

**TOWN OF CROMWELL, CONNECTICUT
CROMWELL HIGH SCHOOL FIELD RENOVATIONS
PHASE 1 SUMMARY REPORT
JUNE 2023**



PHASE 1 SUMMARY

The Town of Cromwell previously determined the town's need for new and renovated athletic facilities at Cromwell High School. Presently, the Cromwell High School Football team plays home games at an off-campus football facility located within Pierson Park, located at 20 James Martin Drive (adjacent to the Police Department). It is the intent of this project to move the football facility amenities from Pierson Park to the new multi-purpose turf field at the High School. Cromwell High School will become the location of Cromwell High School Football home games.

The existing tennis courts at Cromwell High School have deteriorated to the point of being unplayable. It would appear that the tennis court location may be feasible for parking expansion. CHA investigated relocating the tennis courts as a part of this project.

The Town of Cromwell selected the CHA sports group for a facility renovation design to function as the Town's consultant for the conceptual planning, design, permitting, and future construction administration of the proposed new tennis, track and field facility at Cromwell High School. Cromwell High School Field is located behind Cromwell High School at 1 Donald Harris Drive in Cromwell, CT. There is currently a natural grass field within the track that is used year-round for youth sports, high school sports, as well as other activities such as gym classes.



Cromwell High School Athletic Complex Improvements
Existing Conditions

Cromwell, Connecticut
April, 2023



EXISTING SITE AERIAL PHOTO

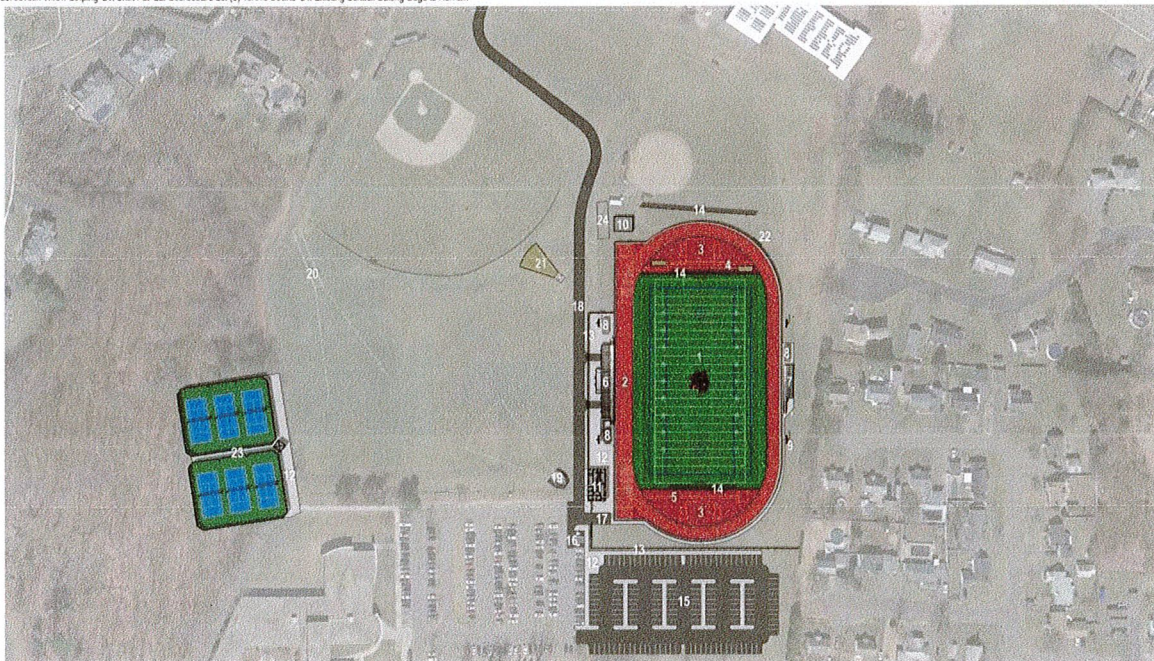


The consultant services include the development of conceptual planning studies and schematics, design documents, architectural building plans, permitting approvals, and possibly construction administration services for the proposed site improvements as required.

In the first phase of our effort, we consulted with the Cromwell Field Committee members as well as Town and Board of Education staff, we worked from available plans and mapping, and performed surveying services and wetland delineation in order to conceptualize a new tennis court facility and multi-purpose field facility in the area of the existing track and grass turf field and a proposed parking lot in the location of the existing tennis courts. We analyzed the ability to move the existing score board, field lights and bleachers from Pierson Park to the High School. A new press box, concession stand and public restrooms would be constructed at the high school location (able to operate in extended cold season). These items will be further developed as indicated by feedback from the stakeholders. CHA also conducted a project programming questionnaire/outline for track and field and tennis courts. These were distributed to key stakeholders and users which help the team develop a more detailed program.

During the first phase, CHA developed three concepts for the proposed improvements. After review with the committee, these three options were narrowed down to two concepts. After discussion and a meeting with the committee we developed a preferred concept and prepared a site rendering for presentation.

- Legend:**
 1. Synthetic Turf Field 2. 6 Lane Oval and 8 Sprint Lanes 3. High Jump Areas 4. Long/Triple Jump Runways 5. Pole Vault Runway 6. Elevated Home Bleachers (~500 Seats) with Press Box 7. Elevated Visitor's Bleachers (~200 Seats) 8. Portable Bleachers 9. Sports Lighting (4 Poles)
 10. Track Storage Building 11. Restroom/Concession Building 12. Concrete Sidewalks 13. Perimeter Fencing 14. Safety Netting 15. Parking Lot with ~150 Spaces 16. Relocated Handicap Parking Spaces 17. Emergency Vehicle Parking 18. Internal Access Drive 19. Discus Cage
 20. Javelin Throw Striping 21. Shot Pit 22. Scoreboard 23. (6) Tennis Courts 24. Existing Softball Bating Cage to Remain



Cromwell High School Athletic Complex Improvements
 Site Concept Plan- Preferred Concept

Cromwell, Connecticut
 June, 2023



SITE PLAN



The following summarizes our findings, recommendations, conceptual plans and anticipated costs.

Recommended Track & Synthetic Turf Field Facility Components:

1. Track Oval:

- a. The new competition track will be located in the same approximate location as the existing running track. It will be an (6) lane oval with (8) sprint lanes, 110' radius oval with 42" wide lanes. There will be sprint chutes in the northwest and southwest corners along the home stretch to allow for sprint events in both directions. At the north end of the track, two long/triple jump runways with sand pits at opposite ends to accommodate two simultaneous jump events. In the south d-zone, one pole vault runway will be placed with a vault box. The high jump area will also be located within the south d-zone. The common finish line will be located at the southwest corner of the oval allowing good visibility from the entry.
- b. The track will be designed and constructed to meet both NFHS and ASBA requirements. The cross slope from outside to inside the oval and across all runways shall not exceed 2% and the longitudinal slope in the direction of running for all events shall not exceed 0.1% downhill. The track measure line must be at least 400m and not exceed 400.08m to meet the Class 4 ASBA certification.
- c. A precast channel drain will be installed around the entire inside perimeter to collect surface runoff from the track and the infield. A new 42" high perimeter chain link fence will be located at least 1 meter off the outside lane. The new track cross section will consist of compacted subgrade, geotextile separation fabric, 8" of stone base, 2" of asphalt binder course, 1 ½" of asphalt top course and ½" of rubberized track surfacing.

2. Shot Put

- a. The shotput pad and landing area will be located at the northeast corner of the natural grass playing fields behind the existing baseball field fence. The landing sector will have a specialized stone dust landing sector with concrete barriers. The landing sector shall not slope greater than 0.1% downhill and will accommodate conference record distances.

3. Discus

- a. The discus cage and landing sector will be located at the southeast corner of the natural grass playing fields. A tall throwing cage with netting will surround the concrete pad and throwing circle. The landing sector shall not slope greater than 0.1% downhill and will be landing on the existing natural grass practice soccer field.

4. Javelin

- a. The javelin runway will be located in the northwest corner of the existing natural grass playing fields and will be painted on the grass field on an as needed basis. The landing sector shall not slope greater than 0.1% downhill and will also be landing on the existing natural grass practice soccer field.

5. Track & Field Synthetic Surface



- a. The track surfacing basis of design will be a basemat structural spray type surface, which typically consists of a paved rubber mat followed by a wearing layer of spray applied single component polyurethane with EPDM rubber granules to create a texturized surface.
6. Synthetic Turf Infield
 - a. The existing natural grass multi-use field, which will be the infield of the proposed track will be converted to synthetic turf. It will be a 2 1/4" pile height, blended fiber product made up of slit film and monofilament fibers to create a durable and aesthetically pleasing product. The infill system will be a conventional SBR rubber and sand product to achieve proper GMax results (impact attenuation). It is anticipated that football, soccer, and men's and women's lacrosse will be permanently striped on the turf infield. Other sports can be added later via temporary or permanent paint. The synthetic turf cross section will be made up of a geotextile separation fabric, a series of flat panel drains, 8" of stone base, a thin topping stone layer following by the synthetic turf.
 7. Bleachers and Pressbox
 - a. New home and visitor elevated bleachers system. Home capacity of 500 seats and visitor capacity of 150 seats. Both systems will have ADA compliant access and seating.
 - b. New pressbox at the top of the bleacher system to accommodate 6 people (2 announcers, 2 press personnel, 2 School personnel) with a filming platform.
 - c. There will be areas for portable bleachers to be placed next to the bleacher systems for additional seating for larger events; both to the north and to the south of the home bleachers and to the north of the visitor bleachers.
 8. Stadium Scoreboard
 - a. We evaluated relocating the scoreboard from Pierson Field to the High School; however, it was determined that the cost to relocating the existing scoreboard would not be cost effective.
 - b. Located off the northeast corner of the track.
 - c. The scoreboard will be an LED board and will display period, time, home and guest scores along with shots and corner kicks for both teams. Arrows will indicate the current half. It will also show "down", "yards to go", and "ball on" for football. When period time is less than one minute, the scoreboard will display 1/10 of a second.
 - d. Optional video scoreboard similar to Pearson Field above.
 9. Field Lighting
 - a. A new athletic field lighting system will be installed. The system will include new energy efficient LED fixtures. The field light levels will have 30 fc on average for football and soccer and 50 fc on average for lacrosse. It is anticipated that the existing lighting power source, conduit, and wiring will not be sufficient for the new lighting system and will be replaced. This will be verified further in the design process.



10. Tennis Courts

- a. The recommendations include the removal of the existing deteriorated tennis court pavement and fencing.
- b. Six new tennis courts will be constructed on the west side of the site between the existing natural grass fields and the wooded wetland area. The new tennis courts will include new post-tension concrete, surfacing, new fencing, ADA pathways, a shade shelter and areas for spectator seating portable bleachers.

11. Storage

- a. A new storage building in the northwest corner of the track (between the track and the softball field).
- b. Closed and fenced in storage under the home bleacher system - with access from the service drive.
- c. New storage areas shall house football, soccer, lacrosse and track equipment, and replace any currently in storage containers. Final size of both to be determined.

12. Site Circulation

- a. The track and field facility will be accessed by a main entrance gate adjacent to the support building. There will also be multiple maintenance and storage access points.
- b. An ADA access path will also be installed around the perimeter of the track to access the visitor bleacher area.
- c. There will also be an asphalt paved service drive from the High School parking area to Orchard Road and the Edna C Stevens Elementary School parking area connecting the two facilities.
- d. Two new ADA parking spaces will be added to the existing parking area adjacent to the main entrance of the track and field facility.

13. Security Perimeter

- a. Fencing around the sport venue with controlled access points for event security. The perimeter fencing will have lockable field/maintenance access points along with an ambulance access/parking area near the main entrance.

14. Site Utilities

- a. Stormwater
 - i. The synthetic turf infield will drain vertically through the stone base to a series of flat panel drains where they will then connect to a perimeter 10" perforated collector pipe around the inside of the track. The track oval also drains from the outside lane to the inside edge where it collects in the perimeter channel drain. Along this drain, there will be an inline catch basin that discharges to the same inside perimeter perforated collector pipe. This pipe will discharge at two different points, one on the east side via the existing 12" PVC pipe and one on the west side where a new doghouse manhole will be located on the existing 18" RCP that ultimately discharges to a controlled outfall box in the stream below.



- ii. The shotput pad, landing area and discus circles will all have drains that will collect water and then ultimately discharge into the woods north of the throws area.
 - iii. The Cromwell High School drainage system discharges to Chestnut Brook - a FEMA flood plain area is applicable with flooding concerns for downstream properties and infrastructure presently known. A drainage analysis with mitigation for increases in impervious surfaces will be required.
- b. Water
- i. The support building will require a potable water supply. It is anticipated that a 2" HDPE water line will be sufficient and will connect to the existing school water line
- c. Sewer
- i. The support building will require a sanitary discharge line that will connect to the school's sanitary system. This will be investigated further as the project progresses.
15. Parking:
- a. A new parking area will be constructed in the approximate location of the existing tennis courts.
 - b. 150 car capacity.

Advantages and Disadvantages of Synthetic Turf and Natural Turf

In this phase, CHA analyzed playing field surface options (grass vs. synthetic). With the increasing popularity of youth sports and the high demand of fields and field maintenance, many communities are installing synthetic turf fields to handle the increase in user demand. Synthetic turf is extremely durable, long lasting and easy to maintain, making it a reliable field, when other natural turf fields are being overused with little to no rest creating safety hazards and poor playability. Below are a list of the advantages and disadvantages of each field type. We have also included a Synthetic vs. Natural Turf Life Cycle Cost Analysis, attached.

SYNTHETIC TURF FIELD	
ADVANTAGES	
Lower Maintenance Costs	Synthetic turf requires much less yearly maintenance which includes grooming the field every 100 hours of play, top dressing the infill every 2-3 years, and annual G-MAX monitoring. Annual maintenance costs can range from \$15,000-\$25,000.
Playing Time	Due to the durability, synthetic turf can be utilized up to 3,000 hours of play per year and can be played on in most weather conditions.
Environment	A synthetic turf field saves approximately 50,000 gallons of water a week compared to a natural turf field. Also, the need for harmful pesticides and fertilizers is eliminated.



Fewer Injuries	The even playing surface creates fewer injuries compared to the uneven surface of natural turf where dips and patches form and are enhanced during wet conditions creating mud and slipping hazards.
DISADVANTAGES	
Initial Costs	The initial costs can be 3-4 times that of a natural turf field
Abrasive	Synthetic turf has been known to be more abrasive than natural turf, resulting in more turf burns on the player's skin.
Heat Hazards	Synthetic turf has heat absorbing properties
Replacement Costs	The replacement costs are a lot higher for synthetic turf and can reach up to approximately 75% of the initial investment

NATURAL TURF FIELD	
ADVANTAGES	
Initial Cost	The initial cost of a natural turf field is about one half of the cost of a synthetic turf field
Performance	Natural grass creates more friction than artificial turf, a factor that accelerates rates at which objects move across its surface. In a game such as baseball or soccer, reduced friction means ground-based plays that may be easy catches on natural grass are more difficult on artificial turf.
Replacement Costs	The replacement costs are similar to the initial costs, which are much lower than the cost of replacing a synthetic turf field.
DISADVANTAGES	
Maintenance Costs	Annual maintenance costs for a natural grass field can be more than three times that of a synthetic turf field. These costs include mowing, watering, fertilizing, aeration, seeding and labor.
Playing Time	Natural turf should not be played on more than 700- 800 hours per year, limiting the amount of use it gets. If a natural turf field is being played on more than the recommended amount, there is less rest/ recovery time for the grass, resulting in more safety hazards and poor playing surfaces. Natural turf is also restricted by the weather conditions.
Environment	An average a natural turf field uses about 50,000 gallons of water per week during the growing season (8,000 to 10,000 gallons per day without rain). Also, natural grass fields require fertilizers which can be harmful to the environment.



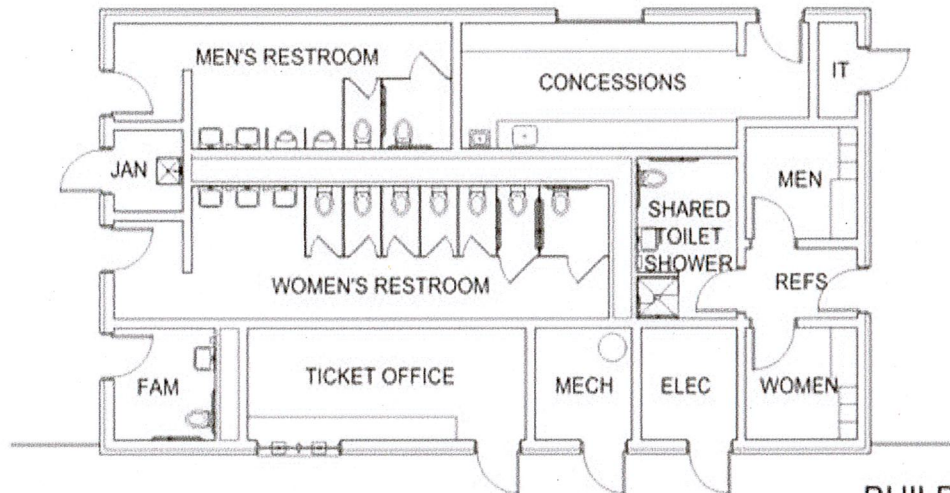
Recommended Support Building Description

The stadium support building is approximately 1,800 gross square feet and accommodates the fixed seating capacity at the proposed stadium. The planned fixed seating is 650 (500 Home/150 Visitor) resulting in 2 lavatories and 4 fixtures for men (2 urinals/2 toilets), 3 lavatories and 7 fixtures for women and one family restroom.

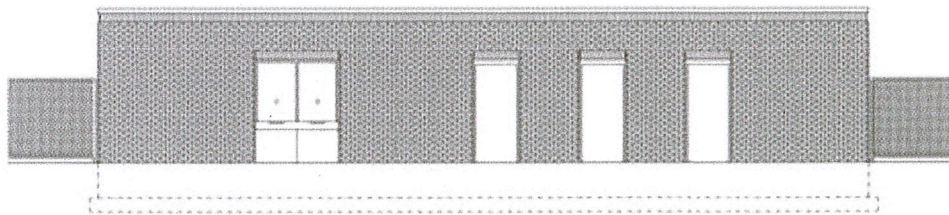
In addition to the restrooms the building houses:

- Concessions: 215 square feet "heat & serve" concessionaire with 2 points of sale and 6' wide coiling counter door
- Tickets: 160 square foot ticket office with 2 ticket windows
- Referee rooms: 2 changing rooms with 3 lockers and a bench and a shared restroom/shower
- Building Support Spaces:
 - IT closet
 - Mechanical room
 - Electrical room
 - Janitor

A seasonal building is proposed with electric heat for the shoulder seasons. The exterior is planned to be brick to match the main building. Interior partitions would be painted CMU for longevity/durability. Ceilings would be exposed painted metal deck with surface mounted lighting fixtures.



BUILDING PLAN



WEST ELEVATION

EXTERIOR ENVELOPE SYSTEMS

Roof Assembly [Interior → Exterior]:

1. Steel decking; painted
2. ½" underboard (Securoc, Densdeck or equivalent)
3. Air/water/vapor barrier
4. 5" minimum polyisocyanurate insulation (R-30 minimum)
5. Tapered insulation to form slope to drains
6. ½" overboard (Securoc, Densdeck or equivalent)
7. EPDM fully adhered membrane

Roof Notes:

- Roof drains and overflow drains to chase locations below

Exterior Wall Assembly [Interior → Exterior]:

1. CMU; epoxy paint finish
2. Air/water/vapor barrier
3. 2" continuous rigid insulation
4. 2" airspace
5. 4" brick to match main building

Coiling Counter Door:

- 6'W x 36"H
- Custom color/finish (SpectraShield) to match doors/frames
- Insulated door
- Push up operation
- Design basis: Cornell

Ticket Windows:

- 24"W x 36"H
- Custom color/finish to match doors/frames
- Slide-up window; 9"W x 3"H
- Design basis: Quikserv TI-2436

INTERIOR SYSTEMS/ASSEMBLIES

Doors:

- 2" nominal solid core steel doors, painted finish
- Typical door height is 7'-0", typical width is 3'-0"
- HM frame 2" face, fully welded; 4" header frame
- Exterior frames and frames to be grout filled
- Hardware per campus standards:
 - a. Door Hardware within each type of device - Hinges, Exit Devices, Locksets and Closers shall be furnished totally by one manufacturer unless schedule indicates otherwise



- b. Without exception, doors shall be equipped with one of the following hardware selections: Sargent Series / Von Duprin Series / American Device
- c. Hardware finish shall be US26D (Satin Chrome) finish.
- d. Locksets shall be mortise design Sargent 8200 Series Steel Case mortise lock, Cylinder shall be from Sargent
- e. Closers shall be mounted on the door rather than on the frame
- f. Exterior Door Closers shall be Sargent series 28. Closer shall be heavy duty and have adjustments for back check, closing speed, latching speed, delayed action cycle and spring power adjustments. Cold Weather Fluid (CWF) shall be used in all exterior door closers
- g. Kickplates shall be US18 gauge 18-8 type, 302 stainless steel, satin finish; Size shall be eight inches (8") high by two inches (2") less than door width
- h. Thresholds for all exterior conditions shall be aluminum

Interior Partitions:

- 4" (chase walls) & 8" CMU partitions
- Epoxy paint finish

Typical Floor:

- Concrete slab
- Clear finish sealer

Wall Bases:

- Rubber base at restrooms
- 4" coved base

Washroom Accessories:

1. Toilet paper dispensers: Owner Supplied Contractor Installed (OSCI)
2. Soap dispensers: OSCI
3. Waste receptacle: FF&E
4. Mirror: Design basis: Bobrick B-290/24x36
5. Grab bar/toilet back: Design basis: Bobrick B-5806.99x36
6. Grab bar/toilet side: Design basis: Bobrick B-5806.99x48
7. Grab bar/vertical: Design basis: Bobrick B-5806.99x18
8. Grab bar/HC shower: Design basis: Bobrick B-68616
9. Sanitary napkin disposal units: Design basis: Bobrick B-270
10. Folding HC shower seat: Design basis: Bobrick B-5191

Toilet Partitions:

- Solid plastic/solid phenolic floor mounted overhead braced partitions
- Wall mounted urinal screens

Referee Lockers:

- 6 footprints (3 each room), box style lockers on 6" recessed curb/kick; steel, vented front, 12" w x 12" d x 72", double tier, 1 HC accessible at each room



Millwork:

- 36”H x 36”D open front solid phenolic base cabinets @ concessions
- 36”H x 12”D open front solid phenolic wall cabinets @ concessions
- 24” deep solid surfacing countertop/counter typical
- Counter brackets @ 3’ centers @ tickets (Rakks EHR-1818 or equal)

Attachments:

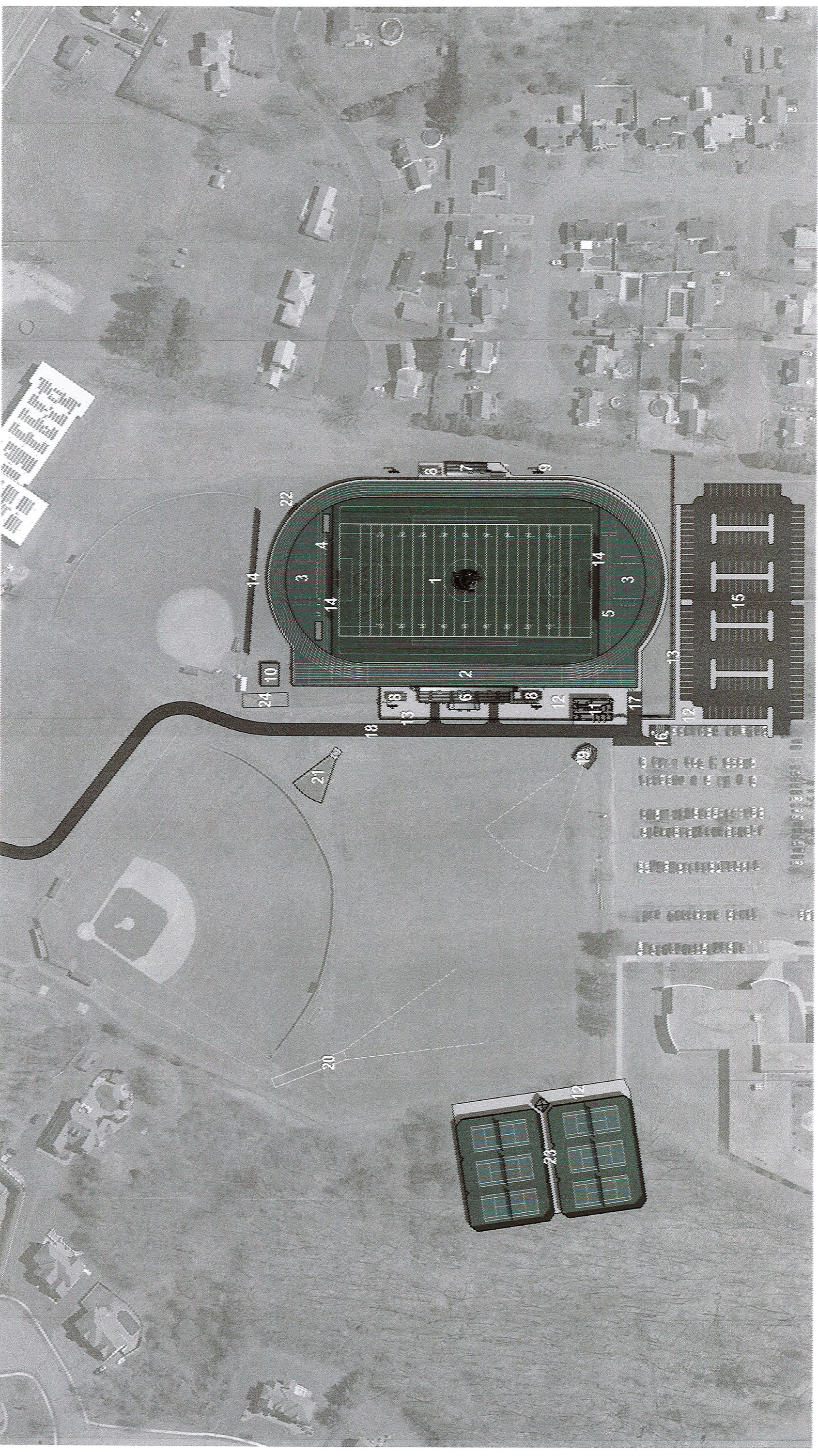
Existing Conditions Air Photo
Preferred Concept Plan Rendering
Estimate of Probable Cost
Synthetic vs. Natural Turf Life Cycle Cost Analysis
Schematic Design Plans
Godard Consulting Soil Scientist Report
Previous Concept – Option 1
Previous Concept – Option 2





Legend:

- 1. Synthetic Turf Field
- 2. 6 Lane Oval and 8 Sprint Lanes
- 3. High Jump Areas
- 4. Long/Triple Jump Runways
- 5. Pole Vault Runway
- 6. Elevated Home Bleachers (~500 Seats) with Press Box
- 7. Elevated Visitor's Bleachers (~200 Seats)
- 8. Portable Bleachers
- 9. Sports Lighting (4 Poles)
- 10. Track Storage Building
- 11. Restroom/Concession Building
- 12. Concrete Sidewalks
- 13. Perimeter Fencing
- 14. Safety Netting
- 15. Parking Lot with ~150 Spaces
- 16. Relocated Handicap Parking Spaces
- 17. Emergency Vehicle Parking
- 18. Internal Access Drive
- 19. Discus Cage
- 20. Javelin Throw Striping
- 21. Shot Put
- 22. Scoreboard
- 23. (6) Tennis Courts
- 24. Existing Softball Batting Cage to Remain



Cromwell High School - Estimate of Probable Cost

June 1, 2023

Field Renovations


Note: All anticipated costs include contractor general conditions, contingency and soft costs

ITEM	DESCRIPTION	LOWER END COST	HIGHER END COST
Synthetic Turf Field	Synthetic turf field with color logo and striping for football, soccer, and men's and women's lacrosse	\$ 700,000.00	\$ 900,000.00
6 Lane Oval Track with 8 Sprint Lanes	New synthetic 6 lane track with 8 sprint lanes and (2) D-zones with (2) long/triple jump, (2) high jump, and (1) pole vault events	\$ 2,500,000.00	\$ 2,760,000.00
Elevated Home Bleachers W/ Pressbox	Permanent pressbox and bleachers for approx. 500 spectators	\$ 175,000.00	\$ 190,000.00
Storage Under Bleachers	Secure storage space under home side bleachers	\$ 70,000.00	\$ 200,000.00
Elevated Visitor's Bleachers	Permanent bleacher for approx. 200 spectators	\$ 70,000.00	\$ 78,000.00
Portable Bleachers	3 sets of portable bleachers	\$ 30,000.00	\$ 35,000.00
Sports Lighting	4 Pole sports lighting system at Track	\$ 425,000.00	\$ 470,000.00
Scoreboard	New Scoreboard	\$ 60,000.00	\$ 100,000.00
Track Storage Building	1,500 sf track storage building	\$ 300,000.00	\$ 375,000.00
New Restroom/Concession Building	Building with space for concessions and restroom facilities	\$ 800,000.00	\$ 930,000.00
Concrete Sidewalks	Concrete sidewalks to tennis, track, and parking lot	\$ 335,000.00	\$ 400,000.00
Perimeter Fencing	6' high black chain link perimeter fencing	\$ 58,000.00	\$ 75,000.00
Safety Netting	10' - 20' high ball safety netting	\$ 38,000.00	\$ 45,000.00
Parking Lot	Asphalt parking lot with approx. 150 spaces	\$ 365,000.00	\$ 405,000.00
Relocated Handicap Parking Spaces	New asphalt, curbs, striping, and signage to relocate handicap parking spaces	\$ 30,000.00	\$ 35,000.00
Emergency Vehicle Parking	Asphalt parking for emergency vehicles	\$ 6,500.00	\$ 7,000.00
Internal Access Drive	Asphalt access drive	\$ 128,000.00	\$ 140,000.00
Throw Events	Shotput, discus and javelin throw events	\$ 43,000.00	\$ 48,000.00
Natural Grass Fields	New striping on existing sod for (2) soccer fields, (2) men's lacrosse fields, and (2) women's lacrosse fields	\$ 3,500.00	\$ 5,500.00
Tennis Courts (6)	(6) tennis courts with acrylic surfacing	\$ 1,300,000.00	\$ 1,450,000.00
Sounds System	New sound system and data line at the track	\$ 80,000.00	\$ 120,000.00
Misc. Site Work	Seeding, planting and general site work	\$ 50,000.00	\$ 80,000.00
Total Budgeted Probably Cost:		\$ 7,567,000.00	\$ 8,848,500.00

Synthetic vs. Natural Turf Life Cycle Cost Analysis

Infield Turf Selection

Natural Grass		Synthetic Turf	
New Natural Grass Field	\$350,000	New Synthetic Turf Field	\$700,000
Irrigation and Pump	\$50,000	Irrigation and Pump	\$0
Total Initial Cost	\$400,000	Total Initial Cost	\$700,000
Initial Difference: \$300,000			
Benefits			
• Cost of upkeep (irrigation system and pump station)	\$2,000/year	• No irrigation/well/pump station maintenance	
• Electric cost	\$3,000/year	• No electric cost	
• Field maintenance cost (mowing, fertilizing, aerating, overseeding)	\$45,000/year	• Turf maintenance cost	\$10,000/year
• Limited field use		• Unlimited field use*	
Total cost per year	\$50,000	Total cost per year	\$10,000
Cost/Year Difference: \$40,000		Payback Time: 7.5 years	



CHA
CONSTRUCTION HARDWARE ASSOCIATION

CROMWELL HIGH SCHOOL
34 EVERGREEN RD,
CROMWELL, CT
06416

NOT FOR CONSTRUCTION

THIS DRAWING IS THE PROPERTY OF CHA. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF CHA. ANY UNAUTHORIZED USE OF THIS DRAWING IS STRICTLY PROHIBITED.

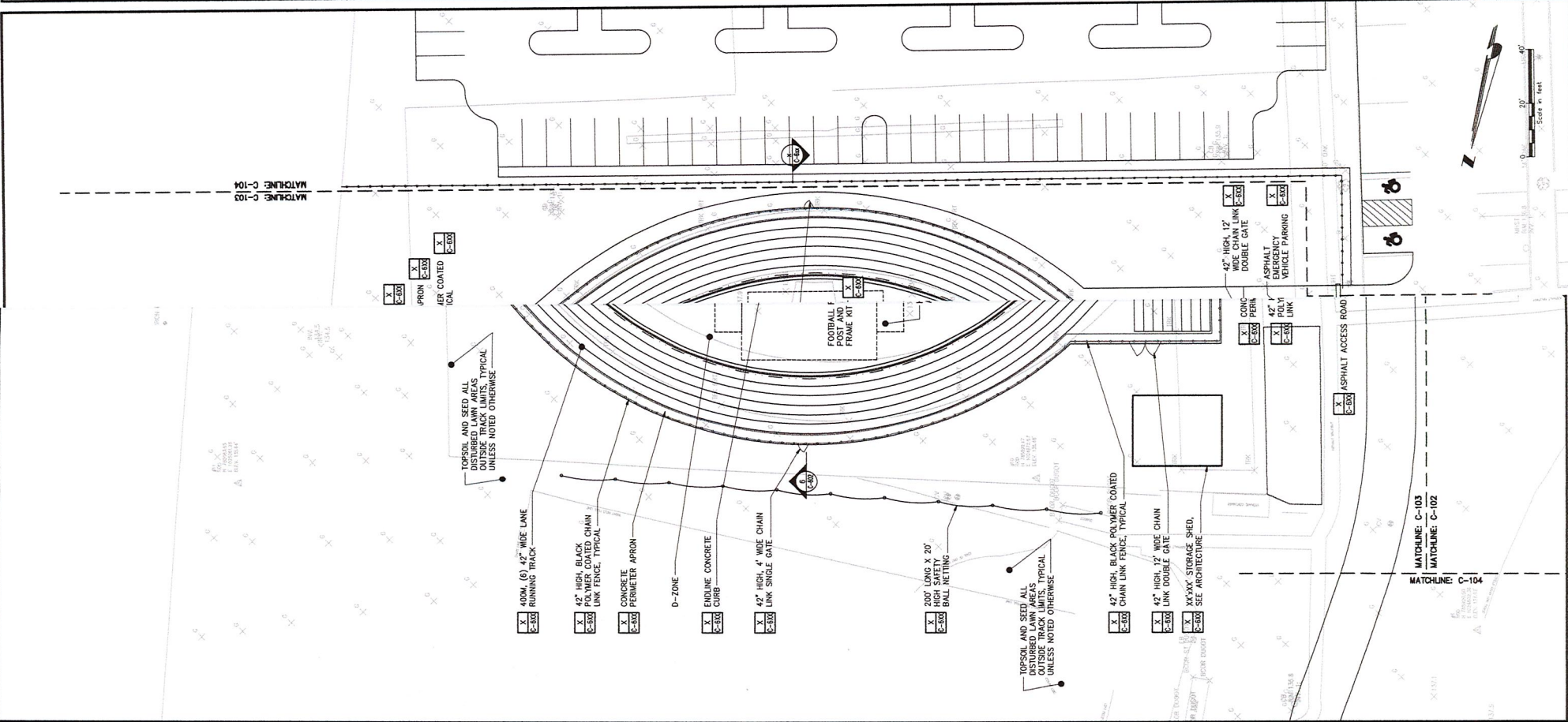
**CROMWELL HIGH SCHOOL
FIELD RENOVATION**

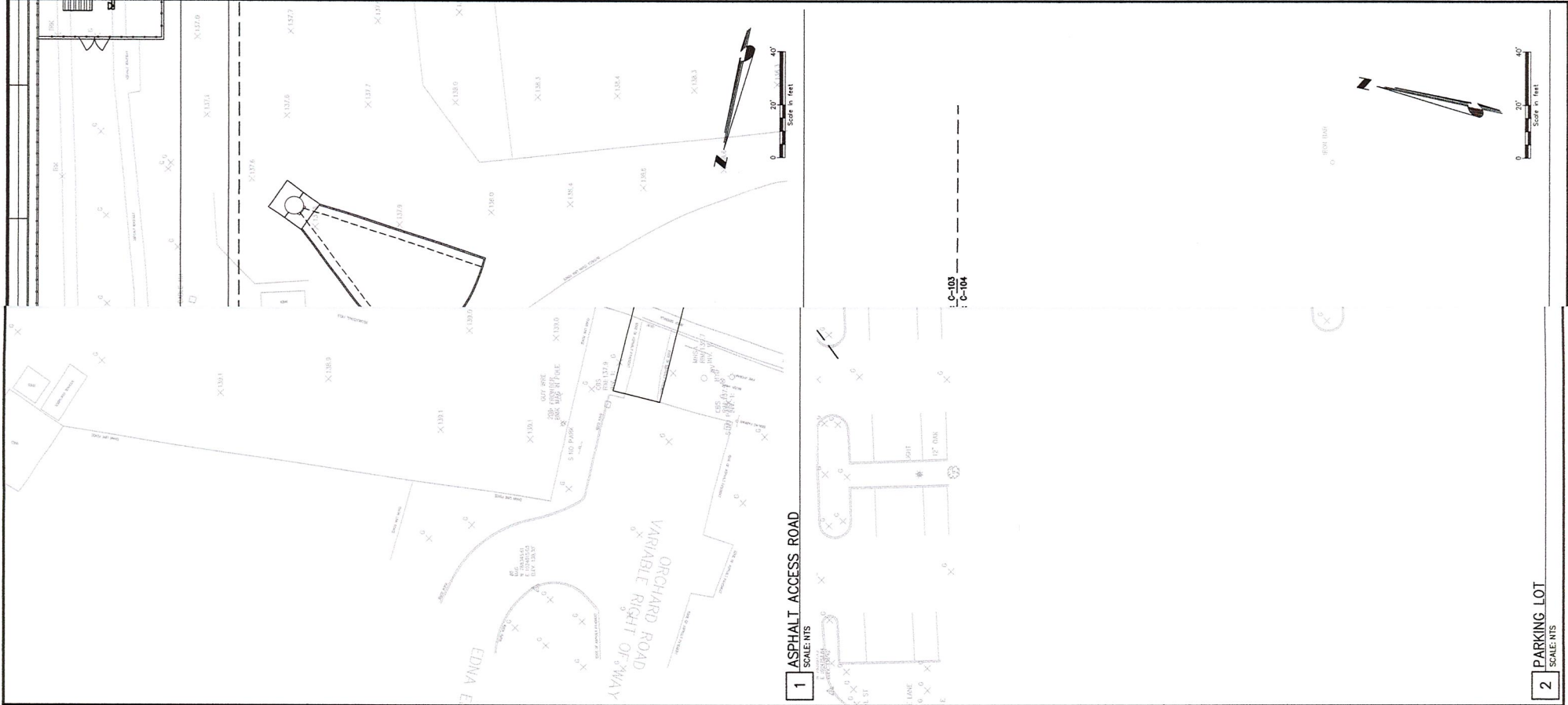
No.	Submittal Reference	Issued By	Date


LAYOUT PLAN

Designed By	Drawn By	Checked By
MM	MM	MM
Project No.	Scale	Sheet
XXXXX	AS SHOWN	AS SHOWN

Drawing No. **C-103**





 CHA 270 HARTFORD AVENUE, SUITE 101 HARTFORD, CT 06103 860.261.2121	CROMWELL HIGH SCHOOL 34 EVERGREEN RD, CROMWELL, CT 06416	NOT FOR CONSTRUCTION	<small>THIS DRAWING IS THE PROPERTY OF CHA AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF CHA.</small>	CROMWELL HIGH SCHOOL FIELD RENOVATION	Revised	Issued	Revised	Issued

Designed By	Drawn By	Checked By
JSP	CL	MM
Issue Date	Project No.	Scale
XXXXXX	000000	AS SHOWN

Drawing No. **C-104**

LAYOUT PLAN

Michael Moonan
101 East River Drive
East Hartford, CT

March 13, 2023

Re: Soil Scientist Report
34 Evergreen Road, Cromwell CT

Dear Michael Moonan,

Introduction and Description:

On March 9, 2023, the wetland resources were delineated on land located off 34 Evergreen Road in Cromwell, Connecticut, west of the baseball field behind Cromwell High School (refer to enclosed locus maps). The wetland boundaries were flagged using the criteria in the most recent edition of the Inland Wetlands and Watercourses Act (IWWA) and US Army Corps of Engineers standards using flag series GCA1 to GCA16, and GCB1 to GCB6 wetlands associated with a pond connected to Chestnut Brook west of the site. Series B is a small isolated wetland located between wetland A and the high school grounds. Hydric soil indicators, vegetation changes, hydrological indicators, and topography were all considered for delineation purposes.

The titles of attached documents are as follows:

- ACOE Delineation Data Sheets
- Figure 1: *USGS of Locus Site*, Goddard Consulting, LLC, 3/6/2023
- Figure 2: *Orthophoto & Soils of Locus Site*, Goddard Consulting, LLC, 3/6/2023
- Figure 3: *FEMA Map*, Goddard Consulting, LLC, 3/6/2023
- Figure 4: *NDDB Rare Species Map*, Goddard Consulting, LLC, 3/6/2023

Inland Wetlands and Watercourses Act & Bylaw:

Inland resource areas were delineated in accordance with relevant federal, state, and local regulations. As stated in the IWWA Sec. 22a-38, "Wetlands" means land, including submerged land, not regulated pursuant to sections 22a-28 to 22a-35, inclusive, which consists of any soil types designed as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey..."

Additionally, "Watercourses" means rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within flow through or border upon the City or any portion thereof... Intermittent watercourses shall be delineated by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (a) evidence of scour or deposits of recent alluvium or detritus, (b) the presence of standing or flowing water for duration longer than a particular storm incident, and (c) the presence of hydrophytic vegetation."

Mapped NRCS Soils:

Based on the State of Connecticut GIS Soil Survey information (see the Orthophoto & Soils Map), the soils in association with the site location primarily include Hartford sandy loam, Walpole sandy loam, and Sudbury sandy loam. Brief descriptions of these types of soils are explained below.

Hartford Sandy Loam: These are sandy loam to stratified very gravelly coarse sand to loamy fine sand at deeper horizons, with a profile depth from 0 to 65 inches. These are somewhat excessively drained soils with a depth to water table of more than 80 inches with no hydric soil rating, and slopes near 0 to 3 percent. These soils are typically found in terraces & outwash plains.

Walpole Sandy Loam: These soils are mucky peat, to sandy & very gravelly sandy loams at lower horizons. The typical profile of this soil is from 0 to 65 inches of depth, with slopes between 0 to 3 percent. These are poorly drained soils with a depth to water table of between 0 to 4 inches with a hydric soil rating. These soils are usually found in depressions, outwash plains, outwash terraces, and deltas.

Sudbury Sandy Loam: These are soils that start with an organic top layer, and gradually become more sandy loam to sandy gravel at greater depths. These are moderately well drained soils, with a depth to water table between about 18 to 36 inches. Slopes are between 0 to 5 percent, and these soils are generally found in terraces and outwash plains.

Based on the inspection of soils associated with the delineated wetland, the soil types researched appear to be consistent with what was discovered in the field.

On-Site Soils:

Consistent with the NRCS based GIS soil survey, soils identified on the property were found to be similar in texture, with sandy loams being the primary soil texture. Within the upland region at flag GC A-8, the A-Horizon had a depth of 0 to 3 inches, a sandy loam texture with a matrix of 10YR 3/2. Underlying this is a Bw-Horizon which was a sandy loam between 3 to 13 inches of depth with a matrix of 10YR 5/4. Finally, a C-Horizon was found below from 13 to 20+ inches of depth, another sandy loam with a matrix of 10YR 5/3. Wetland soils collected at this flag contained a Oi-Horizon from 0 to 1 inches of depth, followed by an A-Horizon from 1 to 6 inches of depth with a sandy loam texture and matrix of 10YR 2/1. This was followed by a Bg-Horizon from 6 to 18+ inches of depth, a sandy loam texture with a matrix of 10YR 5/1 and 30% mottling with a matrix of 10YR 5/6. Additionally, there is evidence of historic fill near this upland section and within the first 5 inches of the flagged B series wetland. Refer to the soils map for visual information about the examined soils.

Site Photos



Figure 1. View towards B series by location of proposed tennis courts.



Figure 2. View of standing water within A series wetlands.



Figure 3. Typical upland region conditions on site.



Figure 4. B series wetland & potential vernal pool, in area of proposed development.

Vegetation

Vegetation sampling was conducted at the GC A-8 Flag. In the upland, dominant tree coverage primarily consists of American beech, red oak, black oak, and some inclusions of yellow birch. American beech, highbush blueberry, and a single American chestnut are the sole shrubs in the sampled zone. Princess pine consisted of almost half of the herbaceous ground cover in the upland. In the wetland, red maple and red oak covered most of the tree canopy, with highbush blueberry and red maple shrubs in the understory. Cinnamon fern was found to be the primary ground cover, with trace amounts of princess pine along the edges of the sampled wetland vegetation. The conditions recorded at flag A-8 were fairly consistent across the upland & wetland regions of entire site.

Hydrology

Multiple features evident of hydrologic conditions were identified on the property, such as standing water along the wetland and hydric soils in both wetland series. These are associated with an off-site pond branching off Chestnut Brook west of the site. The B series wetland contained no standing water, but did contain hydric soils under 5 inches of fill. There is no evidence that standing water is present here nor is this area a potential vernal pool.

FEMA Flood Zones

The National Flood Hazard Layer provided by the Federal Emergency Management Agency (FEMA) does not depict the area of proposed development on site to be within a designated flood zone.

NDDB

The site is not located in an identified NDDB area, the closet area is located northwest of the site over 4,000 feet away.

Findings

Based on these hydric soil indicators, vegetation, hydrological indicators, and topography, the flagged locations on site were found to be the boundary of two wetlands, one being a dried potential vernal pool.

Very truly yours,
GODDARD CONSULTING, LLC



Steven Riberdy, MS, PWS, CWB, CE, CERP, PSS
Lead Biologist, Soil Scientist and Manager



Copyright © 2013 National Geographic Society, i-cubed, USDA - NRCS

Date: 3/6/2023

GC Job Number:
CT-015

0 500 1,000
Feet

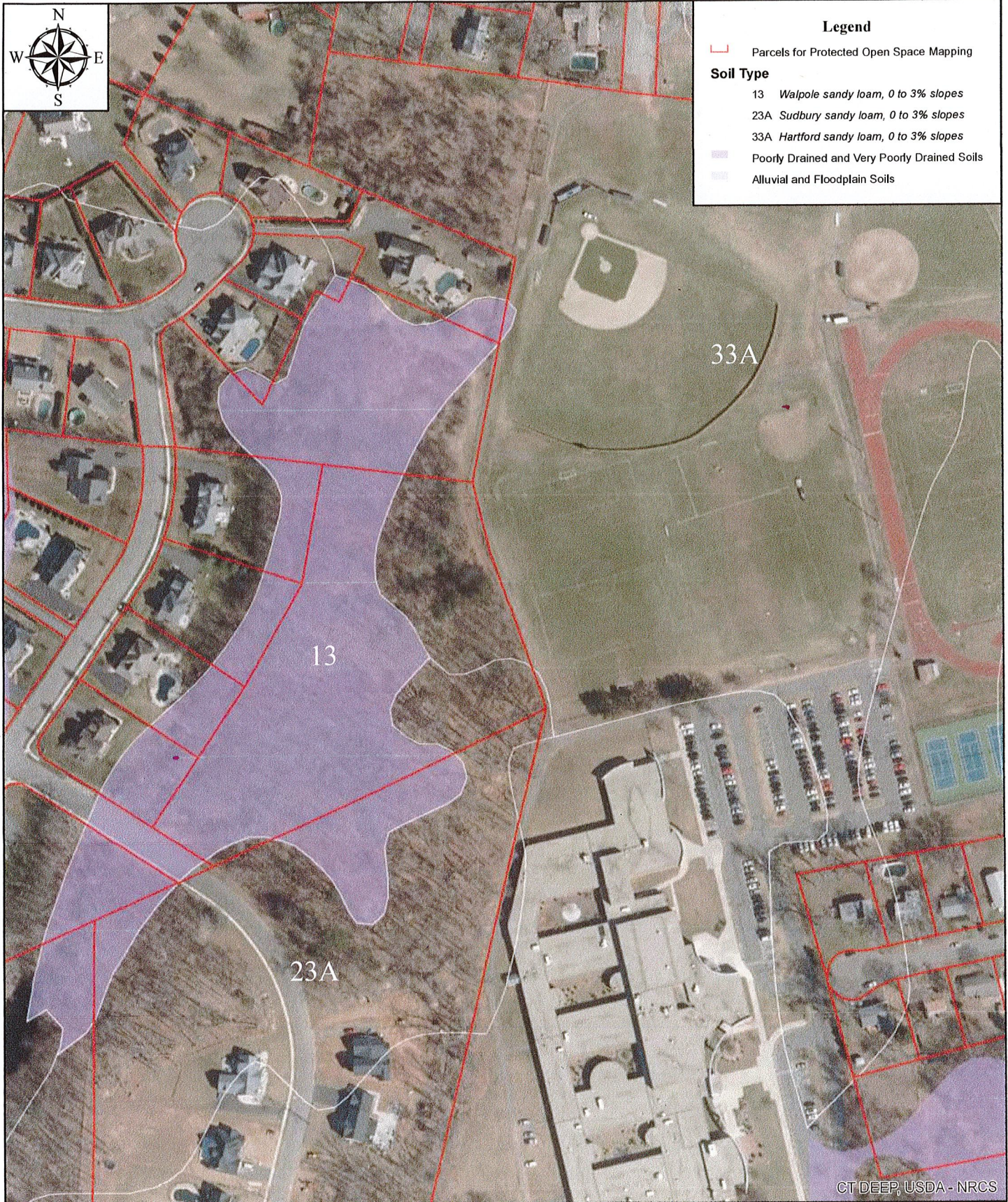
GODDARD CONSULTING
Strategic Wetland Permitting

USGS Locus

1 in = 1,000 ft

34 Evergreen Road
Cromwell, CT

Figure 1



Date: 3/6/2023

GC Job Number:
CT-015

0 100 200
Feet

GODDARD CONSULTING
Strategic Wetland Permitting LLC

Orthophoto & Soils Map

1 in = 200 ft

34 Evergreen Road
Cromwell, CT

Figure 2



Copyright © 2013 National Geographic Society, i-cubed

Date: 3/6/2023

GC Job Number:
CT-015

0 500 1,000
Feet

FEMA Map

1 in = 1,000 ft

Figure 3

GODDARD CONSULTING
Strategic Wetland Permitting LLC

34 Evergreen Road
Cromwell, CT



Copyright © 2013 National Geographic Society, i-cubed

Date: 3/6/2023	GC Job Number: CT-015	<h1>NDDB Map</h1>	0 500 1,000 Feet	<h2>Figure 4</h2>
GODDARD CONSULTING Strategic Wetland Permitting			34 Evergreen Road Cromwell, CT	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region	X	Wetland Upland
--	----------	-------------------

Project Site: 34 Evergreen Road City/County: Cromwell Date: 3/10/23
 Applicant/Owner: Michael Moonan State: CT Sampling Point: A-8
 Investigator(s): Steven Riberdy, PWS Section/Township/Range: NA
 Landform (hillslope, terrace, etc.): _____ Local Relief (concave, convex, none): convex Slope (%): <1%
 Subregion (LRR or MLRA): NA Latitude: _____ Longitude: _____ Datum: NAD 83
 Soil Map Unit Name: Walpole & Sudbury NWI Classification: PFO
 Are climatic/hydrologic conditions on site typical for this time of year? Yes X No (explain) _____
 Is vegetation Soil Hydrology _____ Significantly Disturbed? (check if appropriate) _____
 Is vegetation Soil Hydrology _____ Naturally Problematic? (check if appropriate) _____
 Are "Normal Circumstances" present? X Yes _____ No _____

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? _____ Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	_____ Yes
Hydric Soil Present? _____ Yes <u>X</u> No _____		_____ No
Wetland Hydrology Present? _____ Yes <u>X</u> No _____		<u>X</u> _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

<i>Primary Indicators (minimum of one is required; check all that apply)</i>		<i>Secondary Indicators (Min. 2 Required)</i>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations

Surface Water Present? _____ Yes <u>X</u> No _____ Depth (inches) _____	Wetland Hydrology Present?	_____ Yes
Water Table Present? _____ Yes <u>X</u> No _____ Depth (inches) _____		<u>X</u> _____ No
Saturation Present? _____ Yes <u>X</u> No _____ Depth (inches) _____ <small>(Includes capillary fringe)</small>		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names

Tree Stratum (Plot Size:)	Absolute % Cover	Dominant Species	Indicator Status
1 <u>American Beech (Fagus grandifolia)</u>	30	YES	FACU
2 <u>Black Oak (Quercus velutina)</u>	25	YES	UPL
3 <u>Northern Red Oak (Quercus rubra)</u>	30	YES	FACU
4 <u>Red Maple (Acer rubrum)</u>	10	NO	FAC
5 <u>Yellow Birch (Betula alleghaniensis)</u>	10	NO	FAC
6 <u>--</u>	--	--	--
7 <u>--</u>	--	--	--
	105 =	Total Tree Cover	

Sapling/Shrub Stratum (Plot Size:)	Absolute % Cover	Dominant Species	Indicator Status
1 <u>American Beech (Fagus grandifolia)</u>	30	YES	FACU
2 <u>Highbush Blueberry (Vaccinium corymbosum)</u>	10	YES	#N/A
3 <u>--</u>	3	NO	--
4 <u>--</u>	--	--	--
5 <u>--</u>	--	--	--
6 <u>--</u>	--	--	--
7 <u>--</u>	--	--	--
	43 =	Total Sapling/Shrub Cover	

Herb Stratum (Plot Size:)	Absolute % Cover	Dominant Species	Indicator Status
1 <u>Princess-Pine (Dendrolycopodium obscurum)</u>	35	YES	FACU
2 <u>--</u>	--	--	--
3 <u>--</u>	--	--	--
4 <u>--</u>	--	--	--
5 <u>--</u>	--	--	--
6 <u>--</u>	--	--	--
7 <u>--</u>	--	--	--
8 <u>--</u>	--	--	--
9 <u>--</u>	--	--	--
10 <u>--</u>	--	--	--
11 <u>--</u>	--	--	--
12 <u>--</u>	--	--	--
	35 =	Total Herb Cover	

Woody Vine Stratum (Plot Size:)	Absolute % Cover	Dominant Species	Indicator Status
1 <u>Sawbrier (Smilax glauca)</u>	3	YES	FACU
2 <u>--</u>	--	--	--
3 <u>--</u>	--	--	--
4 <u>--</u>	--	--	--
	3 =	Total Woody Vine Cover	

Dominance Test Worksheet:

No. of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total No. of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 14.29 (C)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>20</u>	x 3 = <u>60</u>
FACU species <u>128</u>	x 4 = <u>512</u>
UPL species <u>25</u>	x 5 = <u>125</u>
Column Totals <u>183</u> (A)	<u>717</u> (B)
Prevalence Index = B/A = <u>3.9</u>	

Hydrophytic Vegetation Indicators:

 Rapid Test for Hydrophytic Vegetation

 Dominance Test is >50%

 Prevalence Index is ≤3.0¹

 Morphological Adaptations¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata

Tree- Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height

Sapling/shrub - Woody plants less than 3 in. in DBH and greater than 3.28 ft. (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants < 3.28 ft tall

Woody Vines - All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? Yes

 X No

Remarks: (Include photo numbers here or on a separate sheet)

0

Horizon	Depth (in)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
		Color (moist)	%	Color (moist)	%				
A	0-3	10YR 3/2	--	--	--	--	--	SL	--
Bw	3-13	10YR 5/4	--	--	--	--	--	SL	--
C	13-20+	10YR 5/3	--	--	--	--	--	SL	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 2cm Muck (A10) (LRR K, L, MLRA 149B)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> (LRR R, MLRA 149 B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> 5cm Mucky Peat or Peat (S3) (LRR K, L, R)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> (LRR R, MLRA 149B)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> LOAMY Mucky Mineral (F1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> (LRR K, L)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)
<input type="checkbox"/> Thick Dark Surface(A12)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed)	Hydric Soil Present?
Type: _____ Depth: _____ inches	Yes _____ No <input checked="" type="checkbox"/>

Remarks:
 0

US Army Corps of Engineers Northcentral and Northeast Region- Version 2.0

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region		X	Wetland Upland
Project Site: <u>34 Evergreen Road</u>		City/County: <u>Cromwell</u> Date: <u>3/10/23</u>	
Applicant/Owner: <u>Michael Moonan</u>		State: <u>CT</u> Sampling Point: <u>A-8</u> <u>0</u>	
Investigator(s): <u>Steven Riberdy, PWS</u>		Section/Township/Range: <u>0</u>	
Landform (hillslope, terrace, etc.): <u>Flat</u>		Local Relief (concave, convex, none): <u>Flat</u> Slope (%): <u><1%</u>	
Subregion (LRR or MLRA): <u>NA</u> Latitude: <u>0</u>		Longitude: <u>0</u> Datum: <u>NAD 83</u>	
Soil Map Unit Name: <u>Walpole & Sudbury</u>		NWI Classification: <u>PFO</u>	
Are climatic/hydrologic conditions on site typical for this time of year? Yes <u>X</u> No (explain) _____			
Is vegetation <u>Soil</u> <u>Hydrology</u> <u>Significantly Disturbed?</u> (check if appropriate)			
Is vegetation <u>Soil</u> <u>Hydrology</u> <u>Naturally Problematic?</u> (check if appropriate)			
Are "Normal Circumstances" present? <u>X</u> Yes _____ No _____			
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <u>X</u> Yes _____ No _____		Is the Sampled Area within a <u>X</u> Yes _____ No _____	
Hydric Soil Present? <u>X</u> Yes _____ No _____		Wetland?	
Wetland Hydrology Present? <u>X</u> Yes _____ No _____			
Remarks:			
HYDROLOGY			
Wetland Hydrology Indicators			
<i>Primary Indicators (minimum of one is required; check all that apply)</i>			
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<i>Secondary Indicators (Min. 2 Required)</i>	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations			
Surface Water Present? _____ Yes <u>X</u> No _____	Depth (inches) _____	Wetland Hydrology Present? <u>X</u> Yes _____ No _____	
Water Table Present? _____ Yes <u>X</u> No _____	Depth (inches) _____		
Saturation Present? _____ Yes <u>X</u> No _____	Depth (inches) _____		
<small>(Includes capillary fringe)</small>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION - Use scientific names

TP-B 10/1/18

Tree Stratum (Plot Size:)	Absolute % Cover	Dominant Species	Indicator Status
1 <i>Red Maple (Acer rubrum)</i>	63	YES	FAC
2 <i>Northern Red Oak (Quercus rubra)</i>	10	NO	FACU
3 <i>Yellow Birch (Betula alleghaniensis)</i>	10	NO	FAC
4	--	--	--
5	--	--	--
6	--	--	--
7	--	--	--
	83 =	Total Tree Cover	

Sapling/Shrub Stratum (Plot Size:)	Absolute % Cover	Dominant Species	Indicator Status
1 <i>Red Maple (Acer rubrum)</i>	30	YES	FAC
2 <i>Highbush Blueberry (Vaccinium corymbosum)</i>	20	YES	FACW
3	--	--	--
4	--	--	--
5	--	--	--
6	--	--	--
7	--	--	--
	50 =	Total Sapling/Shrub Cover	

Herb Stratum (Plot Size:)	Absolute % Cover	Dominant Species	Indicator Status
1 <i>Cinnamon Fern (Osmundastrum cinnamomeum)</i>	30	YES	FACW
2 <i>Princess-Pine (Dendrolycopodium obscurum)</i>	3	NO	FACU
3	--	--	--
4	--	--	--
5	--	--	--
6	--	--	--
7	--	--	--
8	--	--	--
9	--	--	--
10	--	--	--
11	--	--	--
12	--	--	--
	33 =	Total Herb Cover	

Woody Vine Stratum (Plot Size: 30')	Absolute % Cover	Dominant Species	Indicator Status
1	--	--	--
2	--	--	--
3	--	--	--
4	--	--	--
	0 =	Total Woody Vine Cover	

Remarks: (Include photo numbers here or on a separate sheet)
0

Dominance Test Worksheet:

No. of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total No. of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100.00 (C)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>50</u>	x 2 = <u>100</u>
FAC species <u>103</u>	x 3 = <u>309</u>
FACU species <u>13</u>	x 4 = <u>52</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals <u>166</u> (A)	<u>461</u> (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

 Rapid Test for Hydrophytic Vegetation

 X Dominance Test is >50%

 X Prevalence Index is ≤3.0¹

 Morphological Adaptations¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata

Tree- Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height

Sapling/shrub - Woody plants less than 3 in. in DBH and greater than 3.28 ft. (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants < 3.28 ft tall

Woody Vines - All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present?

 X Yes

 No

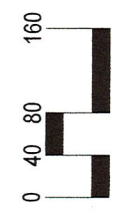


Cromwell High School Athletic Complex Improvements

Site Concept Plan- Option 1

Cromwell, Connecticut

March, 2023





Cromwell High School Athletic Complex Improvements

Site Concept Plan- Option 2

Cromwell, Connecticut

March, 2023

