOTAL					14,374	
		TOTAL - INTERIOR FINISHES						26,969
	D13	SPECIAL CONSTRUCTION						
	D1313	SPECIAL CONSTRUCTION						
		No work in this section						
		SUBTOTAL						
		101AL - SPECIAL CONSTRUCTION						
	Dao	PIIIMRING						
	520							
	D20	PLUMBING, GENERALLY						
	220000	PLUMBING						
		Plumbing Fixtures & Specialties; includes all piping	connections etc	<u>2.</u>				
		Water closet Water closet: handican	32	ea	3,200.00	102,400		
		Urinal	э 9	ea	3,100.00	27,900		
		Lavatory; wall hung	20	ea	3,000.00	60,000		
		Mechanical room sink	1	ea	3,500.00	3,500		
		SUBTOTAL					209,800	
	i	TOTAL - PLUMBING						\$200 800
		TOTAL - TECHIBING						\$209,000
	r							
	D30	HVAC						
	D30	HVAC, GENERALLY						
	0-	HVAC allowance; VRF System	2,540	sf	35.00	88,900		
		SUBTOTAL					88,900	
	[	TOTAL - HVAC						\$88,900
	Dia	FIDE DDOTECTION						
	040	FINE FROIDCHION						
	D40	FIRE PROTECTION, GENERALLY						
		Fire Sprinkler system and misc accessories				N.I.C.		
		SUBIUIAL					-	
		TOTAL - FIRE PROTECTION						
			_					
	D50	ELECTRICAL						
	260000	ELECTRICAL						
		Electrical systems allowance	2,540	sf	35.00	88,900		

	PM	& <b>C</b>						
	BERTRA IMPROVE Salem, MA	A <b>M FIELD</b> EMENTS PHASE II A						18-Jul-18
	Schemat	tic Design Estimate					GFA	2,540
	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	TOILE	T BUILDING	ł			L		
244		SUBTOTAL					88,900	
245								
246		TOTAL - ELECTRICAL						\$88,900
247								

	Estimate					GFA	
	DESCRIPTION	OTY	UNIT	UNIT	EST'D COST	SUB	тс
IGING FA		QII	UNII	031	031	IOTAL	t
GROSS	FLOOR AREA CALCULATION						
	Athletic Changing Facility			2,925			
	TOTAL GROSS FLOOR AREA (GFA)				2,925	sf	
A10	FOUNDATIONS						
A1010	STANDARD FOUNDATIONS						
033000	CONCRETE						
	Strip Footings to retaining wall; 3' wide x 12" deep						
	Formwork	520	sf	12.00	6,240		
	Re-bar	1,600	lbs.	1.32	2,112		
	Concrete material; 3,000 psi	32	cy	132.00	4,224		
	Placing concrete	32	cy	90.00	2,880		
	Foundation wall; 16" thick						
	Formwork	1,260	sf	14.00	17,640		
	Re-bar	2,520	lbs.	1.32	3,326		
	Concrete material; 3,000 psi	33	cy	132.00	4,356		
	Placing concrete	33	cy	90.00	2,970		
	<u>Retaining wall; 16" thick</u>						
	Formwork	1,400	sf	16.00	22,400		
	Re-bar	2,800	lbs.	1.32	3,696		
	Concrete material; 3,000 psi	36	cy	132.00	4,752		
	Placing concrete	36	cy	90.00	3,240		
	Strip Footings to exterior retaining wall; 3 wide x 1	<u>12 deep</u>	of	10.00	600		
	Formwork Be ber	50	SI Iba	12.00	600		
	Concrete material: 2 000 psi	150	IDS.	1.32	198		
	Placing concrete	ა 2	cy	00.00	270		
	Retaining wall: 16" thick	5	cy	90.00	2/0		
	Formwork	600	sf	16.00	9,600		
	Re-bar	1,200	lbs.	1.32	1,584		
	Concrete material; 3,000 psi	16	cy	132.00	2,112		
	Placing concrete	16	cy	90.00	1,440		
	Premium for formwork at exposed face	300	sf	10.00	3,000		
070001	WATERPROOFING, DAMPPROOFING AND CAU	LKING	_				
	Dampproofing foundation wall and footing	2,110	st	3.00	NR		
	waterproofing at retaining wall and footing	800	st	7.00	5,600		
072100	THERMAL INSULATION		- (		(		
		2,110	SI	3.00	6,330		
312000	EARTHWORK						
	Continuous footings						
	Excavation	311	cy	10.00	3,110		
	Store on site for reuse	311	cy	8.00	2,488		
	Backfill with existing SUBTOTAL	191	cy	9.00	1,719	116,283	
A1020	SPECIAL FOUNDATIONS						
	NO WORK IN THIS SECTION SUBTOTAL						
A1030	LOWEST FLOOR CONSTRUCTION						
00000	CONCRETE						
033000	CONCRETE						
	New Slab on grade =" thick						

Vapor barrier

PM&C

2 3

5

7 8

10

2,925

 $\mathbf{sf}$ 

1.00

2,925

BERTRAM I IMPROVEMI Salem, MA Schematic I	FIELD ENTS P	HASE II Estimate
CSI CODE		DESCRIPTION
CHANGIN	NG FA	CILITY
		Mesh reinforcing 15% lap
		Concrete - 5" thick; 4,000 psi
		Placing concrete
		Finishing and curing concrete
		Control joints - saw cut
31	2000	EARTHWORK
		<u>Slab on grade</u>
		Compacted gravel, 12"
		Compact existing sub-grade

18-Jul-18

Schemat	tic Design I	Estimate		GFA	GFA 2,925			
CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
CHANG	GING FA	CILITY			I	I		
		Mesh reinforcing 15% lap	3,364	sf	1.00	3,364		
		Concrete - 5" thick; 4,000 psi	48	cy	125.00	6,000		
		Placing concrete	48	cy	45.00	2,160		
		Finishing and curing concrete	2,925	sf	1.50	4,388		
		Control joints - saw cut	2,925	sf	0.10	293		
	312000	EARTHWORK						
		Slab on grade	_					
		Compacted gravel, 12"	108	cy	40.00	4,320		
		Compact existing sub-grade	2,925	st	0.50	1,463		
		SUBIOTAL					31,494	
		TOTAL - FOUNDATIONS						\$147,777
	B10	SUPERSTRUCTURE						
	510							
	B1020	<b>ROOF CONSTRUCTION</b>						
	061000	ROUGH CARPENTRY						
		Engineered wood beams w/ steel posts	3,604	sf	15.00	54,060		
		SUBTOTAL					54,060	
	r							<b>#=</b> + o( /
		101AL - SUPERSTRUCTURE						\$54,060
	B20	EXTERIOR CLOSURE						
	B2010	EXTERIOR WALLS	2,830	SF		-		
	0.40000	MACONIDY						
	042000	MASONKI		~f				
		cMU, insulated, smooth face, 12, patterned/banding, reinforced	2,050	SI	35.00	71,750		
		CMU back up at metal panel, insulated, 12", reinforced	780	sf	28.00	21,840		
	052000	MISC. METALS						
		Miscellaneous metals at CMU for lintels etc.	2,830	sf	1.50	4,245		
	070001	WATERPROOFING DAMPPROOFING AND CAULKIN	G					
	0/0001	Air and vanor barrier	9 890	ef	5.00	NP		
		AVB at window openings	2,030	31 1f	5.00	215		
		Miscellaneous sealants	2.830	sf	0.50	1.415		
		Miscenaricous scalarios	2,030	51	0.90	1,413		
	074200	WALL PANEL						
		Insulated metal panel, Alucobond	780	sf	70.00	54,600		
		SUBIOTAL					154,165	
	B2020	WINDOWS	180	SF				
	061000	ROUGH CARPENTRY						
		Wood blocking at openings	63	lf	11.00	603		
		rood blocking at openings	•3	п	11.00	093		
	070001	WATERPROOFING, DAMPPROOFING AND CAULKIN	G					
		Backer rod & double sealant	63	lf	9.00	567		
		Bucker fou a double sedant	0					
	080001	METAL WINDOWS	180	sf				
	080001	METAL WINDOWS Windows	180 <b>180</b>	sf sf	90.00	16,200		

 SUBTOTAL

31,710

natic Desi	gn Estimate					GFA	2,925
;	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NGING	FACILITY						
B20	30 EXTERIOR DOORS						
06100	00 ROUGH CARPENTRY						
	Wood blocking at openings	144	lf	11.00	1,584		
07920	00 JOINT SEALANTS						
.,,,	Backer rod & double sealant	144	lf	9.00	1,296		
09111							
08111	HM door frames and bardware - single	7	еа	2,000,00	14,000		
	The door, frances and hardware single	/	cu	2,000.00	14,000		
08330	OO OVERHEAD DOORS				0		
	OH coiling door, 8' x 8'-6"	1	ea	4,080.00	4,080		
09000	07 PAINTING						
	Finish doors and frames	7	ea	200.00	1,400		
	SUBTOTAL					22,360	
	TOTAL - EXTERIOR CLOSURE						\$208,235
B3	o ROOFING						
B30	10 ROOF COVERINGS						
07000	22 ROOFING AND FLASHING						
	Sloped roofing						
	Standing seam metal roof, insulated panel w/ perforated underside	2,829	sf	30.00	84,870		
	Membrane roof	775	sf	18.00	13,950		
	Miscellaneous Roofing		10				
	Metal fascia Roof edge	250	lf 1f	40.00	10,000		
	Wood blocking at roof edge	1.880	lf	6.00	4,840 11.280		
	SUBTOTAL	-,			,	124,940	
	TOTAL - POOFING						\$194.040
	TOTAL - ROOFING						\$124,940
Cı	O INTERIOR CONSTRUCTION						
C10	10 PARTITIONS						
04200	DO MASONRY						
	6" CMU	1,860	sf	23.00	42,780		
	6" CMU, double plumbing chase	250	sf	46.00	11,500		
05500	00 MISCELLANEOUS METALS						
	Seismic clips	59	ea	120.00	7,080		
	Misc. metals to CMU	2,110	sf	1.00	2,110		
	SUBTOTAL					63,470	
C10	20 INTERIOR DOORS						
06100	00 ROUGH CARPENTRY						
	Wood blocking at openings	102	lf	4.00	408		
07000	01 WATERPROOFING, DAMPPROOFING AND CA	ULKING					
	Backer rod & double sealant	102	lf	2.50	255		
08111	DOORS AND FRAMES						
	Door, frame and hardware	6	ea	1,800.00	10,800		

					UNIT	EST'D	SUB	т
3		DESCRIPTION	QTY	UNIT	COST	COST	TOTAL	-
NGIN	IG FAO	CILITY						
000	0007	PAINTING						
0 ye	0007	Finish doors and frames	6	ea	200.00	1 200		
		SUBTOTAL	Ŭ	cu	200100	1,200	12,663	
							, 0	
C	1030	SPECIALTIES / MILLWORK						
064	4020	INTERIOR ARCHITECTURAL WOODWORK						
		Locker room benches	175	lf	90.00	15,750		
		Wood trim w/ coat hooks	175	lf	15.00	2,625		
070	0001	WATERPROOFING, DAMPPROOFING AND CAU	ULKING					
		Miscellaneous sealants throughout building	2,925	sf	1.25	3,656		
101	100	VISUAL DISPLAY SURFACES						
		Marker boards	72	sf	20.00	1,440		
101	100	SIGNAGE						
101	400	Room Signs	6	loc	120.00	720		
			Ū	100	120.00	/20		
102	2110	TOILET COMPARTMENTS						
		ADA	2	ea	1,800.00	3,600		
		Standard Urinel genoep	2	ea	1,400.00	2,800		
		Urmai screen	2	ea	050.00	1,300		
102	2800	TOILET ACCESSORIES						
		Gang bathroom	2	rms	3,000.00	6,000		
		Individual bathroom	2	rm	750.00	1,500	22.221	
		SUBIOTAL					39,391	
		TOTAL - INTERIOR CONSTRUCTION						
(	C <b>30</b>	INTERIOR FINISHES						
C	3010	WALL FINISHES						
090	0007	PAINTING						
		Epoxy paint to CMU	7,050	sf	1.75	12,338		
		SUBTOTAL					12,338	
Ca	3020	FLOOR FINISHES						
033	3000	CONCRETE						
	-	Sealed concrete	2,134	sf	1.50	3,201		
		SUBTOTAL	,				3,201	
Ca	3030	CEILING FINISHES						
090	0007	PAINTING						
		Paint to GWB ceilings	2,351	sf	1.00	2,351		
		Paint to exposed structure - soffit	610	sf	1.50	915		
092	2900	GYPSUM BOARD ASSEMBLIES						
		GWB ceiling	2,351	$\mathbf{sf}$	12.00	28,212		
		SUBTOTAL					31,478	
		TOTAL INTERIOR FINISHES						
		<b>IUIAL - INTERIOR FINISHES</b>						

D20

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**BERTRAM FIELD** IMPROVEMENTS PHASE II Salem, MA

E <b>RTRA</b> I IPROVE lem, MA	<b>M FIELD</b> MENTS PI	HASE II						18-Jul-18
chemati	c Design	Estimate					GFA	2,925
SI DDE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
HANG	ING FA	CILITY			I			
	D20	PLUMBING, GENERALLY						
	220000	PLUMBING						
		Plumbing Fixtures & Specialties; includes all piping co	nnections etc.	<u>.</u>				
		Water closet	2	ea	3,200.00	6,400		
		Water closet; handicap	4	ea	3,200.00	12,800		
		Urinal	2	ea	3,100.00	6,200		
		Lavatory; wall hung	6	ea	3,000.00	18,000		
		SUBTOTAL					43,400	
Г		TOTAL - PLUMBING						\$43,400
L								φ <b>-1</b> 3, <b>-</b> 100
ſ	D30	HVAC	1					
<u> </u>			2					
	D30	HVAC, GENERALLY		c				
		HVAC allowance; VRF System	2,925	st	35.00	102,375	100.055	
		SUBIUIAL					102,375	
[		TOTAL - HVAC						\$102,375
[	D40	FIRE PROTECTION	]					
	D40	FIRE PROTECTION GENERALLY						
	040	Fire Sprinkler system and misc accessories				N.I.C.		
		SUBTOTAL					-	
Γ		TOTAL - FIRE PROTECTION						
-								
[	D50	ELECTRICAL	]					
	260000	ELECTRICAL						
		Electrical systems allowance	2,925	sf	35.00	102,375		
		SUBTOTAL					102,375	
Г		TOTAL - ELECTRICAL						\$102,375
L								

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PMC - Project Management Cost

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BERTRAM FIELD
IMPROVEMENTS PHASE II
Salem, MA

		1		UNIT	EST'D	SUR	тот
	DESCRIPTION	QTY	UNIT	COST	COST	TOTAL	CO
ESSIONS			I		1 1		
GROSS	FLOOR AREA CALCULATION	]					
	Concessions			600			
	TOTAL GROSS FLOOR AREA (GFA)				600	sf	
<b></b>		-					
A10	FOUNDATIONS						
A1010	STANDARD FOUNDATIONS						
033000	CONCRETE						
	Strip Footings to retaining wall; 3' wide x 12" deep						
	Formwork	212	sf	12.00	2,544		
	Re-bar	650	lbs.	1.32	858		
	Concrete material; 3,000 psi	13	cy	132.00	1,716		
	Placing concrete	13	cy	90.00	1,170		
	Foundation wall; 16" thick	(-(	-6		0		
	FOLIMWOLK Re-par	636	SI	14.00	8,904		
	Re-Dar Concrete material: 2 000 psi	1,272	IDS.	1.32	1,0/9		
	Placing concrete	10	cy	90.00	1,440		
070001		INC	<sup>v</sup>	ŗ			
0/0001	WATERFROOFING, DAMFFROOFING AND CAULK	218	sf	2.00	NR		
		310	51	5.00	M		
072100	THERMAL INSULATION	0	-6				
	Insulation	318	SI	3.00	954		
312000	EARTHWORK						
	Continuous footings						
	Excavation	79	cy	10.00	790		
	Store on site for reuse	79	cy	8.00	632		
	Backfill with existing	50	cy	9.00	450	22.240	
	SUBIOTAL					23,249	
A1020	SPECIAL FOUNDATIONS						
	No work in this section						
	SUBTOTAL						
A1030	LOWEST FLOOR CONSTRUCTION						
033000	CONCRETE						
	New Slab on grade, 5" thick						
	Rigid insulation	600	sf	2.25	1,350		
	Vapor barrier	600	sf	1.00	600		
	Mesh reinforcing 15% lap	690	sf	1.00	690		
	Concrete - 5" thick; 4,000 psi	10	cy	125.00	1,250		
	Placing concrete	10	cv	45.00	450		
	Finishing and curing concrete	600	sf	1.50	900		
	Control joints - saw cut	600	sf	0.10	60		
212000	FAPTHWOPK						
312000	Ean III WORK						
	Sian oil grade		037	40.00	000		
	Compacted graves, 12	22	cy	40.00	880		
	Compact existing sub-grade	600	st	0.50	300	6.0	
	SUBIUIAL					6,480	

B10 SUPERSTRUCTURE

emat	ic Design l	Estimate					GFA	600
DE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NCE	SSIONS	1						
	<b>P</b> 1000	POOP CONSTRUCTION						
	B1020	ROOF CONSTRUCTION						
	061000	ROUGH CARPENTRY						
		Engineered wood beams w/ steel posts	1,307	sf	15.00	19,605	10 (07	
		SUBIOTAL					19,005	
		TOTAL - SUPERSTRUCTURE						\$19,605
	B20	EXTERIOR CLOSURE						
	B2010	EXTERIOR WALLS	1,360	SF		-		
	042000	MASONRY						
		CMU, insulated, smooth face, 12", patterned/banding, reinforced	1,060	sf	35.00	37,100		
		CMU back up at metal panel, insulated, 12", reinforced	300	sf	28.00	8,400		
		Brick and backup at columns	360	sf	45.00	16,200		
	052000	MISC. METALS						
		Miscellaneous metals at CMU for lintels etc.	1,720	sf	1.50	2,580		
	070001	WATERPROOFING, DAMPPROOFING AND CAULKIN	IG					
		Air and vapor barrier	1,360	sf	5.00	NR		
		AVB at window openings	9	lf	5.00	NR		
		Miscellaneous sealants	1,360	sf	0.50	680		
	074200	WALL PANEL						
		Insulated metal panel, Alucobond SUBTOTAL	300	sf	70.00	21,000	85,960	
	B2020	WINDOWS	5	SF				
	061000	DOLICH CADDENTEDV						
	001000	Wood blocking at openings	0	lf	11.00	00		
		wood blocking at openings	9	11	11.00	99		
	070001	WATERPROOFING, DAMPPROOFING AND CAULKIN	IG	16				
		Backer rod & double sealant	9	lf	9.00	81		
	080001	METAL WINDOWS	5	sf				
		Windows	5	sf	90.00	450		
		SUBTOTAL					630	
	B2030	EXTERIOR DOORS						
	061000	ROUGH CARPENTRY						
		Wood blocking at openings	51	lf	11.00	561		
	079200	JOINT SEALANTS						
		Backer rod & double sealant	51	lf	9.00	459		
	081110	HOLLOW METAL						
		HM door, frames and hardware - single	3	ea	2,000.00	6,000		
	080000		5		,	,		
	083300	OVERHEAD DOORS		60	1 189 00	1 100		
		OH coiling counter doors, 14' x 3'-4"	1	ea	2,772.00	1,108		
			1		_,,,	_,//_		
	090007	PAINTING	-					
		rinish doors and frames	3	ea	200.00	600		

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**BERTRAM FIELD** IMPROVEMENTS PHASE II Salem, MA

	Listinute					GFA	
)F	DESCRIPTION	OTV	UNIT	UNIT COST	EST'D COST	SUB TOTAI	TOTAL
CESSION	S	ų	ciur	cosi	0001	TOTAL	
	SUBTOTAL					11,580	
	TOTAL - EXTERIOR CLOSURE						\$98,1
B30	ROOFING						
B3010	ROOF COVERINGS						
070002	ROOFING AND FLASHING						
	Sloped roofing						
	Standing seam metal roof, insulated panel w/ perforated underside	855	sf	30.00	25,650		
	Membrane roof	452	sf	18.00	8,136		
	Miscellaneous Roofing						
	Metal fascia	145	lf	40.00	5,800		
	Roof edge	118	lf	22.00	2,596		
	Wood blocking at roof edge	1,052	lf	6.00	6,312		
	SUBIOIAL					48,494	
	TOTAL - ROOFING						\$48,4
C10	INTERIOR CONSTRUCTION						
C1010	PARTITIONS						
042000	MASONRY						
	6" CMU	540	sf	23.00	12,420		
055000	MISCELLANEOUS METALS						
	Seismic clips	14	ea	120.00	1,680		
	Misc. metals to CMU	540	sf	1.00	540		
	SUBTOTAL					14,640	
C1020	INTERIOR DOORS						
061000	ROUGH CARPENTRY						
	Wood blocking at openings	34	lf	4.00	136		
070001	WATED DDOOEINC DAMDDDOOEINC AND CALILVING						
0/0001	WATERFROOFING, DAMFFROOFING AND CAULKING	0.4	1£	0.50	8-		
	backet fou & double seataint	34	11	2.50	05		
081110	DOORS AND FRAMES						
	Door, frame and hardware	2	ea	1,800.00	3,600		
090007	PAINTING						
	Finish doors and frames	2	ea	200.00	400		
	SUBTOTAL					4,221	
C1030	• SPECIALTIES / MILLWORK						
064020	INTERIOR ARCHITECTURAL WOODWORK						
	Base cabinet and countertop in Officials	5	lf	380.00	1,900		
	16" wide stainless steel shelving, assume 5 rows	24	lf	300.00	7,200		
	Stainless steel counter	33	lf	300.00	9,900		
	Stainless steel counter, exterior	33	lf	300.00	9,900		
070001	WATERPROOFING DAMPPROOFING AND CALIFICING						

PM&C

natic Desig	n Estimate					GFA	
	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTA COST
CESSION	IS						
101400	SIGNAGE						
	Room Signs	2	loc	120.00	240		
102800	> TOILET ACCESSORIES						
	Individual bathroom	1	rm	750.00	750		
105000	) LOCKERS						
	Full height lockers at custodian office; single tier - 15"	6	ea	400.00	2,400		
	x 12"						
	SUBTOTAL					33,040	
	TOTAL - INTERIOR CONSTRUCTION						\$5
С30	INTERIOR FINISHES						
C301	0 WALL FINISHES						
090007	7 PAINTING						
	Epoxy paint to CMU	2,440	sf	1.75	4,270		
	SUBTOTAL					4,270	
C302	o FLOOR FINISHES						
033000	> CONCRETE						
	Sealed concrete	483	sf	1.50	725		
	SUBTOTAL					725	
Сзоз	o CEILING FINISHES						
090007	7 PAINTING						
	Paint to GWB ceilings	483	sf	1.00	483		
	Paint to exposed structure - soffit	690	sf	1.50	1,035		
092900	> GYPSUM BOARD ASSEMBLIES						
	GWB ceiling	483	$\mathbf{sf}$	12.00	5,796		
	SUBTOTAL					7,314	
	TOTAL - INTERIOR FINISHES						12
D20	PLUMBING						
Dao	DI HMRING GENERALLY						
520							
220000	> PLUMBING						
	<u>Plumbing Fixtures &amp; Specialties</u> Water closet	1	63	2 200 00	2 200		
	Lavatory: wall hung	1	ea	3,200.00	3,200		
	Shower	1	ea	4,500.00	4,500		
	bilowei		69	3,600.00	10,800		
	Stainless steel sink	3	Ca				
	Stainless steel sink SUBTOTAL	3	ca			21,700	
	Stainless steel sink SUBTOTAL TOTAL - PLUMBING	3	ca			21,700	\$21
	Stainless steel sink SUBTOTAL TOTAL - PLUMBING	3				21,700	\$2
	Stainless steel sink SUBTOTAL TOTAL - PLUMBING HVAC	3				21,700	<b>\$2</b> 1
 D30 D30	Stainless steel sink SUBTOTAL TOTAL - PLUMBING HVAC, GENERALLY	3				21,700	\$21
 D30	Stainless steel sink SUBTOTAL TOTAL - PLUMBING HVAC HVAC, GENERALLY HVAC allowance; VRF System	600	sf	30.00	18,000	21,700	\$21

# PM&C BERTRAM FIELD

BERTRA IMPROVE Salem, MA	M FIELD EMENTS PH	HASE II						18-Jul-18
Schemat	ic Design	Estimate					GFA	600
CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
CONCE	SSIONS			•				
	D40	FIRE PROTECTION						
	D40	FIRE PROTECTION, GENERALLY Fire Sprinkler system and misc accessories SUBTOTAL				N.I.C.	-	
		TOTAL - FIRE PROTECTION						
	D50	ELECTRICAL						
	260000	ELECTRICAL						
		Electrical systems allowance	600	$\mathbf{sf}$	20.00	12,000		
		SUBTOTAL					12,000	
		TOTAL - ELECTRICAL						\$12,000

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Schem	atic Desigr	n Estimate						
CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITE	WORK			1				
	G	SHEWORK						
	G10	SITE PREPARATION & DEMOLITION						
	311000	SITE PREPARATION & DEMOLITION						
		Site construction fence/barricades						
		Construction gates						
		Construction entrance		-f	1.00			
		Saw cut and remove paving	33,300	si	1.00	33,300		
		Demonsti existing Field House	3,345	51	8.00	20,000		
	312000	EARTH MOVING						
		Site Earthwork						
		Cut/Fill, assume balanced Rock removal allowance	1,356	cy ls	12.00	16,272		
		Fine grading	3,744	sy	1.00	3,744		
		Hazardous Waste Remediation						
		Dispose/treat contaminated soils/water				NIC		
		SUBTOTAL					129,916	
	G20	SITE IMPROVEMENTS						
		BITUMINOUS PAVING	44,000	.f				
		Aspnait Paving	14,200	sj	08.80	20,400		
		asphalt: 4 5" thick	1 578	sv	27.00	42 606		
		premium for High Solar Reflective Index	16,424	sf	1.00	16,424		
		Widen existing access road	1,000	sf	10.00	10,000		
		<u>CONCRETE PAVING</u>						
		Concrete Paving			<u></u>	19 <b></b>		
		gravel base; 8 thick	484	cy ef	38.80	18,779		
		concrete, 4 unex	19,500	51	0.50	120,750		
		CURBING						
		Granite curb	700	lf	38.00	26,600		
		HC curb cuts	1	loc	1,500.00	1,500		
		PAVEMENT MARKINGS						
		Road markings	1	ls	2,500.00	2,500		
		Single solid lines, 4" thick	49	space	25.00	1,225		
		Wheelchair Parking	2	space	75.00	150		
		<u>SITE IMPROVEMENTS</u>						
		Ticket booth	1	ea	15,000.00	15,000		
		Field fence - assume existing				ETR		
		Fence at ticket booth	105	lf	60.00	6,300		
		Gate, double	1	pr	1,600.00	1,600		
		New 20' RAA service gate	1	pr	3,500.00	3,500		
		New 20 Billiservice gate	1	pi	3,300.00	3,300		
	329200	TURF AND GRASSES						
		Lawn						
		Topsoil - Import new topsoil; Av 6"	37	cy	90.00	3,330		
		Loam and seed	2,000	sf	0.30	600		
		SUBTOTAL	11	ea	1,200.00	13,200	313.072	
							0/7/0	
	G30	CIVIL MECHANICAL UTILITIES						
		WATER UTILITIES						

PM&C

**BERTRAM FIELD** IMPROVEMENTS PHASE II Salem, MA

#### **PM&C** BERTRAM FIELD IMPROVEMENTS PHASE II Salem, MA

Schematic Design Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORI	K	•					
	Water to Toilet building	200	lf	120.00	24,000		
	Water to Changing building	560	lf	150.00	84,000		
	Water to Concessions building	200	lf	120.00	24,000		
	SANITARY SEWERAGE UTILITIES						
	Sanitary to Toilet building	200	lf	90.00	18,000		
	Sanitary to Changing building	560	lf	120.00	67,200		
	Sanitary to Concessions building	200	lf	90.00	18,000		
	STORM DRAINAGE UTILITIES						
	New storm drainage systems	33,700	sf	3.00	101,100		
	Gas service - excavation and backfill only						
	Gas to Toilet building	200	lf	22.00	4,400		
	Gas to Changing building	560	lf	60.00	33,600		
	Gas to Concessions building	200	lf	22.00	4,400		
	Gas service				by Utility		
	SUBTOTAL					378,700	
G	40 ELECTRICAL UTILITIES						
	Utility company charges (allow)				By Owner		
	Connect to existing riser pole, Toilet building	1	ea	2,000.00	2,000		
	Connect to existing riser pole, Changing	1	ea	10,000.00	10,000		
	Connect to existing riser pole, Concessions	1	ea	2,000.00	2,000		
	Connect to existing riser pole, Pressbox	1	ea	2,000.00	2,000		
	Site lighting allowance	1	ea	15,000.00	15,000		
	SUBTOTAL					31,000	
	TOTAL - SITE DEVELOPMENT						\$853,589



### 64 BERTRAM FIELD PHASE 2 RENOVATION SCHEMATIC DESIGN



Commonwealth of Massachusetts Division of Professional Licensure Board of State Board of Examiners of Plumbers and Gas Fitters 1000 Washington Street • Boston • Massachusetts • 02118-6100

# VARIANCE FROM STATE PLUMBING CODE PRE-INSTALLATION

\$86.00 application fee payable to "Commonwealth of Massachusetts"

# DO NOT USE THIS APPLICATION IF PLUMBING WORK HAS BEEN COMPLETED

# PLEASE PRINT CLEARLY

(Section1) APPLICANT INFORMATION:

Applicant Name:		Firm Name	(if applicable):	Date:			
J. Michael Su	llivan	Be	eacon Architectural Associate	June 1, 2018			
Title or Position with Firm (if appli	cable):		Type of Work:				
Prin	cipal		New Construction: 💽 Renovation: 🔘				
Street Address:			City/Town:	State:	Zip Code:		
145 South Street			Boston	MA	02111		
Cell Phone:	Work Phone:		Email:				
(617) 201-3840	(617) 357-7	7171	jms@beaconarch.com				

### ALL OF THE FOLLOWING ITEMS MUST BE INITIALED. IF LEFT BLANK, THE FORM WILL BE DEEMED INCOMPLETE AND WILL NOT BE ACCEPTED.

 I have included with this application <u>written documentation</u> that the local Board of Health has been petitioned regarding this variance request.\* (Variance requests for City of Boston must include petition to Inspectional Services) Note: No Board of Health petition is required for buildings owned, used or leased by the State of Massachusetts.

2. I have included all necessary supporting documentation regarding this variance request.

3. I have included a non refundable check for \$86.00 payable to the Commonwealth of Massachusetts. Note: No payment is required for buildings owned, used or leased by the State of Massachusetts.

4. The unusual or extraordinary circumstance or established hardship that warrants special terms or conditions is clearly stated in (Section 5) on the second page of this application

5. I understand that this variance request is for one instance at the location information stated in (Section 3) of this application.

6. I certify that the plumbing work relevant to the information stated in (Section 5) has not yet been performed.

\* "Additionally, any response by the Board of Health or Health Department must be provided, however, the Board may waive this requirement so long as the petition was made in a timely manner."

INITIAL BELOW

INITIAL BELOW

INITIAL BELOW

INITIALBELOW

INITIAL BELOW

INITIAL BELOW

(Section 2) OWNER OF THE PROPERTY WHERE THE VARIANCE IS LOCATED: (Please leave blank if information is the same as in Section (1))

Individual Name:		Firm Name (if applicable):					
City of Salen	ו MA						
Street Address:			City/Town:		State:	Zip Code:	
93 Washin		Salem MA 01			01970		
Cell Phone:	Work Phone:		Email:				
	(978) 745-9	9595	jida@Salem.com				

#### (Section 3) LOCATION OF VARIANCE: (Please leave blank if this information is the same as in Section (2))

Name of <u>proposed</u> or <u>current occupier</u> of the building:	Bertram Field - City of Salem	MA.
Street Address:	City/Town:	Zip Code:
Powderhouse Lane	Salem	01970

#### (Section 4) ADDITIONAL INFORMATION:

Plumber's Name (if available):	Plumbing Firm Name (if available):			Work Phone:	
n/a					
Name of Plumbing Inspector:		Date Inspe	ector was in	formed of this Variance Request:	
Michael Guida			May 15, 2018		
Plumbing Code Section(s) Relevant to this Varia	Plumbing Code Section(s) Relevant to this Variance Request:				
10.10(18b) nui					
Has Plumbing Work Begun at the Location of thi	s Variance Request:		-		
			No: 💽	Date Work Began:	

#### (Section 5) VARIANCE INFORMATION: (Please explain in detail the established hardship relative to this variance request)

The City of Salem is planning improvements to the public facilities and the press box at Bertram Field, the municipal field sport athletic facility.

The existing grandstands hold approximately 5,000 spectators. We are requesting a variance to allow for 50% of the required fixtures due to two primary reasons;

1. The site area for new structures is very limited. The site is constrained by the existing grandstands, a hospital, a middle school and geological ledge outcroppings.

2. It is extremely rare that the grandstands are fully occupied.

The table below lists the existing fixtures, the required fixtures and the proposed fixtures with a variance allowing a 50% reduction in the required fixture count.

Toilet Requirements based on 5,000 Spectators; 2,500 men and 2,500 women

Fixture	Existing	Code Ratio	Code Requirement	Proposed
Men's Toilets Men's and Womens	3	1 per 60	13	12 9 men
Lavatories Men's Urinals	6 4	1 per 150 50% of toilets	17 each 13	10 Women 9
Women's Toilets	5	1 per 30	49	24 - 1 in family

By checking this box - I hereby certify under pains and penalties of perjury that the information entered on this application request, including supporting documentation, is true and accurate and is filed in accordance with Chapter 142, section 13 of the General Laws and 248 CMR, the Massachusetts State Plumbing Code. I certify that all work performed prior to this request for a variance meets the requirements of 248 CMR and that I am only seeking a variance for work that has not yet commenced. I also certify that I understand that this is a request for the Board to allow an exception to the requirements of the Massachusetts State Plumbing Code and does not constitute an appeal of an inspector's decision.

Signature of Applicant

,2018 une Date:



# CITY OF SALEM, MASSACHUSETTS

BUILDING DEPARTMENT 120 WASHINGTON STREET, 3<sup>rd</sup> floor Tel: 978-745-9595 Fax: 978-740-9846

KIMBERLEY DRISCOLL MAYOR

### THOMAS ST.PIERRE DIRECTOR OF PUBLIC PROPERTIES/BUILDING COMMISSIONER

May 30,2018

Board of Plumbers and Gas Fitters 1000 Washington Street, Suite 710 Boston, Massachusetts 02116

RE: Bertram Field Project Variance Request

Members of the board,

After reviewing the documentation submitted to my office and additional conversations with the applicant regarding the aforementioned request for variance, I feel that the intent of the code is being met. I do not object to the request.

Respectfully, Juida Se

Michael J Guida Sr. Plumbing Inspector



# MEETING MINUTES

Meeting Minutes No. 1	
Project Name: Bertram Field improvements phase 2	Date: 5-152018
Project No.: 18-877	
Project Location: Salem, Massachusetts	
1	

Attendees:							
🛛 J. Michael Sullivan, Beacon	🛛 Michael Guida – Plumbing Inspector, City of Salem						
🖾 Jenna Ide – City of Salem	🛛 Paul L'Heureux – Salem School Department						
🛛 Michael E. Lutrzykowski – City of Salem Building	🛛 Ryan Monks – Salem School Department						
Inspector							

The purpose of the meeting was to review the plumbing and toilet design proposed for the improvements to Bertram Field, Salem Massachusetts.

Beacon Architectural reviewed the existing, code requirements, and the proposed toilet fixture count. See attached programming information.

All parties agreed that a variance should be applied for.

Michael Guida offered to write a letter supporting the variance.

Beacon will apply for the variance as soon as possible.

We believe these minutes accurately reflect the discussion of this meeting. Please notify the author if there are any comments, corrections, or additions within three (3) days of receipt.

Sincerely,

**BEACON ARCHITECTURAL ASSOCIATES** J. Michael Sullivan

Attached: Space Criteria for Public Toilets



### Space Criteria

# **Public Toilets**

- Baby Changing Station
- Universal Accessibility
- Water efficient fixtures
- Waste Water
- Indoor Air Quality

Toilet Fixture Calculation based on a 5,000-seat grandstand (existing).

Toilet Requirements based on 5,000 Spectators								
	2,500 men and 2,500 women							
Fixture	Existing	Code Ratio	Code Requirement	Recommendations with Variance				
Men's Toilets	3	1 per 60	13	7				
Men's Lavatories	6	1 per 150	17	9				
Men's Urinals	4	50% of toilets	13	7				
Women's Toilets	5	1 per 30	49	25				
Women's Lavatories	6	1 per 150	17	9				

The Commonwealth of Massachusetts Plumbing Code 248 CMR for A-5, Stadium occupancies requires toilets at 1:30 females and 1:60 males for the first 2,000 occupants, above 2,000 the fixture ratios increase to 1:100 women and 1:200 men.

Men's Toilet/urinal Calculation	occupants	Code Ratio	Code Requirement
	1000	60	16.67
	1500	200	7.50
total	2,500		24.17



women Toilet Calculation	occupants	Code Ratio	Code Requirement
	1000	30	33.33
	1500	100	15.00
total	2,500		48.33

Based on a 4,000-seat grand stand :

Toilet Requirements based on 4,000 Spectators						
	2,000 ו	men and 2,000 wo	omen			
Fixture	Existing	Code Ratio	Code	Recommendations		
			Requirement	with Variance (50%)		
Men's Toilets	3	1 per 60	12	6		
Men's Lavatories	6	1 per 150	8	4		
Men's Urinals	4	50% of toilets	10	5		
Women's Toilets	5	1 per 30	44	22		
Women's Lavatories	6	1 per 150	8	8		

Men's Toilet/urinal	occupants	Code Ratio	Code
Calculation			Requirement
	1000	60	16.67
	1000	200	5.00
total	2,000		21.67

women Toilet	occupants	Code Ratio	Code
Calculation			Requirement
	1000	30	33.33
	1000	100	10.00
total	2,000		43.33



CHARLES D. BAKER GOVERNOR

KARYN E. POLITO LIEUTENANT GOVERNOR

JAY ASH SECRETARY OF HOUSING AND ECONOMIC DEVELOPMENT

## Commonwealth of Massachusetts Division of Professional Licensure BOARD OF STATE EXAMINERS OF PLUMBERS AND GAS FITTERS

1000 Washington Street • Boston • Massachusetts • 02118

JOHN C. CHAPMAN UNDERSECRETARY OF CONSUMER AFFAIRS AND BUSINESS REGULATION

CHARLES BORSTEL COMMISSIONER DIVISION OF PROFESSIONAL LICENSURE

September 4<sup>th</sup>, 2018

Beacon Architectural Associates 145 South Street Boston, MA 02111 Attn: J. Michael Sullivan

Re: Variance PV-7-Bertram Field- Powderhouse Lane - Salem

Dear Mr. Sullivan:

Please be advised on July 11<sup>th</sup>, 2018 in the Board Meeting Room, 1000 Washington Street in Boston Massachusetts, the Board of the State Examiners of Plumbers and Gas Fitters deliberated on and voted Unanimous to **grant your variance** from 248 CMR 10.10 (18) (b) 2...

This variance decision is, based on the presentation, information and documentation provided by the applicant and is applicable to this end user and this site only. All other plumbing and gas fitting work if applicable shall comply with the rules and regulations of 248 CMR 3.00 through 10.00 and all other applicable statutes and codes

Sincerely, For the Board. Laurent A. Lemieux

Executive Director Board of State Examiners of Plumbers and Gasfitters

Cc: Michael Guida, Salem Plumbing and Gas Inspector



LEED v4 for BD+C: New Construction and Major Renovation

Bertram Field Salem, MA

RDK Engineers, an NV5 04/18/18 Company Project Goal: Silver Y + ?Y: 66 Project Tracking: Gold

Y	?Y	?N	Ν				
0	1	0	0	1	Integrative Process	Requirements/Eligibility	Notes
	1			1	1 Integrative Process	Identify opportunities to achieve synergies across building systems and disciplines, throughout the design process. Perform simple-box energy modeling and water budget analysis in schematic design.	Perform analysis during SD.

0	8	8	0	16	Location and Transportation	Requirements/Eligibility	Notes
			16	16	c1 LEED for Neighborhood Development Location	Locate project in a LEED ND location.	Site is not in a LEED ND location.
	1			1	c2 Sensitive Land Protection	Locate development footprint on previously developed land. Locate development away from farmland, floodplains, priority habitat, water bodies and wetlands.	Land is previously developed.
		2		2	c3 High Priority Site	Locate development in a historic district or in an area with priority designation (1 pt), or on a brownfield (2 pt).	Site is not in a historic district or on a brownfield.
	2	3		5	c4 Surrounding Density and Diverse Uses	Locate project on a site whose surrounding existing density within a 1/4-mile radius meets requirements. (2-3 pt) Locate project within 1/2-mile of 4-8 diverse uses. (1-2 pt)	
	3	2		5	c5 Access to Quality Transit	Locate project within 1/4-mile of bus network or within 1/2 mile of rapid transit network.	2 bus routes nearby. Need to determine if daily trips are frequent enough.
	1			1	66 Bicycle Facilities	Provide bike storage and shower facilities for users and locate project within 200 yards of a bicycle network.	A bike network is planned near the site.
		1		1	c7 Reduced Parking Footprint	Do not exceed code requirements for parking capacity. Provide a parking capacity reduction 20% below base ratios. Provide preferred parking for carpools for 5% of total spaces.	
	1			1	c8 Green Vehicles	Designate 5% of all parking spaces as preferred for green vehicles. Provide EV charging or alternative fueling in 2% of parking spaces, in addition to preferred parking.	

0	6	4	0	10	Sustainable Sites	Requirements/Eligibility	Notes
Y				Req	P1 Construction Activity Pollution Prevention	Implement erosion & sedimentation control plan that conforms to EPA CGP.	
	1			1	c1 Site Assessment	Complete a site assessment the surveys topography, hydrology, climate, vegetation, soils, human use & health effects.	
		2		2	c2 Site Development - Protect or Restore Habitat	Restore 30% of the previously developed portion of the site. Provide financial support to a land or conservation trust equivalent to at \$0.40/sf site area.	
	1			1	c3 Open Space	30% of site area must be pedestrian- or recreation-focused open space. 25% of open space area must be vegetated (turf grass does not count).	Consider garden of some sort to meet 25% requirement.
	2	1		з	c4 Rainwater Management	Use LID to manage runoff onsite to 95th percentile (2 pt) or 98th percentile (3 pt).	
	1	1		2 c5 Heat Island Reduction		Meet minimum SRI requirements for all hardscape. (2 pt) Place 75% of parking under cover. (1 pt)	
	1			1	c6 Light Pollution Reduction	Select site lighting that meets minimum BUG ratings.	Field lighting is not exempted.

0	5	6	0	11         Water Efficiency         Requirements/Eligibility		Notes
Y	Y			Req p1 Outdoor Water Use Reduction	Do not install permanent irrigation, or reduce the landscape water requirement by 30% from calculated baseline. Must be achieved from plantings alone.	
Y	Y			Req p2 Indoor Water Use Reduction	Reduce aggregate water consumption by 20% from the baseline. Toilets, urinals and showerheads must be WaterSense labeled.	
Y	Y			Req p3 Building-Level Water Metering	Install permanent whole-building & grounds water meter to measure consumption monthly & annually. Share whole-project water usage for 5 years.	
	1	1		2 c1 Outdoor Water Use Reduction	Do not install permanent irrigation, or reduce the landscape water requirement by 50% from calculated baseline.	
	3	3		6 c2 Indoor Water Use Reduction	1 point for every additional 5% reduction above prerequisite.	
		2		2 c3 Cooling Tower Water Use	Conduct one-time potable water analysis to measure 5 identified parameters. Limit cooling tower cycles to avoid exceeding maximum parameter concentrations.	No cooling tower anticipated.
	1			1 c4 Water Metering	Install permanent water meters for two or more subsystems.	

0	22	11	0	33	Energy and Atmosphere	Requirements/Eligibility	Notes
Y				Req	p1 Fundamental Commissioning and Verification	Hire CxA to perform fundamental commisioning activities.	
Y				Req	p2 Minimum Energy Performance	Demonstrate 5% energy cost improvement compared with the 90.1-2010 Appendix G baseline building.	Current building code is IECC 2015
v				Pog	Building Lovel Energy Metering	Install meters (utility meters are acceptable) that track building-level energy consumption.	
1				Neq		Share whole-project energy use with USGBC for 5 years.	
Y			Req p4 Fundamental Refrigerant I		P4 Fundamental Refrigerant Management	Do not use CFCs in HVAC or refrigeration.	
	1 2			6 Cabanaad Commissioning	- Enhanced Commissioning	Hire independent CVA to perform enhanced commissioning activities	Three scopes of work: enhanced,
	7	4 2		0		The independent CAR to perform enhanced commissioning activities.	monitoring-based and envelope.
	12	6		18	c2 Optimize Energy Performance 1 point for 6% energy cost improvement and increased points above that.		Project has NZE goal.
		1		1	Advanced Energy Metering	Install permanent networked meters that track both consumption and demand hourly for all whole-building energy	
		-		-		sources and any end use that represents 10% or more of the total annual consumption of the building.	
		2		2	c4 Demand Response	Participate in qualifying utility DR program, or install equipment for eventual participation for DR program.	
	3			3	5 Renewable Energy Production	Install onsite renewable systems to meet a percentage of annual energy costs.	Project has NZE goal
	3					Community solar is acceptable if a contract is signed for 10 years.	TOJECT NAS NZE goal.
	1			1	66 Enhanced Refrigerant Management	Only use refrigerants that have ODP = 0 and GWP < 50.	
	2			2	c7 Green Power and Carbon Offsets	Purchase carbon offsets or RECs to meet a percentage of annual energy costs.	

0	4	9	0	13 Materials and Resources	Requirements/Eligibility	Notes
-	<u> </u>				······································	
Y				Req p1 Storage and Collection of Recyclables	Provide dedicated areas accessible to occupants and waste haulers for collection and storage of recyclables.	
V				Den en Orestantier and Denselitier Weste Management Dispring	Develop and implement a construction and demolition waste management plan. Establish waste diversion goals for the	
Y				Req p2 Construction and Demolition waste Management Planning	project and describe divesion strategies.	
					Renovate historic building or reuse blighted building. (5 pt)	
		5		5 c1 Building Life-Cycle Impact Reduction	Perform whole-building life cycle assessment and achieve 10% reduction compared to baseline building (3 pt)	
	1	1		2 BPDO - Environmental Product Declarations	Use at least 20 products from 5 manufacturers that meet disclosure criteria. (1 pt)	
	1	1 <sup>±</sup>			Use products that comply with listed criteria for 50% by cost of all products on the project. (1 pt)	
	1	1		2	Use at least 20 products from 5 manufacturers that publicly report raw material suppliers. (1 pt)	
	1	1			Use products that comply with listed criteria for 25% by cost of all products on the project. (1 pt)	
					Use at least 20 products from 5 manufacturers that demonstrate chemical inventory to at least 1000 ppm (1 pt)	
		2 2 c4		2 c4 BPDO - Material Ingredients	Use products that comply with listed criteria for 25% by cost of all products on the project (1 pt)	
	2			2 c5 Construction and Demolition Waste Management	Divert 50% of materials and 3 material streams (1 pt) or divert 75% and four streams (2 pt)	

0	10	6	0	16	Indoor Environmental Quality	Requirements/Eligibility	Notes
v				Pog	Minimum Indoor Air Quality Porformanco	Meet the requirements of ASHRAE Standard 62.1-2010.	
				neq		Provide outdoor air AFMS that alarms when OA varies by 15% or more from the setpoint.	
Y	Y			Req	P2 Environmental Tobacco Smoke Control	Prohibit smoking inside the building and within 25ft of entries, windows and air intakes. Include signage.	
						Install permanent entryway systems >10ft long at all regularly used exterior entrances.	
						Negatively pressurize any spaces that may contain hazardous chemicals or gases, and provide self-closing doors and	
	2			2	c1 Enhanced Indoor Air Quality Strategies	deck-to-deck partitions or a hard-lid ceiling.	
						Provide MERV 13 filters on all ventilation systems.	
						Monitor CO2 concentration in all densely occupied spaces.	
	3			3 c2 Low-Emitting Materials Meet VOC level requirements paints, adhesives/sealants, flooring, ceilings & walls, and furniture.			
	1			1	c₃ Construction Indoor Air Quality Management Plan	Develop an IAQ management plan that addresses material storage, HVAC systems, and tobacco use.	
	2				/ Indeer Air Quality Accessment	Perform flush-out prior to occupancy or during occupancy.	
	2			2	c4 Indoor Air Quality Assessment	Conduct baseline IAQ testing after construction and before occupancy.	
		1		1	-5 Thormal Comfort	Provide personal thermal comfort controls for all building occupants, and design project to meet requirements of	
		1		1		ASHRAE 552010.	
	1	1		2	a Interior Lighting	Provide individual lighting controls for occupants. (1 pt)	
	1	1		2		Meet requirements for lighting quality. (1 pt)	
		3		3	c7 Daylight	Perform simulation to analyse spatial daylight autonomy.	
		1		1	∞8 Quality Views	Achieve a direct line of sight to the outdoors for 75% of regularly occupied building floor area.	
	1			1	- Accustia Performance	Meet requirements, as applicable, for HVAC background noise, sound isolation, reverberation time, and sound	Acoustic engineer required to confirm
	1			1	S Acoustic Performance	reinforcement and masking.	compliance.
0	6	0	0	6	Innovation	Requirements/Eligibility	Notes

0   6	0	0	6	Innovation	Requirements/Eligibility	Notes
1			1	c1 Innovation		
1			1	c2 Innovation		
1			1	c3 Innovation	Can be achieved by pursuing Pilot credits, Innovation credits or by earning Exemplary Performance on project credits.	Determine innovation strategies to pursue.
1			1	c4 Innovation		
1			1	් Innovation		
1			1	c6 LEED Accredited Professional	Have a LEED AP work on the project.	

0	4	2	0	4	Regional Priority		Requirements/Eligibility	Notes
	1			1	c1 Renewable Energy Production	point threshold: 2		
	1			1	c2 Optimize Energy Performance	point threshold: 8		
		1		1	3 Building Life-Cycle Impact Reduction	point threshold: 2		
	1			1	c4 Rainwater Management	point threshold: 2		
		1		1	c5 Cooling Tower Water Use	point threshold: 2		
	1			1	c6 Indoor Water Use Reduction	point threshold: 2		

#### 0 66 46 0 110 TOTALS

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110



#### MEMORANDUM

Date:	June 11, 2018
То:	J. M. Sullivan (BAA)
From:	V. Rybl (RDK/NV5)
Subject:	Captain John Bertram Field – LEED Discovery Phase Summary
Project No.:	20180118.00

The City of Salem (Owner) is interested in pursuing LEED certification for the new athletic facilities at Captain John Bertram Field. RDK Engineers, an NV5 Company (RDK/NV5) has been contracted by the project architect, Beacon Architectural Associates (BAA) to facilitate the LEED "Discovery Phase" of the project. RDK/NV5 has met with BAA and Owner's team to identify sustainability targets for the project, establish LEED certification goals and to create a plan for achieving LEED certification.

RDK/NV5's analysis of a path to LEED certification is based on the architectural schematic design (SD) site plan and enlarged building drawings, dated May 23, 2018. The project consists of a changing facility, concession stand, toilet building and press box totaling approximately 5,300 square feet (sf) of interior floor area. The project has a net-zero annual energy use (NZE) goal. This goal may be achieved through installation of a high-efficiency electric HVAC system to reduce energy demands and a solar PV system to provide onsite generation.

The project has a goal of LEED Gold certification, which requires the project to achieve between 60 and 79 points. It is RDK/NV5's recommendation that the project pursue certification under LEED for Building Design and Construction, version 4 (LEED v4 BD+C). The BD+C rating system is designed for new construction projects and addresses the environmental impact of building design, site design and construction activities. Due to the decentralized nature of the project and multiple buildings onsite, the project should consider pursuing LEED certification through a Campus approach.

The table below summarizes the results of RDK/NV5's analysis with the expected number of points in each LEED credit category that would need to be captured to achieve Gold certification. A detailed LEED scorecard, including specific prerequisite and credit requirements, is provided with this memorandum.

Category	Design Features	Yes	Maybe	No
Integrative Process	Project will perform early-stage energy modeling and water budget analysis to establish goals.	1	0	0
Location and Transportation	Project is located in dense suburban area with some access to nearby services via public transit and bicycle networks.	7	9	0
Sustainable Sites	Project will utilize high-SRI* hardscape and LID** rainwater management strategies.	7	3	0
Water Efficiency	Project will utilize high-efficiency interior fixtures and will plant native species to reduce irrigation water use.	4	5	2
Energy and Atmosphere	Project has NZE goal and will pursue enhanced commissioning tasks.	26	5	1
Materials and Resources	Project will reduce material life-cycle impact and will divert construction waste from landfill.	4	9	0
Indoor Environmental Quality	Project will reduce interior VOC*** content, provide mechanical ventilation and adequate lighting.	9	7	0
Innovation	ation Project will pursue green building innovation strategies.		0	0
Regional Priority	Project will attempt credits that address regional environmental issues.			
	Total	68	39	4

\* Solar Reflectance Index

\*\* Low-Impact Development

\*\*\*Volatile Organic Compound

At this time, Gold certification remains an attainable goal for the Bertram Field project. The majority of points will result from achieving NZE. Further study is required to determine how building material selections and site design will impact the certification. RDK/NV5 recommends pursuing a minimum of 70 points to allow for potential point losses as part of the LEED review process.

RDK/NV5 recommends performing energy modeling to determine the project's annual energy consumption and to further evaluate the feasibility of achieving NZE. As the design progresses it is critical to continue to engage all trades within the design team to ensure that LEED prerequisite and credit requirements are being met.



SCHEMATIC DESIGN MECHANICAL BASIS OF DESIGN

Bertram Field Improvements Phase 2 Salem, Massachusetts

June 1, 2018

# **Table of Contents**

## Section

- 1 Introduction and Project Overview
- 2 Plumbing Systems
- 3 HVAC Systems
# **1** Introduction and Project Overview

### A. Introduction

This document describes the mechanical systems concepts for Bertram Field located in Grafton, Massachusetts. This Schematic Design Narrative is prepared by Weston & Sampson Engineers, Inc. and shall be used in conjunction with the Architectural, Civil, Electrical, and Structural documents.

#### **B.** Narrative Overview

This narrative is a schematic level basis of design for the planning of the improvements for the Bertram Field facility located in Salem, Massachusetts. This document includes existing information and anticipated scope for the project as understood at the Schematic Design level.

This document addresses systems to 10 feet outside the building. It does not address site utilities (civil engineering), surface layout and finishes, grading, planting and irrigation.

### C. General

All systems will be designed in accordance with the Massachusetts State Building Code 9th edition (including the 2015 International Energy Conservation Code mandatory as of January 1, 2018) and any local regulations.

This Basis of Design document is based upon the floor plans developed by Beacon Architects.

# 2 Plumbing Systems

### General

- Provide new domestic water service. Domestic water service shall be extended from the city water main and enter the toilet building. A domestic water booster pump will be required if available water pressure cannot support the demand for the three buildings.
- Provide new backflow preventer, water meter, and remote meter reader. Water meter and remote reader manufacturer and model number to be coordinated with the City Water Department.
- New domestic cold, hot, and hot water return piping system will be provided throughout the buildings. Isolation and drain valves shall be provided at the base of each riser.
- Domestic hot water shall be generated via electric hot water heaters. Each building shall feature its own electric hot water heater and distribution piping.
- Domestic water connections will be provided to all fixtures and equipment as required.
- 120-degree F water shall be delivered throughout each building. Water temperature at lavatories and showers shall be limited to a maximum 110 degrees F.
- Sanitary waste and vent branch connections will be provided for all plumbing fixtures. All toilet room waste/vent stacks must be coordinated to avoid exposed waste piping at the finished ceiling.
- Vent stacks shall start at the lowest level and exit the facility at the highest point of elevation.
- A single sanitary main will collect all sanitary waste stacks, exit the facility at the lowest level and discharge into City sanitary collection system. Any drains that cannot drain by gravity to the City system will be drained to a sewage ejector and pumped to the building sanitary drainage system.
- Floor drains shall be provided with automatic trap priming devices. Drains shall be provided in the following areas: Toilet rooms, Changing rooms.
- Condensate discharge from HVAC equipment will be provided.
- Rain leaders / conductors to be provided as required.

### **Domestic Water Piping**

• Domestic water piping shall be hard copper tube, Type L, ASTM B88 with pressure fittings.

### Sanitary and Vent Piping

• Aboveground, soil and waste piping NPS 4 (DN 100) and smaller shall be hubless cast-iron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.

- Aboveground, soil and waste piping NPS 5 (DN 125) and larger shall be hubless castiron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.
- Underground, soil, waste, and vent piping NPS 4 (DN 100) and smaller shall be service class, cast-iron soil piping; gaskets; and gasketed joints.
- Underground, soil and waste piping NPS 5 (DN 125) and larger shall be service class, cast-iron soil piping; gaskets; and compression joints.
- Aboveground sanitary-sewage force mains NPS 2-1/2 to NPS 6 (DN 65 to DN 150) shall be steel pipe, pressure fittings, and threaded joints.

### **Storm Water Piping**

- Aboveground, storm water piping NPS 4 (DN 100) and smaller shall be hubless castiron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.
- Aboveground, storm water piping NPS 5 (DN 125) and larger shall be hubless castiron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.
- Underground, storm water piping NPS 4 (DN 100) and smaller shall be service class, cast-iron soil piping; gaskets; and gasketed joints.
- Underground, storm water piping NPS 5 (DN 125) and larger shall be service class, cast-iron soil piping; gaskets; and compression joints.
- Aboveground storm water force mains NPS 2-1/2 to NPS 6 (DN 65 to DN 150) shall be steel pipe, pressure fittings, and threaded joints.

### **Domestic Water Heaters**

- Electric hot water heater.
- Acceptable Manufacturers: PVI, EEMAX, Chronomite.
- Piping distribution loop to include circulator, air separator, and expansion tank.

### Valves

- Valves rated for and suitable for system temperature and pressures involved. Domestic water pipes valves shall be:
  - Size 2" and Less Two-Piece, Copper-Alloy Ball Valves: Brass or bronze body with full-port, chrome-plated bronze ball; PTFE or TFE seats; and 600-psig (4140-kPa) minimum CWP rating and blowout-proof stem.
  - Size 2-1/2" and Larger Two Type 2, Class 125, 150, 200, Bronze Gate Valves: Bronze body with rising stem and bronze solid wedge and union-ring bonnet.

System	Service	Valve Type
Domestic Water	Shutoff	Up to 2" Ball
		2½" and Larger Gate
Hot Water Recirculation	Balancing	Calibrated Plug Valve
		(Circuit Setter)
Natural gas NPS 2 and smaller	Shutoff	2 piece full-port bronze ball valve
		with bronze trim
Natural gas larger than NPS 2	Shutoff	Cast iron lubricated plug valve

### 3 HVAC Systems

#### General:

**Ventilation Requirements** will be in accordance with IMC-2015, ASHARE 621. and IECC-2015 as amended by 780 CMR 13. The minimum ventilation requirements are as follows:

Space Classification	OA	OA CFM/SF	Exhaust
	CFM/Person		CFM/SF
Changing Rooms			0.25
Toilet Rooms			50/70 per
			fixture
Press Box	5	0.06	
Training First Aid	5	0.06	

#### High Efficiency Multizone Heat Pump System:

High efficiency multizone heat pumps shall serve each building for both heating and cooling. Each room shall feature its own dedicated indoor unit. A wall mounted, recessed ceiling cassette or floor standing cabinet heater will be provided as required based on room configurations.

The recommended configuration will be to locate the outdoor units on the roof of each building. These units shall be piped to the individual indoor evaporators located in the respective spaces. Low ambient condensers shall not be required as field buildings shall not be operational during winter months, the set point temperature during this period shall be 50°F (condensers shall not provide heat when temperatures are below -4°f, and will supply 65% capacity at 0°F).

#### **Toilet Building:**

The Men's and Women's restrooms will be provided heating and cooling by a high efficiency multizone split system. The restrooms shall be ventilated by an energy recovery ventilator capable of supplying 1,150 cfm to the Women's restroom and 850 cfm to the Men's restroom. The ERV-1 shall be equipped with packaged-dx cooling and electric heating coil to treat the incoming out door air. The restrooms shall also be equipped with wall mount indoor evaporator units and multizone outdoor condensing unit to offset building losses. ERV-1 shall be controlled via occupancy senor.

#### **Changing Facility:**

The changing facility shall be provided space heating and cooling by a high efficiency multizone split system. Each area shall be provided a wall mount indoor evaporator. The changing room building shall be ventilated by an energy recovery ventilator (ERV-2). ERV-2 shall be capable of exhausting 835 cfm. The energy recovery ventilator shall be controlled via occupancy sensor and shall run post occupancy for 120 min (adj.). Storage room shall be ventilated with a small exhaust fan, exhaust fan shall run continuously (50 cfm).

#### **Concessions Building:**

The concessions building shall be heated and cooled by a high efficiency multizone split system. The officials room, storage room 2, concessions, and toilet area shall be ventilated by an ERV-5 capable of providing 200 cfm. ERV-5 shall be controlled via occupancy sensor and shall run for an additional 60 min post occupancy.

#### Press Box:

The press box shall be heated and cooled by a high efficiency split system. The press box shall feature an indoor evaporator. The press box shall be heated to 50°(adj) during unoccupied winter months.



### Project Name: Bertram Field Project Number: 2180180 Comment:





# MITSUBISHI ELECTRIC US, Inc.

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# **Quantities**

Qty	Model	Description	Price
16	stock controller	Wireless remote controller	Included with Indoor Unit
1	PAC-YT53CRAU-J	Simple MA controller	
2	PZ-43SMF-E	Lossnay	
1	MXZ-3C24NA2-U1	R410A MXZ Series Outdoor Unit	
1	MXZ-3C30NA2-U1	R410A MXZ Series Outdoor Unit	
1	MXZ-8C48NA-U1	R410A MXZ Series Outdoor Unit	
2	MXZ-5C42NA2-U1	R410A MXZ Series Outdoor Unit	
1	PUZ-A12NKA7	R410A P Series Outdoor Unit	
1	MSZ-GL09NA-U1	Wall mounted type Indoor Unit	
4	MSZ-GL06NA-U1	Wall mounted type Indoor Unit	
6	MSZ-GL15NA-U1	Wall mounted type Indoor Unit	
3	MSZ-GL18NA-U1	Wall mounted type Indoor Unit	
2	MSZ-GL12NA-U1	Wall mounted type Indoor Unit	
1	PKA-A12HA7	Wall mounted type Indoor Unit	
1	LGH-F1200RX5-E1	Lossnay	
1	LGH-F300RX5-E1	Lossnay	
1	PAC-SC51KUA-J	Power Supply	
6	PAC-SC51KUA-J	Power Supply Unit	
1	ERV-1	PremiSys Unit	
1	PAC-MKA31BC	Branch Box	

# **Refrigerant Piping Materials**

Pipe Size (inch)	Total Length (feet)	Number of Bends
1/4	0	0
3/8	0	0
1/2	0	0
5/8	0	0

# **Centralized System - 1 : Concession**

Piping Diagram Image (Design View)

à à	MXZ-3C24NA2	Pipe D Pipe Li	Pipe Dia. Liquid / Gas Model Number Clg.Total (Sens.) Pipe Length (Elbows) Group / Room / Tag Ref.		
	1/4 / 3/0 0.0ft ( 0 )	MSZ-GL09NA-U1	9,145 BTU/h (8,854 BTU/h) 4,621 BTU/h	Ect. Cooling Discharge Air Temp: 59.4 Est. Heating Discharge Air Temp: 80.6	
	1/4 / 3/8 0.0ft ( 0 )	MSZ-GL06NA-U1 N/A / 2 / Storage / IDU-A2	6.097 BTU/h (6.097 BTU/h) 3.095 BTU/h	Est. Cooling Discharge Air Temp: 65.8 Est. Heating Discharge Air Temp: 77.1	
	1/4 / 3/8 0.0ft ( 0 )	MSZ-GL06NA-U1 — — — — — — — — — — — — — — — — — — —	6,097 BTU/h (6,097 BTU/h) 3,095 BTU/h	Est. Cooling Discharge Air Temp: 65.8 Est. Heating Discharge Air Temp: 77.1	

# **Centralized System - 1 : Concession**

Piping Diagram Image(Piping View)

<b>•</b>	MXZ-3C24NA	2-U1 Pipe Pipe	Pipe Dia. Liquid / Gas Model Number Clg Total (Sens Pipe Length (Elbows) Group / Room / Tag Ref.	
	1/4 / 3/8 0.0ft (0)	MSZ-GL09NA-U1 N/A / 1 / Concession / IDU	9,145 BTU/h (8,854 BTU/h) 4,621 BTU/h -A1	Est. Cooling Discharge Air Temp: 59.4 Est. Heating Discharge Air Temp: 80.6
	<u>1/4 / 3/8</u> 0.0ft ( 0 )	MSZ-GL06NA-U1 N/A / 2 / Storage / :DU-A2	6,097 BT J/h (6,097 BTU/h) 3,095 BT J/h	Est. Cooling Discharge Air Temp: 65.8 Est. Heating Discharge Air Temp: 77.1
	1/4 / 3/8 0.0ft(0)	MSZ-GL06NA-U1	6,097 BTU/n (6,097 BTU/n) 3,095 BTU/n	Est, Gooling Discharge Air Temp: 65.8 Est, Heating Discharge Air Temp: 77.1

# **Centralized System - 1 : Mens Room**

Piping Diagram Image (Design View)



# **Centralized System - 1 : Mens Room**

Piping Diagram Image(Piping View)



# **Centralized System - 1 : Womens Room**

Piping Diagram Image (Design View)

	MXZ-8C48NA-U1		Pipe Dia. Pipe Leng	Liquid / Gas gth (Elbows) Group / Room	Clg.Total (Sens.) Hig.Total / Tag Ref.	
Womens Room	<u>3/8 / 5/8</u> 0.0tt ( 0 )	РАС-МКАЗ1ВС	48 30	3,940 BTU/h (44,211 BTU/h) 0,664 BTU/h		
		<u>1</u>	/4 / 1/2 .0ft(0)	MSZ-GL18NA-U1	16,313 BTU/h (14,737 BTU/h) 10,221 BTU/h	Est. Cooling Discharge Air Temp: 58.5 Est. Heating Discharge Air Temp: 34.7
		1.	14 / 1/2 .0ft ( 0 )	MSZ-GLI8NA-UI N/A/7/IDU-C2	16,313 BTU/h (14,737 BTU/h) 10,221 BTU/h	Est. Cooling Discharge Air Temp: 58.5 Est. Heating Discharge Air Temp: 34.7
		1.0	/4 / 1/2 .0ft (0)	MSZ GL19NA U1	16,313 BTU/h (14,737 BTU/h) 10,221 BTU/h	Est. Cooling Discharge Air Temp: 58.5 Est. Heating Discharge Air Temp: 34.7

# **Centralized System - 1 : Womens Room**

Piping Diagram Image(Piping View)

0 *	MXZ-8C48NA-U1		Pipe Dia. Lie Pipe Length	quid / Gas Model Nun (Elbows) Group / Ro	nber Cig.Total (Sens Htg.Total com / Tag Ref.	)
Womens Room		PAC-MKA31BC	48,940 BTU/ 30,664 BTU/	h (44,211 BTU/h) h		
			1/4 / 1/2 0.0ft ( ) )	MSZ-GL18NA-U1 N/A / 6 / / IDU-C1	16,313 BTU/h (14,737 BTU/h) 10,221 BTU/h	Est Cooling Discharge Air Temp: 58.5 Est Heating Discharge Air Temp: 84.7
			1/4 / 1/2 0.0ft ( ) )	MSZ-GL18NA-U1 N/A / 7 / / IDU-C2	16,313 BTU/h (14,737 BTU/h) 10,221 BTU/h	Est Cooling Discharge Air Temp: 58.5 Est Heating Discharge Air Temp: 84.7
			1/4 / 1/2 0.0ft ( ) )	MSZ-GL18NA-U1 N/A / 8 / / IDU-C3	16,313 BTU/h (14,737 BTU/h) 10,221 BTU/h	Est Cooling Discharge Air Temp: 58.5 Est Heating Discharge Air Temp: 84.7

# **Centralized System - 1 : Changing Facility - Visitor**

Piping Diagram Image (Design View)

1 m #	MXZ-5C42NA2-U1	Pipe Dia. Liquid / Gas Model Number Clg.Total (Sens.) Pipe Length (Elbows) Group / Room / Tag Ref.
	1/4 / 1/2 MSZ-GL15NA-U1 0.0#(0) N/A / 9 / IDU-D1	11.787 BTU/h (11.514 BTU/h)     Eet. Cooling Discharge Air Temp: 59.5       5,144 BTU/h     Est. Heating Discharge Air Temp: 78.9
	1/4 / 1/2 MSZ-GL15NA-U1 0.0ft (0) N/A / 10 / IDU-D2	11.787 BTU/h (11.544 BTU/h) Est. Cooling Discharge Air Temp: 59.5 5,144 BTU/h Est. Heating Discharge Air Temp: 78.9
	1/4 / 3/8 MSZ-GL06NA-U1 0.0ft (0) N/A / 11 / IDU-D3	5.081 BTU/h (5.081 BTU/h) 2.136 BTU/h Est. Cooling Discharge Air Temp: 68.2 Est. Heating Discharge Air Temp: 74.9
	1/4 / 3/8 MSZ-GL12NA-U I 0.0ft ( 0 ) N/A / 12 / IDU-D4	10,059 BTU/h (9,190 ETU/h) 4,141 BTU/h Est. Cooling Discharge Air Temp: 58.6 Est. Heating Discharge Air Temp: 79.5
	0.0ft (0 )	

# **Centralized System - 1 : Changing Facility - Visitor**

Piping Diagram Image(Piping View)

 MXZ-5C42NA	2-V1	Pipe Dia. Liquid / Gas Model 1 Pipe Length (Elbows) Group /	Number Clg.Total (Sens.) Htg.Total Room / Tag Ref.
1/4 / 1/2 0.0ft (0)	MSZ-GL15NA-U1 N/A / 9/ / IDU-D1	11,737 BTU/h (11,544 BTU/h) 5,144 BTU/h	Est. Cooling Discharge Air Temp: 59.5 Est. Heating Discharge Air Temp: 78.9
 <u>1/4 / 1/2</u> 0.0ft ( 0 )	MSZ-GL15NA-U1	11,787 BTU/h (11,544 BTU/h) 5,144 BTU/h	Est. Cooling Discharge Air Temp: 59.5 Est. Heating Discharge Air Temp: 78.9
<u>1/4 / 3/8</u> 0.0ft ( 0 )	MSZ-GL06NA-U1	5,081 &TU/h (5,081 &TU/h) 2,136 &TU/h	Est. Cooling Discharge Air Temp: 68.2 Est. Heating Discharge Air Temp: 74.9
<u>1/4</u> / 3/8 0.0ft ( 0 )	MSZ-GL12NA-U1	10,059 BTU/h (9,190 BTU/h) 4,141 BTU/h	Est. Cooling Discharge Air Temp: 58.6 Est. Heating Discharge Air Temp: 79.5
0.0ft ( 0 )			

# **Centralized System - 1 : Changing Facility - Home**

Piping Diagram Image (Design View)

A.	MXZ-5C42NA	2-U1	Pipe Dia. Liquid / Gas Pipe Length (Elbows)	nber Cig.Total (Sens.) Htg.Total oom / Tag Ref.
	1/4 / 1/2 0.0tt ( 0 )	MSZ-GL15NA-U1	11,787 BTU/h (11,544 BTU/h) 5,144 BTU/h	Eet. Cooling Discharge Air Temp: 59.5 Est. Heating Discharge Air Temp: 78.9
	<u>1/4 / 1/2</u> 0.0ft ( 0 )	MSZ-GL15NA-U1	11.787 BTU/h (11.544 BTU/h) 5,144 BTU/h	Est. Cooling Discharge Air Temp: 58.5 Est. Heating Discharge Air Temp: 78.9
	1/4 / 3/8 0.0ft ( 0 )	MSZ-GL06NA-U1	5.081 BTU/h (5.081 BTU/h) 2.136 BTU/h	Est. Cooling Discharge Air Temp: 68.2 Est. Heating Discharge Air Temp: 74.9
	1/4 / 3/8 0.0tt ( 0 )	MSZ-GL IZNA-U I 	10,059 BTU/h (9,190 BTU/h) 4,141 BTU/h	Est. Cooling Discharge Air Temp: 58.6 Est. Heating Discharge Air Temp. 79.5
	0.0ft ( 0 )	-		

# **Centralized System - 1 : Changing Facility - Home**

Piping Diagram Image(Piping View)

-	MXZ-5042NA	2-U1	Pipe Dia. Liquid / Gas Model N Pipe Length (Elbows) Group /	lumber Clg.Total (Sens.) Htg.Total Room / Tag Ref.
	<u>1/4 / 1/2</u> 0.0ft (0)	MSZ-GL15NA-U1	11,787 BTU/h (11,544 BTU/h) 5,144 BTU/h	Est. Cooling Discharge Air Temp: 59.5 Est. Heating Discharge Air Temp: 78.9
	<u>1/4 / 1/2</u> 0.0ft ( 0 )	MSZ-GL15NA-U1 N/A / 14 / / IDU-E2	11,787 BTU/h (11,544 BTU/h) 5,144 BTU/h	Est. Cooling Discharge Air Temp: 59.5 Est. Heating Discharge Air Temp: 78.9
	<u>1/4 / 3/8</u> 0.0ft ( 0 )	MSZ-GL06NA-U1	5,081 BTU/h (5,081 BTU/h) 2,136 BTU/h	Est. Cooling Discharge Air Temp: 68.2 Est. Heating Discharge Air Temp: 74.9
	1/4 / 3/8 0.0ft ( 0 )	MSZ-GL12NA-U1	10,059 BTU/h (9,190 BTJ/h) 4,141 BTU/h	Est. Cooling Discharge Air Temp: 58.6 Est. Heating Discharge Air Temp: 79.5
	0.0ft ( 0 )			

# **Centralized System - 1 : Press Box**

Piping Diagram Image (Design View)

	PUZ-A12NKAT	,	Pipe Dia. Liquid / Gas Modal Number Cig.Total (Sens.) Pipe Length (Elbows) Group / Rocm / Tag Ref.	
Press Box	1/4 / 1/2 0.0ft ( 0 )	PKA-A12HA7	12,279 BTU/h (10,277 BTU/h) Eet. Cooling Discharge Air Temp 8,727 BTU/h Est. Heating Discharge Air Temp	e <b>57.2</b> o: 89.0

# **Centralized System - 1 : Press Box**

Piping Diagram Image(Piping View)

	PUZ-A12NKA7			Dia. Liquid / Gas Model ength (Elbows) Group	r Clg.Total (Sens.) Hig.Total / Tag Ref.		
Press Box	- 1/4 / 1/2 0.0ft (0)	PKA-A12HA7  N/A / 17 / / IDU-	F1	12,279 BTU/h (10,277 BT 8,727 BTU/h	TU/h)	Est. Cooling Discharge Air Temp: 5 Est. Heating Discharge Air Temp: 8	; <b>7.</b> 2 39.0

#### MITSUBISHI CITY MULTI VRF OUTDOOR UNIT SCHEDULE

	Suctom Tog	Concession	Mons Room	Womans Room	Changing Excility Visitor	Changing Encility Homo	Bross Box
	System rag	Concession	Wells Room	womens Room	Changing Facility - Visitor	Changing Facility - Home	FIESS DOX
	Tag Reference	ODU-A1	ODU-B1	ODU-C1	ODU-D1	ODU-E1	ODU-F1
	M-Net Address	N/A	N/A	N/A	N/A	N/A	N/A
	Model Number	MXZ-3C24NA2-U1	MXZ-3C30NA2-U1	MXZ-8C48NA-U1	MXZ-5C42NA2-U1	MXZ-5C42NA2-U1	PUZ-A12NKA7
5	Modules						
al Da	Nominal Cooling Capacity (BTU/h)	22,000.0	28,400.0	48,000.0	40,500.0	40,500.0	12,000.0
omin	Nominal Heating Capacity (BTU/h)	25,000.0	28,600.0	54,000.0	45,000.0	45,000.0	14,000.0
z	Cooling Efficiency IEER/EER [SEER]	[20(Non-Ducted), 18(Mix), 16(Ducted)]	[19(Non-Ducted), 17.6(Mix), 16.2(Ducted)]	[18.8999996185303]	[19.7(Non-Ducted), 17.5(Mix), 15.2(Ducted)]	[19.7(Non-Ducted), 17.5(Mix), 15.2(Ducted)]	[20.8]
	Heating COP @ 47°F [HSPF]	[9.8(Non-Ducted), 9.5(Mix), 9.2(Ducted)]	[10.6(Non-Ducted), 10.1(Mix), 9.6(Ducted)]	[11.4]	[10.3(Non-Ducted), 9.7(Mix), 9.1(Ducted)]	[10.3(Non-Ducted), 9.7(Mix), 9.1(Ducted)]	[10.2]
	Nom System Connected Capacity (% of NOM)	87.5%	100.0%	112.5%	114.3%	114.3%	100.0%
ions	Design Cooling Outdoor Temp DB (°F)	91.0	91.0	91.0	91.0	91.0	91.0
ondit	Design Heating Outdoor Temp WB (°F)	5.0	5.0	5.0	5.0	5.0	5.0
0 5	Max Pipe Length from BC or 1st Joint (feet)	0.0	0.0	0.0	0.0	0.0	0.0
Desi	Refrig Pipe Dim High/Low Pressure (inch) (See Note 4)	1/4 / 1/2	1/4 / 3/8	3/8 / 5/8	0/0	0/0	1/4 / 1/2
ince	Corrected Cooling Total Capacity (BTU/h)	22,354.4	28,857.6	48,940.2	41,152.5	41,152.5	12,279.0
orme Data	Corrected Heating Capacity (BTU/h)	10,898.6	12,468.0	30,663.9	19,617.5	19,617.5	8,726.7
Pert	Sound Pressure (dBA)	51/55	52/56	51/54	56/58	56/58	44/46
or or Ma	Compressor Type						
Con SS Dz	Compressor Quantity	,					
	Preliminary Added Field Charge (See Note 5)	0.0	0.0	5.5	0.0	0.0	0.0
ta	Voltage / Phase	208/230V / 1-phase	208/230V / 1-phase	208/230V / 1-phase	208/230V / 1-phase	208/230V / 1-phase	208/230V / 1-phase
al Da	MCA 208/230 or [460V]	22.1	22.1	37	32.5	32.5	11
setric	Recommended Fuse Size (RFS)	25	25	40	40	40	15
å	MOCP	25	25	52	40	40	28
Notes / Options	Applicable System Notes - See Notes Below	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5, 6

Notes & Options: 1 Nominal cooling capacities are based on indoor coil EAT of 80/67/F (DBW), outdoor of 95/F (DB) 2 Nominal heating capacities are based on indoor coil EAT of 80/67/F (DB), outdoor of 95/F (DB) 2 Nominal heating capacities are based on indoor coil EAT of 70/F (DB), outdoor of 95/F (VB) 3 Eliciency values for EER, IEER, COP are based on AMH 12/30 test method for induire of ducted & non-ducted indoor units. 4 For systems with multiple includes, infrigerant pipe dimensions indicate built system combined piping domensional module twinning. 6 Corrected capacities shown are based on lowest guaranteed outdoor temporature, temporature blow this are not guaranteed. 7 Include low ambient hood kit with associated wind baffles for 100% low ambient cooling down to minus (-) 10°F.

	MITSUBJEK CITY MULTI VER ROOOR VAIT SCHEDULE																	
	System Tag	Cancession	Cancession	Cancession	Mens Koon	Mens Kaon	Vioners Room	Viumena Room	Viumens Koom	Changing Facility - Visitor	Changing Faulty - Visitor	Changing Pacifity - Visitor	Changing Facility - Uniter	Changing Facility - Hama	Oanging Facility - Hume	Overgrag Facility - Hane	Dunging Facility - Hume	Press Bas
	Tag Reference	IBUA1	EV/43	ID9A3	EV41	EU-82	BUCI	B)CI	EV-CI	EU01	EU-02	EU-03	EVOI	DU41	EU-42	DV-13	DUH	DU-F1
	Room Name	Danamasian	Elonge	Otwas														1
	M-fair Address	N2.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4	Shale	MEZ-OLONNA-UT	MEPOLONN-UT	M320L08NA-U1	M32-GL19NN-G1	M32-OL 19NA-C1	M32-OL 18NA-C1	M32-OL 189A-CT	MS2-GL18VA-G1	MS2 GL 1994-U1	MS2/GL18NA-U1	MS2/GLINEA-U1	MS2-GL12NA-U1	NS2-GL18W-U1	NS2-0L189A-01	ME2-GLORNA-UT	NE2-0L12NA-01	PK8-812HA7
1	7,6+	Wat nowled type	Wal maused type	Wat mausied type	Wal mauried type	Wall mauried type	Wall mauried type	Wat nouried type	Wall mounted type	Wall mounted type	Wall-mausled type	Wall-mounted type	Mall mounted type	Mal maniel type	Wall mausied type	That mounted type	Wall mounted type	That maunted type
*	Newsral Cesting Capacity (87535)	8,000-0	6,022-0	6,000-0	13,400-0	13,600.0	16,000.0	16,005.0	16,033.0	11,632.0	11,633.0	8,082.0	8,802.0	11,600.0	11,600.0	6,000.0	8,802.0	12,000.0
	Namenal Healing Capacity (87535)	10,400.0	7,100-0	7,100.0	13,800-0	13,800.0	18,000.0	18,005.0	18,033.0	11,832.0	11,832.0	4,932.0	8,820.0	11,800.0	11,800.0	4,803.0	8,805.0	14,000.0
	Cooling Design Entering Temp DB/108 (*) / (Mater in Interp)	80.0/67.0	80.047.0	80.047.0	80.067.0	80.3167.0	80.3167.0	80.047.0	80.347.0	80.047.0	80-087.0	80.047.0	BD GHT G	80.947.0	BLOKET O	BLOKET 0	850/87.0	BOOVET 0
÷.	Heating Design Entering Temp DB/IEE (*) / (Mater in Lemp)	70.8	75.0	75.3	76.0	76.0	76.0	76.0	76-0	760	76.0	76.0	76.0	71.0	71.0	72.0	72.0	79.0
8	Casing Diversity Publicated (See Note 8, 6)	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DENKAD	FULL DENKAD	FULL DEMMAD	FULL DEMAND	FULL DEMAND	FULL DEMAND	FUEL DEMAND	FULL CEMAND	FULL DEMAND	FULL CEMAND	FULL CEMAND	PULL DEMAND	PULL DEMAND	FULL DEMAND
ł	Heating Diversity Public Actual (See Note 5, 6)	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DENKAD	FULL DENKAD	FULL DEMMAD	FULL DEMAND	FULL DEMAND	FULL DEMAND	FUEL DEMAND	FULL CEMAND	FULL DEMAND	FULL CEMAND	FULL CEMAND	PULL DEMAND	PULL DEMAND	FULL DEMAND
•	Kelig Ppe Din LiquitZuction (nul)	34/38	51/38	54/38	54/52	54/10	54/52	14/52	94/92	34/10	54/12	547 28	54/38	54/10	54/10	54/38	54738	12/1N
	Cauling Takel Capacity (87535)	8,146.0	6,096.7	6,096.7	13,818-1	13,818.1	16,313.4	16,313.4	16,313.4	11,786.0	11,786.0	8,082.6	12,088.8	11,786.0	11,786.0	6,082.6	10,005.0	12,279.0
ā	Cissing Sensible Capacity (8703)	6,832.9	6,0%.7	6,0%.7	12,293.0	12,281.0	14,737.0	14,737.0	14,727.0	11,643.7	11,643.7	5,081.6	8,193.3	11,443.7	11,843.7	5,081.6	8,192.3	10,276.7
ž	Heating Capacity (87535)	4,421.0	3,0%.2	3,0%.2	6,016.0	6,016.0	16,221.3	16,221.3	16,221.3	8,144.1	8,146.1	2,136.1	4,147.8	8,144.1	8,146.1	2,136.1	4,141.8	8,726.7
÷.	Estimated Casing Cal LAT (*)/ (LAT)	10.4	65.1	65.0	8.2	8.2	8.5	88.5	88.5	55.5	85.5	68.2	58.4	49.5	88.6	68.2	88.4	8.2
	Estimated Healing Call LAT (7)/ [LBT]	80.6	77.1	77.5	80.5	80.5	84.7	84.7	84.7	78.0	75.9	74.9	78.6	75.0	78.0	76.0	79.4	88.0
22	Peak Fan Aidow (din) / [Design gen]	428	63	436	833	833	605	605	645	833	833	438	405	123	833	408	404	63
10	Max Fan 83P Setting 2081/238V (N 100)																	1
24	Sound Pressure Per Pan Speed 208V/230V (IBA)	1922-30-37-63/19-22-30-37-65	1922-30-37-63 19-22-30-37-63	1922-30-37-43 19-22-30-37-43	2012/38-01-0920-30-30-00-08	2012/3841-0020-30-30-40-48	2013/04/05/2013/08-0-48	29 33 38 44 48 29 33 38 43 48	29-33-38-44-49-28-33-38-43-48	2012/30 4149 20 30 31 42 46	29 32 38 44 49 20 30 30 40 40	1922/00/37-43/19/22/00/37-43	1922-00-31-49/1922-00-31-43	2012/30/40 49:20:30:30:40:48	20 32 38 44 49 20 30 30 40 40 46	19-22-30-37-43/19-22-30-37-43	19-22-30-37-49/19-22-30-37-43	36 - 40 - 43
	Vultage / Phase	208/230V/1 phase	208/237/11-phase	208230/11-phase	208/232011-phase	208/2331/1 phase	208/2331/1-phase	208/2301/1-phase	208/2301/1-phase	205/2301/1-phase	208/2301/1-phase	208/2301/1-phase	2052301/1-jihase	208/23011-phase	208/2301/1-phase	208/230V/1-phase	208/23011-phase	208/23011-phase
4	Power Casiling 2081/230V (AB)																	1
1	Paser Healing 2081(230V (AB)																	0.85
6	Ensing MCAMP3	Powered by Dubbox	Passed by Datase	Passend by Outdoor	Parented by Outdoor	Passend by Outdaar	Passend by Dublear	Passend by Dubbar	Parented by Dublins	Pasened by Ouklast	Payment by Cubilear	Powered by Outdater	Powered by Outdate	Powered by Outdate	Powered by Outliner	Powered by Outliner	Powered by Outliner	Powered by Outline
Nom I	Applicable Dystern Notes - Dee Notes Beller	1, 2, 3, 4, 8, 4	1, 2, 3, 4, 6, 4	1, 2, 3, 4, 6, 4	1, 2, 3, 4, 6, 4	1, 2, 3, 4, 6, 4	1, 2, 3, 4, 6, 4	1, 2, 3, 4, 6, 4	1, 2, 3, 4, 6, 6	1, 2, 3, 4, 8, 6	1, 2, 3, 4, 6, 6	1, 2, 3, 4, 6, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 6, 6	1, 2, 3, 4, 6, 6	1, 2, 3, 4, 6, 6	1,2,3,4,8,8	1, 2, 3, 4, 8, 8

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#### LOSSNAY ENERGY RECOVERY VENTILATOR SCHEDULE

	Lossnay Tag	LSN1	LSN2	
I	Model Number	LGH-F1200RX5-E1	LGH-F300RX5-E1	
Interlo	cked or Stand Alone	Stand-Alone	Stand-Alone	
I	/I-Net Address	1	2	
	Core Type	Fixed Permeable Cross Plate	Fixed Permeable Cross Plate	
	Airflow (cfm)	1200	300	
м	ax ESP (INWG)	0.75	0.78	
Recovery	Temperature Recovery	67.0%	65.5%	
Effectiven ess (Extra	Enthalpy Cooling	50.0%	50.0%	
High Fan Speed)	Enthalpy Heating	64.0%	63.0%	
v	oltage / Phase	208-230V/1-phase	208-230V/1-phase	
	MCA/MOCP	7.1/15	1.7/15	
N	lotes / Options	1, 2, 3	1, 2, 3	

Notes & Options: 1 Max external static pressure is at airflow listed with fan set on extra high speed.

2 See schematic piping/control diagram for indication of required lossnay local remote controller (stand alone operation) and M-Net connection points of associated systems. 3 Washable factory standard pre-filter on return and O/A intake side of cross plate core.

# **VENTILATION UNITS**

Ve	ntilation Unit Tag	LSN1	LSN2	ERV-1
	M-Net Address	1	2	
	Serving IUs	No	No	No
	Zone Supply	Yes	Yes	Yes
Suj	oply Airflow (CFM)	835	200	2000
Zc	one Airflow (CFM)	835	200	2000
Indoc	or Unit Airflow (CFM)	0	0	0
Leaving	Dry Bulb Cooling (FDB)	79.5	79.6	80.0
Air	Wet Bulb Cooling (FWB)	68.8	69.0	67.0
Conditions	Dry Bulb Heating (FDB)	51.9	51.5	70.0
Se	erved By Unit Tag			
	M-Net Address			
	Model			
	Туре			
	Airflow (CFM)			
	Dry Bulb Cooling (FDB)			
Mixed Air	Wet Bulb Cooling (FWB)			
Conditions	Dry Bulb Heating (FDB)			

#### **VRF HEAT RECOVERY BRANCH CIRCUIT** CONTROLLER

System Tag			
	Tag Reference		
	M-Net Address		
Data	Model Number		
inal [	Type (double / Main / Sub)		
Nom	Number of Ports		
	Connected Capacity to BC		
ta	Voltage / Phase		
al Da	Power Cooling 208V/230V (kW)		
ectric	Power Heating 208V/230V (kW)		
Ě	MCA 208/230		
Notes / Options	Applicable System Notes - See Notes Below		

Notes & Options: 1 Include Diamondback Ball Valves BV-Series, 700PSIG working pressure, full port, 410A rated.

2 For sub BC controller CMB-P-NU-GB1 or -GB, the total connectable indoor unit capacity can be 126,000 BTUs or less. If two sub BC controllers are used, the total indoor unit capacity connected to BOTH sub BC controllers also cannot exceed 126,000 BTUs. For sub BC controller CMB-P1016NU-HB1 the total connectable indoor unit capacity can be 126,000 BTUs or less. However, if two sub controllers are used, and one of them is CMB-1016NU-HB1, the total indoor unit capacity

#### **MXZ Branch Box**

	System Tag	Womens Room		
I	Model Number	PAC-MKA31BC		
Connectab	le number of Indoor unit (Maximum)	3		
v	/oltage / Phase	208/230 / 1-phase		
F	Frequency - Hz	60		
P	ower Input - kW	0.003		
Ru	nning Current - A	0.05		
E	External Finish	Galvanized Sheets		
on	Width - in(mm)	17-23/32 (450)		
Unit	Depth - in(mm)	11-1/32 (280)		
Din	Height - in(mm)	6-11/16 (170)		
١	Weight - Ib(kg)	15 (6.7)		
tion	to ODU Liquid - in(mm)	3/8 (9.52)		
nnec	to ODU Gas- in(mm)	5/8 (15.88)		
ng Co	to IDU Liquid - in(mm)	1/4 (6.35) x 3 {A, B, C}		
Pipii	to IDU Gas- in(mm)	3/8 (9.52) x 3 {A, B, C}		
N	lotes / Options	1		

Notes & Options: 1 The piping connection size differs according to the type and capacity of indoor units. Match the piping connection size for indoor and branch box. If the piping connection size of branch box does not match the piping connection size of indoor units, use optional different-diameter (deformed) joints to the branch box side. (Connected deformed joint directly to the branch box side.)

<b>INPUT/OUTPUT DEVICE</b>
SCHEDULE

Device Type			
M-Net Address			
Мос	del Number		
	Al Channel 1		
	Al Channel 2		
	AI Channel 3		
criptions	Al Channel 4		
	PI Channel 1		
t Des	PI Channel 2		
Poin	DIDO Channel 1		
	DIDO Channel 2		
	DIDO Channel 3		
	DIDO Channel 4		
Power Supply			
Notes / Options			

Notes & Options: 1 See schematic piping/control diagram for indication of connection points and associated M-Net bus.

SCHEMATIC DESIGN STRUCTURAL BASIS OF DESIGN

Bertram Field Improvements Phase 2 Salem, Massachusetts

June 21, 2018

# **Table of Contents**

### Section

- 1 Project Overview and Code Requirements
- 2 Building Structures
- **3** Existing Grandstand and New Press Box

# **1 Project Overview and Code Requirements**

### A. Schematic Design Narrative Overview

The structural schematic design narrative has been developed for the Phase II improvements to Bertram Field in Salem, Massachusetts. The narrative is based on plans developed by Beacon Architectural Associates dated June 14, 2018.

The structural scope includes:

- New Toilet Building
- New Changing Facility
- New Concessions Building
- New Press Box, with ADA Ramp and Lift Access
- New Canopy Roof over Existing Grandstand (Project Alternate)

The narrative was developed for schematic level planning and cost estimating. Geotechnical information was not considered and will be necessary to advance the design to bid or construction level documents.

#### **B.** Structural Code Requirements

 New structures will be designed in accordance with the Massachusetts State Building Code 9th edition (i.e. the 2015 International Building Code (IBC) with MA amendments). Work at the existing grandstand will be designed per the 2015 International Existing Building Code (IEBC) with MA amendments and ICC 300-2007 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands. Structures at Bertram Field will be considered Building Category III. All exposed steel (both interior and exterior) will be hot-dipped galvanized.

The following load criteria will be used:

Dead Load:

Actual weight of framing and attached components.

Live Load:

Slabs-on-grade	100 psf
Grandstand	100 psf*
Press Box	50 psf*
*Other loading requirements per	r ICC 300 Table 303.2 to be included

Snow Load:	
Ground Snow Load, Pg	50 psf
Min. Flat Roof Snow Load, Pf	30 psf
Exposure Factor, Ce	1.0
Thermal Factor, Ct	1.2
Importance Factor, Is	1.1
Wind Load:	
Basic Wind Speed, Vult	127 mph
Exposure Category	В
Seismic Load:	
Ss	0.240
S1	0.073
Importance Factor, le	1.25
Site Class	D (assumed)*
*Pending geotechnical investigation.	

### 2 Building Structures

#### General

- Buildings are seasonal (i.e. will be closed in winter after football season and reopened in early spring).
- Buildings are assumed to have shallow foundations: reinforced concrete foundations, piers, and footings. Concrete will have a minimum compressive strength, f'c, of 4,000 psi. Vertical perimeter rigid insulation is recommended due to seasonal use to reduce potential frost damage.
- Slabs-on-grade will be 5-inches thick and reinforced with welded wire reinforcing. Concrete will have a minimum compressive strength, f'c, of 3,000 psi. Under-slab rigid insulation for the entire area is recommended due to seasonal use to reduce potential frost damage.
- Building bearing wall systems, except for the press box, will be a pre-insulated concrete masonry product such as Korfil Hi-R and Hi-R H. Reinforcing is similar to conventional concrete masonry construction. The minimum load-bearing masonry wall width is 10 inches.
- Wood exposed to weather will be preservative treated. Connection materials, both interior and exterior, will be hot-dipped galvanized, zinc-coated galvanized Type G185, or stainless steel.

• Structural steel, both interior and exterior, will be hot-dipped galvanized.

### **Toilet Building**

• The Toilet Building is a one-story structure. The roof framing will consist of sawn and engineered lumber with plywood sheathing. The roof framing will bear on pre-insulated reinforced concrete masonry wall. Interior bearing lines will be engineered wood beams and steel posts (HSS4x4). Interior non-loadbearing concrete masonry partition will be reinforced and have a 6-inch minimum width and be anchored to the roof diaphragm.

### **Changing Facility**

The Concessions Building is a one-story structure. The roof framing will consist
of sawn and engineered lumber with plywood sheathing. The roof framing will
bear on pre-insulated reinforced concrete masonry wall. Interior bearing lines
will be engineered wood beams and steel posts (HSS4x4). Interior nonloadbearing concrete masonry partition will be reinforced and have a 6-inch
minimum width and be anchored to the roof diaphragm.

### **Concessions Building**

The Concessions Building is a one-story structure. The roof framing will consist
of sawn and engineered lumber with plywood sheathing. Alternatively, the
sloped roof sheathing can be pre-fabricated wood trusses. The roof framing will
bear on pre-insulated reinforced concrete masonry wall. Interior bearing lines
will be engineered wood beams and steel posts (HSS4x4). Interior nonloadbearing concrete masonry partition will be reinforced and have a 6-inch
minimum width and be anchored to the roof diaphragm.

## 3 Existing Grandstand and New Press Box

A new press box is proposed at the existing grandstand. Note that modifying the existing grandstand to accommodate the new press box will require analyzing the existing structure and providing upgrades to meet the current code requirements. At a minimum modification and/or reinforcing will be required adjacent to the new press box structure.

The new press box will be a conventional wood-framed or cold-formed steel structure supported on a hot-dipped galvanized structural steel lattice frame. Access to the ramp will be provided by stairs from the top of the existing grandstand or by an ADA

compliant ramp and lift. The ramp will be steel-framed. Steel will be hot-dipped galvanized. The lift will be a pre-fabricated assembly including the shaft walls. Steel exposed to weather will be hot-dipped galvanized. New grandstand structures will bear on reinforced concrete shallow foundations (pending the geotechnical evaluation).

The canopy alternate will shelter the grandstand in front of the new press box. The canopy will be constructed in hot-dipped galvanized structural steel. Columns will be 8-inch diameter steel pipes founded on reinforced concrete piers and footings. Wind uplift forces will be a significant factor in the canopy design. Note that portions of the existing grandstand will need to be removed and reassembled to construct the canopy framing and foundations.





# **Operations and Maintenance Recommendations**

This report recommends the following strategy for the Operations and Maintancence of Bertram Field.

In summary; Heating and Air conditioning will be provided by electricity to the Public Amenities, Concession and Changing Facility. It is anticipated the facilities will shut down for period from December to March. A small family changing area will be heated during those times to provide facilities to the limited public year round. The electrical cost is estimated to be between \$1,500 and\$2,000 dollars yearly for all the buildings. Water will also be shut down during the winter months except to the family room.

# Goal 1. Provide coordinated management and supervision with the City through regular meetings with users and selected departments within city government.

The management of Bertram Field is currently the responsibility of the Salem School Facility Department. The scheduling, determination of fees and the concession stands are duties shared between the Department of Public Works, Department of Public Safety, and the School Department.

The operational responsibilities of Bertram Field need to be clearly defined by the City of Salem. The maintenance of the facility, scheduling of events, administering revenue, and monitoring the use of the concession's facilities are specific base line responsibilities which need to be discussed and assigned as soon as possible.

It is important one entity be responsible for supervising the operations and scheduling of Bertram Field. Other towns we have visited assign this responsibility to either the Parks and Recreation Department or the Community Development office. An individual will be designated to monitor the operations of the field on a daily basis. This is not a full-time responsibility, rather 10 to 15 percent of this person's time should be allocated to Bertram Field.

#### Goal 2. Determine the scheduling of events and the hours of operations.

The Department of Parks and Recreation should schedule all events at the field. It is recommended that a web-based calendar be available to confirm the event time is known to all users.

The park should not be open 24 hours, 7 days a week. Typically, facilities in neighboring communities are open from 6:00 a.m. till dusk, unless there are scheduled evening events.
## Goal 3. Establish a capital improvement fund and seek resources through user's fees, grants, and other.

The City of Salem budget for the DPR should establish a dollar amount for the DPR to manage with. This will define the financing of maintenance and upkeep. To supplement the budget, the DPR should see alternative resources for capital improvements and major equipment replacement such as grants and private corporate donations.

Setting fees for the use of the field should be considered. The concessions and ticket sales should be managed by the DPR and the revenues from each can be shared with the respective users.

## Goal 4. Coordinate necessary improvements, repairs and upkeep.

The Department of Public Works or the parks department should be in charge with the maintenance of the field, the buildings and the capital improvements associated with the overall facility.



A committee of users and representatives of city departments will be assembled to assist and monitor specific areas of operations. Suggested participants (not to exceed 8 members) of this committee are:

- Salem High School Athletic Director
- Salem High School Field Coaches
- Representatives from the Department of Public Works
- Representatives from the Parks and

**Recreation Department** 

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Representative from the Youth Sports programs

## Goal 5. Measure success by surveying visitors and users. Modify the operations as needed to always be sensitive to the community's expectations.

Monitoring the opinions of users and visitors establishes a good metric with which to decide how to improve the care of Bertram Field. The survey should be done at the end of the fall season.



## Municipal and State Agencies to be included in the design review of the Bertram Field Renovations

The following agencies and/or departments have reviewed the schematic design for Phase 2 of the Bertram Field Renovations.

- City of Salem School Department
- City of Salem Plumbing Department
- City of Salem Fire Department
- City of Salem Police Department
- City of Salem School Committee Sub Committee on Parking
- City of Salem Parks and Recreation Department
- City of Salem Conservation and Preservation Authority
- City of Salem Public Health Department
- Commonwealth of Massachusetts Board of Gas Fitters and Plumbers

The following agencies will be involved in the Design Development for Phase 2 of the Bertram Field Renovations.

- City of Salem School Department
- City of Salem Public Works Department
- City of Salem Engineering department
- City of Salem Parking Department

The City of Salem Conservation Commission has been notified about the project, and have indicated they do not have to review the design.