TOWN OF BRISTOL, RHODE ISLAND

PLANNING BOARD MEETING

Planning Board Meeting Agenda
Thursday, October 10, 2024 at 7:00 PM
Bristol Town Hall, 10 Court Street, Bristol, RI 02809

A. Pledge of Allegiance

B. Approval of Minutes - September 12, 2024

C. Old Business

C1. **(Continued) Public Hearing and Master Plan Phase review and possible action on same for Major Land Development** for proposal to construct a new Mt. Hope High School, including new tennis courts and athletic fields, at **199 Chestnut Street** and to demolish the existing high school building. Owner: Town of Bristol / Applicant: Bristol Warren Regional School District/Lisa Pecora, Perkins Eastman, applicant representative. Zoned: Public Institutional. Assessor's Plat 117 Lots 3-7.

The Applicant has requested waivers of State permits that are required for submission at the Preliminary Plan stage of review pursuant to State Law and the Regulations. Specifically, in accordance with Section 5.4 of the Regulations and the Major Land Development Checklist item No. E7, the Applicant has requested to proceed to Preliminary Plan review with the following permits to be provided as a condition of approval to be submitted prior to Final Plan Review – Rhode Island Department of Environmental Management (RIDEM) Freshwater Wetlands permit, RIDEM Stormwater Construction Permit, and RIDEM Water Quality Certification.

*Item 'MHHS_Planning Hearing 10-10-2024 FINAL' was presented at the October 10th Planning Board meeting.

D. Adjourn

Date Posted: October 3, 2024

By: mbw

Town of Bristol, Rhode Island

Planning Board

10 Court Street
Bristol, RI 02809
www.Bristolri.us
401-253-7000
253-7010

DRAFT PLANNING BOARD DECISION

OWNER/APPLICANT: **Bristol Warren Regional School District**
ADDRESS: **199 Chestnut Street**
PLAT AND LOT: **Plat 117, Lots 3,4,5,6,7**
APPLICATION: **Major Land Development Master Plan – Mt. Hope High School**

The Planning Board finds that:

1. The subject property consists of the existing Mt. Hope High School campus including and athletic fields and parking areas.

2. The proposal is the construction of a new High School building. The project includes a new building, athletic fields, parking areas, loading areas, site features, utilities and stormwater management systems. Upon completion of the new building, the existing High School will be demolished.

3. The proposed development is consistent with the general purposes stated in Article 1 of the Planning Board's subdivision and development review regulations.

4. The proposed development is consistent with the Comprehensive Plan.

5. The proposed development is in compliance with the standards and provisions of the zoning ordinance.

6. The proposed development has adequate and permanent physical access to Chestnut Street.

7. The Board has considered any testimony at the Public Hearing.

8. There will be no significant negative environmental impacts from the proposed subdivision, with any conditions of approval.

The Board grants a Checklist Item Waiver for the RIDEM permits at the Preliminary Phase with the agreement that the applicant will agree to continue the Preliminary Phase until receipt of the permits so that the permits are submitted prior to the Planning Board action on the preliminary phase application.

Master Plan approval for the Major Land Development for the new Mt. Hope High School campus as shown on the plan set entitled "Mt. Hope High School" dated as revised September 4, 2024 – Sheets 1-32 of 32 prepared by Pare Engineering, Perkins Eastman, MCA, Traverse Landscape Architects and LEC Environmental Consultants, Inc. along with revised sheets from Pare, Sheets C3.0-C3.5 dated as revised September 25, 2024.

IMPROVING COMMUNITIES TOGETHER

MEMORANDUM

Date:	9/30/2024	Job No.:	23099.01
To:	Diane Williamson, AICP, CFM - Town of Bristol Director of Community Development; Edward Tanner – Town of Bristol Principal Planner		
Cc:			
From:	Nicole Iannuzzi, PE – Vice President (BETA Group, Inc.)		
Subject:	Mount Hope High School Master Plan Review TRC Meeting October 2, 2024		

This memo is to provide some clarification in regards to the stormwater requirements for the Mount Hope High School Project.

Stormwater Treatment:

- As this project is considered a "New Development Project" under the RIDEM Regulations, the design team is required to treat 100% of existing impervious area and 100% of proposed increase in impervious area.
- Water Quality Volume (WQV) Treatment Requirement is based on a 1.2" design storm.
- Design team will calculate required WQV based on impervious area and the 1.2" storm.

Stormwater Detention:

- RIDEM requires under Minimum Standard 5 – Overbank Flood Protection that downstream overbank flood protection must be provided by attenuating the post development peak discharge rate to the pre-development levels for the 10-year and 100-year, 24-hour Type III design storm events.
- The Town of Bristol's Subdivision and Development Review Regulations state: "The proposed drainage system shall be designed in accordance with RI Stormwater Manual Standards to accommodate stormwater such that 24 hour detention is provided for the one (1) year storm event, and post- construction conditions do not result in peak run-off increases in rate from pre-construction conditions for the ten (10), and one-hundred (100) year storm events."
- The Town of Bristol's Subdivision and Development Review Regulations also state that it is required within the Silver Creek Watershed that any increase in storm runoff volume, up to and including the 10-year storm event shall be retained and recharged on site as close as feasible to its place of origin.
- The Town of Bristol's Subdivision and Development Review Regulations also requires the design team to analyze the existing culverts within the project area to verify runoff entering and exiting will not be increased as a result of the project.

Planning Board Comments:

- Mr. Spinard stated his concerns that the existing available information is not based on current conditions/regulations. He suggested that the HEC-RAS model should be updated to include current development within the Silver Creek Watershed, updated rainfall amounts and sea level rise.
- The Silver Creek Watershed Study has been referenced. The Study was performed in 2007 and was performed to identify problem areas and identify potential drainage improvement projects to help mitigate flooding issues. The scope of the study did not include submitting a Letter of Map Revision to FEMA, nor was it meant to replace any FEMA information. The intent of the 2007 1-

Dimensional steady-state HECRAS model was to identify potential hydraulic restrictions along Silver Creek and not to redefine the floodplain limits. The cross sections of the model extend far enough to account for flooding around the school. However, the multidirectional flow that would occur around the school during a flooding event would not be accurately calculated using a 1-D HEC-RAS model. It is up to the design team to verify that removing the building above the culvert (the restriction within Silver Creek) does not result in negative downstream impacts. If necessary, this could be achieved by performing a new analysis using survey, updated LIDAR, current flow data, and the latest industry standard modeling practices.

- Rayona Clemons also commented about the Flood Insurance Rate Maps being updated and the impacts to Tanyard Brook. FEMA was contacted and stated that a FEMA FIRM update is not anticipated in the near future. This project is in the Silver Creek Watershed and not the Tanyard Brook Watershed.

Stormwater Regulations:

- The project design must meet the requirements of the regulations of RIDEM and the Town of Bristol. If the Town of Bristol (Planning Board) would like the project to meet additional more stringent stormwater requirements, then this should be discussed with the School Department.
- The design team shall supply necessary calculations and present designs which will meet the stormwater requirements of the Town of Bristol and RIDEM with the Preliminary Plan Submission.

Engineers Scientists Planners
parecorp.com

PARE CORPORATION

September 25, 2024

Town of Bristol
Attn: Community Development Department
235 High Street - 1st Floor
Bristol, RI 02809

Re: **Master Plan – Supplemental Information**
Mt. Hope High School
199 Chestnut Street
Bristol, RI
(Pare Project No. 23099.01)

Dear Members of the Planning Board:

On behalf of the Bristol Warren Regional School District (BWRSD), Pare Corporation is pleased to submit the supplemental information requested by the Planning Board during the September 12, 2024 Planning Board Meeting. BWRSD seeks Master Plan approval for the Mt. Hope High School (Mt. Hope) project, which includes demolition of the existing building and the construction of a new high school. The supplemental information consists of the following:

- Twelve (12) copies of the revised Master Plan sheets (11”x17”)
- Twelve (12) copies of the Supplemental Information Documents
  - Attachment 1 - Parking Data prepared by PMA Consultants
  - Attachment 2 - Event Parking Figure prepared by Pare Corporation
  - Attachment 3 - Additional Irrigation, Well System Design and State Permitting Letter prepared by Aqueous Consultants
  - Attachment 4 - Rainwater Harvesting Memorandum prepared by Traverse Landscape Architects
  - Attachment 5 - Synthetic Turf Memorandum prepared by Traverse Landscape Architects

On September 12, 2024 the Mt. Hope High School project was presented to the Planning Board. Please see the responses below to answer the questions raised during the Planning Board Meeting.

OFF-STREET PARKING
In response to concerns regarding the proposed 240 off-street parking spaces, the revised Master Plan Sheet C3.0 proposes 248 parking spaces. The existing high school has 281 parking spaces. BWRSD has determined that 248 parking spaces satisfies the future high school needs for the school day by providing parking spaces for the 122 staff members, 10 visitors and 116 students who are permitted to park on site. BWRSD anticipates the Master Plan will provide adequate parking spaces for the high school’s operations and special events. Supplemental information to support the number of proposed parking spaces is included below:

- The Owner’s Representative performed two field reviews to note available on-site parking. Attachment 1 summarizes the parking data collected by the Owner’s Representative on 09/13/2024 at 10:45AM and 09/19/2024 at 11:00AM.

- In an effort to reduce impervious surface, meet the Rhode Island Department of Education (RIDE) standards, and provide adequate parking distribution around the site, BWRSD determined that the 248 parking spaces is adequate for the operations of the school during the school day and special events.

- Per the Code of Ordinance section 28-252.c, the high school is required to have a minimum of 226 off-site parking spaces. Per the Town of Bristol Code of Ordinance section 28-252.a "the maximum number of off-street parking spaces allowed for any lot or use shall not exceed ten percent". Based on section 28-252.a the maximum parking spaces is 248 off-street parking spaces. The Master Plan is revised depicting an additional 8 parking spaces to be at the maximum capacity for the site per the Code of Ordinance.

- Attachment 2, presented in the Planning Board meeting on September 12, 2024, depicts the off-street parking available for the variety of anticipated athletic and cultural events.

- During events, additional parking is available on Chestnut Street and within a gravel lot at Paull Park. These two locations offer the public an additional 100 parking spaces.

FLOODPLAIN

The Master Plan dated September 4, 2024 depicts the limits of the regulatory floodplain as defined within the FIRM Panel xxx dated July 7, 2014. The Planning Board requested the design team confirm this is the latest available flood plain information and explore other published flood studies to determine whether additional information is available for use during the design.

- The flood limits depicted on the Master Plan, taken from FIRM Panel No. 44001C0014H, represent the latest available flood mapping and applicable per the Town of Bristol Code of Ordinances. Per the Town of Bristol Code of Ordinance Section 28-302 and Section 29-303 on "Developments in Areas of Special Flood Hazards" defines the applicable flood boundary as "the official map of a community on which the Federal Emergency Management Agency (FEMA) has delineated the limits of the regulatory floodway and 100-year floodplain". The FEMA effective floodplain map (Panel No. 44001C0014H) is the regulatory limit issued by FEMA and adopted by the Town of Bristol as defined as "the official map of a community on which the Federal Emergency Management Agency (FEMA) has delineated both the special flood hazard areas (100-year floodplain) and the insurance risk premium zones applicable to a community." The limits adopted by the Town on July 7, 2014 were established and published in the 2014 Flood Insurance Study (FIS) which is defined in section 29-303 as "the official study of a community in which the Federal Emergency Management Agency (FEMA) has conducted a technical engineering evaluation and determination of local flood hazards, flood profiles and water surface elevations. The flood insurance rate maps (FIRM), which accompany the FIS, provide both flood insurance rate zones and base flood elevations, and may provide the regulatory floodway limits."

- Pare contacted BETA Engineering (BETA) on September 20, 2024 regarding the 2007 Silver Creek Drainage Study. Per BETA, the Study did not include submitting a Letter of Map Revision to FEMA for the Silver Creek Watershed or updated floodplain limits at the Mt. Hope property. The study provides a one-dimensional, steady-state HECRAS model developed to identify potential hydraulic restrictions along Silver Creek. The Study does not include information that would supersede the FEMA Flood Mapping depicted in the Master Plan.

- The Design Team reached out to Shelia Warren from the U.S. Army Corps of Engineers (USACE) New England District regarding the Floodplain Management Services Program's special study of the Silver Creek Watershed. In correspondence on 09/20/2024, the USACE stated they recently began the project and will share preliminary data if available. At this time, the Study does not include information that would supersede the FEMA Flood Mapping depicted in the Master Plan.

The project proposes to remove the existing building from the floodplain and build the new high school outside of the floodplain. By removing the building from the floodplain this will reduce the risk of property damage for BWRSD, improve site conditions for community members and provide a more resilient design for a community building.

The development proposed within the floodplain will result in no net loss of storage volume within the floodplain. Currently 12,700 SF of the baseball field is proposed within the existing floodplain. Compensatory storage will be provided to ensure no volume capacity is lost within the floodplain. Grades within the floodplain will be provided at the Preliminary Plan Submission.

STORMWATER MANAGEMENT

The proposed development depicted on the Master Plan will significantly improve the quality of stormwater management discharged from this site and will result in improvements to the Silver Creek Watershed. The existing conditions include large impervious parking areas with no water quality treatment, limited groundwater recharge, and minimal peak flow mitigation. There is one stormwater best management practice, a detention basin, designed to manage peak flows for the drainage patterns to the west of the site. Currently stormwater discharged from the eastern portion of the site flows directly to Silver Creek. The proposed conditions will significantly improve stormwater quality, reduce peak flow, and manage runoff volume up to the 10-year storm as required by the Town of Bristol's Subdivision and Development Review Regulations for the Silver Creek Watershed through the following:

- Providing water quality treatment for impervious surfaces, including roof, parking areas, walks track, and synthetic turf field. This will be a great benefit to the health of Silver Creek and the natural resources by removing pollutants.
- Providing groundwater recharge through filtering best management practices (BMPs) and underground infiltration chambers. Infiltrating stormwater runoff where possible will reduce runoff volume discharged to Silver Creek and be a great benefit to the project site by infiltrating stormwater runoff to help remove stormwater volume.
- Providing peak flow mitigation through BMP's that will hold water during storm events and slowly release over time. Attenuating peak flows will be achieved using BMPs such as detention basins, gravel wet vegetated treatment systems, and underground infiltration systems.

All new stormwater collection, storage, and treatment systems will be designed and constructed in accordance with the State of Rhode Island Storm Water Design and Installation Standards Manual (RISDISM) prepared by the Rhode Island Department of Environmental Management (RIDEM) dated December 2010 and amended March 2015 and the Town of Bristol's Subdivision and Development Review Regulations section F.2.I.2.e "To the maximum extent practicable as agreed upon by the Planning Board Engineer and the applicant's engineer, any increase in storm runoff volume, up to and including the 10-year storm event, shall be retained and recharged on site as close as feasible to its place of origin by

means of detention ponds or basins, seepage areas, subsurface drains, porous paving, or similar low impact design techniques. This shall be required within the Tanyard Brook and Silver Creek watersheds and encouraged to the extent practicable in other areas of Bristol."

The Master Plan is revised depicting a large underground infiltration system comprised of chambers, pipe, and crushed stone that will store and slowly infiltrate stormwater into the underlying soils. The underground infiltration system, combined with infiltration in other BMP's, will result in no increase to runoff volume in the 10-year design storm.

The Design Team revised the Master Plan with reduced impervious surfaces to help mitigate concerns regarding stormwater runoff. The reduction is achieved by reducing sidewalk widths, providing compact parking spaces where allowed by the Town of Bristol Code of Ordinances, and minimizing pavement where feasible.

PUBLIC OUTREACH

Since Fall 2023, BWRSD implemented various methods of community outreach, engagement and meetings with neighboring properties. Below is a list of past meetings that allowed abutters and community members opportunities to learn about the progress of the Mt. Hope High School project and discuss concerns.

- Community Forum I – October 2, 2023
- Abutters Meeting I – October 11, 2023
- Community Forum II – November 1, 2023
- Public Meeting – September 12, 2024
- PMA Consultants Property walk – September 13, 2024
- Abutters Meeting II – September 16, 2024

During the Community Forums and Abutter's Meeting , abutters voiced concerns with floodplain management, stormwater management, construction activities, and site feature locations. BWRSD, with the support of the Design Team, will continue the public outreach effort. The Master Plan reflects the concerns of the abutters at this level of design. Following Master Plan, more details regarding the stormwater management system will be available to support more specific discussions.

On behalf of BWRSD, we would like to request a Technical Review Committee meeting on October 2, 2024 to discuss the project and supplemental information provided in more detail. Should you have any questions or require additional information, please feel free to contact our office at (401) 334-4100.

Sincerely,

David L. Potter, P.E.
Vice President

DLP/ACB/dp

Attachments

Bristol Warren Regional School District

MT. HOPE HIGH SCHOOL

Attachment 1

Parking Data prepared by PMA Consultants

Data point #2:

9/19/24 @ ~11:00AM

107 vacant spaces, (74 student + 33 teacher)

Chad Crittenden
PMA Consultants
p: 781.519.1076

From: Chad Crittenden <ccrittenden@pmaconsultants.com>
Sent: Friday, September 13, 2024 12:22 PM
To: Lisa Pecora <L.Pecora@perkinseastman.com>; Joe Drown <j.drown@perkinseastman.com>; David Potter <DPotter@parecorp.com>; Annelise Boylan <aboylan@parecorp.com>; 'Kris Bradner' <kbradner@traversela.com>
Cc: Bristol Warren <BristolWarren@pmaconsultants.com>
Subject: BWRSD - MHHS Parking Counts

9/13/24 @ ~10:45AM

Photos/data from this morning courtesy of Chris Loeffler

84 vacant spaces, (63 student + 21 teacher)

Chad Crittenden
Managing Director

PMA Consultants
35 Braintree Hill Office Park, Suite 300
Braintree, MA 02184
p: 781.519.1076 | f: 781.794.1405
www.pmaconsultants.com


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CR-V


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STOP


SANTA FE
3.5L
Rhode Island
EG 38
Ocean State

Bristol Warren Regional School District

MT. HOPE HIGH SCHOOL

Attachment 2

Event Parking Figure prepared by Pare Corporation

Event Parking Figure

Special Event Parking Table

Special Event Use	Seats	Parking Rate	Unit	Total Parking Spaces	Source
Theater	402	0.33	per seat	133	Bristol Zoning Ordinance 28-252 (theater and auditorium)
Football Bleachers*	1446	0.2	per seat	290	Bristol Zoning Ordinance 28-252 (outdoor recreation facility)
Baseball Bleachers	150	0.2	per seat	30	Bristol Zoning Ordinance 28-252 (outdoor recreation facility)
Softball Bleachers	150	0.2	per seat	30	Bristol Zoning Ordinance 28-252 (outdoor recreation facility)
Gym (basketball)	456	0.2	per person	92	Bristol Zoning Ordinance 28-252 (outdoor recreation facility)
Gym (graduation)	960	0.33	per seat	317	Bristol Zoning Ordinance 28-252 (theater and auditorium)

*Actual capacity of bleachers is to be determined as Athletic Field design progresses

PARKING SUMMARY			
	REQUIRED**	EXISTING	PROVIDED
STANDARD SPACES (10'x18')	219	275	236***
ACCESSIBLE SPACES*	7	6	12
TOTAL SPACES	226	281	248

* ADA REQUIREMENTS FOR PARKING LOT: 201 TO 300 TOTAL SPACES = 7 ADA SPACES

** PARKING SPACES REQUIRED BY ZONING ORDINANCE:
"HIGH SCHOOL": ONE PER EIGHT STUDENTS AND ONE PER EMPLOYEE
THE REQUIRED PARKING PER THE CODE OF ORDINANCES:
SCHOOL (832 STUDENTS): 104 SPACES
EMPLOYEES: 104 SPACES
TOTAL REQUIRED SPACES = 208 SPACES
MAXIMUM NUMBER OF PARKING SPACES ALLOWED:
208 PARKING SPACES + (208 PARKING SPACES x 10%) = 248 PARKING SPACES

*** PER SECTION 28-251.2.C OF THE CODE OF ORDINANCES, UP TO 25% OF THE TOTAL PARKING SPACES WILL BE SIZED FOR SMALL CAR PARKING SPACES WITH PROPER SIGNAGE

NOTE: THERE ARE AN ESTIMATED 88 ONSTREET PARKING SPACES ALONG THE PROPERTY FRONTAGE ON CHESTNUT STREET

MULTI PURPOSE FIELD
30

PRACTICE FIELD
10

SOFTBALL FIELD
30

DUMPSTER AREA
38

SERVICE AREA

BUS QUEUE
73

GYMNASIUM
92

PARENT DROP-OFF / PICK-UP AREA
82

BUS DROP-OFF / PICK-UP AREA

AUDITORIUM
133

MULTI PURPOSE FOOTBALL/SOCCER TRACK AND FIELD
290

PARENT QUEUE

PARENT ENTRANCE
17

TENNIS COURT
16

BUS ENTRANCE
38

LOAM AND SEED FOLLOWING REMOVAL OF THE BUILDING AND FOUNDATIONS

BASEBALL FIELD
30

LOD/CFS

CHESTNUT STREET

LEGEND

XX = ESTIMATED MAXIMUM NUMBER OF PARKING SPACES

(XX) = PARKING SPACES PROVIDED

88 ON STREET PARKING SPACES ON CHESTNUT STREET ALONG MT. HOPE HIGH SCHOOL PARCEL LIMITS

GRAVEL LOT IN PAULL PARK APPROXIMATELY 12 SPACES

Scale: 1"=60'
0 30' 60' 120'

PARE

OWNER/APPLICANT:
BRISTOL WARREN REGIONAL SCHOOL DISTRICT
235 HIGH STREET
BRISTOL, RI 02809
401-253-4000

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

MT. HOPE HIGH SCHOOL
199 Chestnut Street
ASSESSOR'S PLAT 117, LOTS 3, 4, 5, 6, & 7
Bristol, Rhode Island

REVISIONS:

1	9-04-2024	MASTER PLAN REV
2	~~09-25-2024~~	**MASTER PLAN REV**

PROJECT NO.:	23099.01
DATE:	AUGUST 2, 2024
SCALE:	1"=60'
DESIGNED BY:	ACB
CHECKED BY:	
DRAWN BY:	AKL
APPROVED BY:	

DRAWING TITLE:
OVERALL CONCEPT PLAN

DRAWING NO.:
C3.0

SHEET NO. 5 OF 10

Bristol Warren Regional School District

MT. HOPE HIGH SCHOOL

Attachment 3

Additional Irrigation, Well System Design and State Permitting Letter prepared by Aqueous Consultants

Aqueous

PROJECT 24-0012B

September 19, 2024

Traverse Landscape Architects, Inc.
150 Chestnut Street, 4th Floor
Providence, RI, 02903

RE: Additional Irrigation, Well System Design and State Permitting
Mount Hope High School, Bristol, RI

Please allow this memorandum to briefly outline what Aqueous believes is necessary to achieve a permit and functioning well to supply an irrigation water supply for Mount Hope High School:

- Preliminary Testing of Already Scheduled Geothermal Well Test Program
  - While the already scheduled geothermal well testing pilot program is in operation, log the drilling borehole to demarcate the varying geological strata and understand the extent of the water bearing sedimentary (sandstone) bedrock aquifer.
  - While rigging is already in place subsequently provide preliminary and rudimentary flow testing to assess the response of the underlying sedimentary (sandstone) aquifer.
  - Take results of logs and tests to prepare for pre-construction meeting with RIDEM.

- Perform Fracture Trace Analysis
  - Provide studies by hydrogeologist (subconsultant to Aqueous) to identify potential well locations for options for Owner and RIDEM to consider.
  - Location of potential wells where fractures in bedrock occur will dictate impact on RIDEM Permitting for Water and Wetlands.
    - Wells Closer to Wetlands may impact dewatering more.
  - Fracture Trace Analyses are not guarantees to find water—drilling, development, and testing are required to estimate flow potential.

- Multiple wells may need to be drilled; however, analysis will rank drilling sites by potential to mitigate some of the unknowns.

- **Pre-Application Meeting with RIDEM for a Water Withdrawal Permit**
  - Permit required for withdrawals more than 10,000 gallons per day
    - Mount Hope High School irrigation will require 40,000 – 5,0000 gallons per day
  - Submit Preliminary Log and Testing Information for RIDEM for review
  - Complement preliminary information with a project and objective narrative
  - Collaborate with LEC (Wetland Permitting) to Identify Potential Impacts to Regulated Areas.
  - Convey to RIDEM that irrigation demand is not the same level of demand as a municipal drinking water supply (which is generally the basis of the regulations).
  - After the meeting, RIDEM gives us the parameters for well design, testing information and data required, and path forward.
  - Design of well and testing program takes place after path forward from RIDEM.

- **Well Drilling and Testing Design**
  - Design for an 8-Inch Irrigation Well based on Fracture Trace Analysis and Comments from RIDEM
  - Design for a 2-inch Monitoring Well in Close Proximity to Wetlands to understand:
    - Impact of drawdown of groundwater table with long-term pumping
    - Responsiveness and yield of aquifer to pumping
  - Design Test Program based on RIDEM Comments
    - Drawdown Test
    - Long-Term (48-Hour) Pump Test
    - Water Quality Test
  - Hire Well Drilling Contractor to Drill Wells and Perform Testing (with Portable/Temporary Power and Temporary Well Pumps).
  - Collect and Analyze Data and Prepare Final Report to RIDEM.
  - RIDEM reviews data and, depending on results, allows desired pumping rate based on internal analysis or allows some percentage of tested flow rate.

- Well Pump, Accumulation/Stormwater Tank, and Irrigation Connection Design
  - In order to meet 100% Construction Documents for Public Bid in January 2025, this work needs to start immediately, taking the chance by designing concurrently while permitting with RIDEM.
  - RIDEM approves the well testing performed and dictates the flow rates allowed, Aqueous can pivot to modify the design accordingly for the drilled 8-inch well.
  - Coordination is required between Aqueous (Irrigation and Wells), Traverse (Landscape Architect and Sports Field Designer), Pare Corporation (Civil/Stormwater Engineer), and Electrical Engineer (Power to Equipment).
  - Drawings, details, and specifications are required for Well Pump System and Accumulation/Stormwater Tank.

In essence, to have a chance of having a well, well pump, and tanking system within the final bid construction document package for the end of January 2025, design work needs to be concurrent with permitting, using some base assumptions. These processes must start **immediately**. After permitting and testing, the design can be modified based upon the results (including total denial of well drilling and pumping–forcing the use of domestic water only).

If you have any questions, please do not hesitate to contact me. We appreciate the opportunity to pursue well water for the irrigation system at Mount Hope High School but want to again stress that much is required to do in a very short period of time before construction bid documents are due.

Sincerely,

Michael Igo, PE, LEED AP, CID
President

Bristol Warren Regional School District

MT. HOPE HIGH SCHOOL

Attachment 4

Rainwater Harvesting Memorandum prepared by Traverse Landscape Architects

TRAVERSE
landscape architects

Memorandum
Project: Mt Hope High School
Subject: Narrative for Rainwater Harvesting
Date: 9/25/2024
To: David Potter, PARE Corporation

This memo has been prepared to provide information to the Technical Review Committee of the Town of Bristol, RI. It is the intent that the information will ultimately be presented at the October 10, 2024 Planning Board Meeting for Master Plan Approval for the new Mt. Hope High School building project.

In addition to the Mt. Hope High School stormwater management design and calculations provided by your office and the irrigation well testing and design provided by our subconsultant Aqueous Consultants; there is another approach that we would like to identify here that can have added value to the project as it relates to water management.

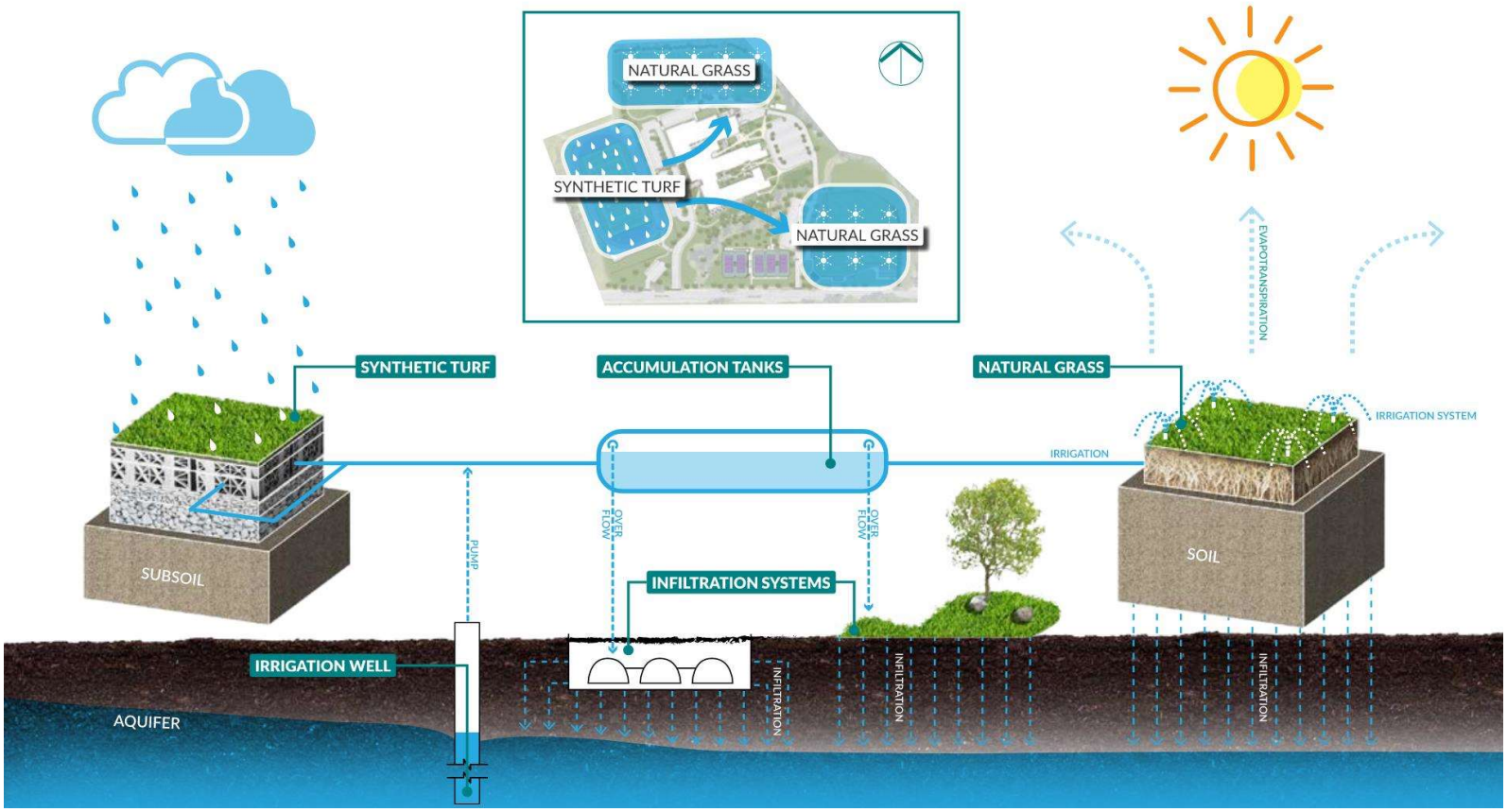
The concept involves harvesting rainwater also referred to as stormwater harvesting for the purpose of re-using or recycling the water for another important need – irrigating the natural turf athletic fields. This concept can provide several important benefits.

1. The Town of Bristol Regulations requires no increase in runoff for a 10-year storm event in the watershed where the project is located. This is a challenging site to infiltrate due to the poorly drained soils observed throughout the site. *Refer to the Master Plan Report provided by PARE Corporation.* Coming up with alternative and innovative solutions to infiltrate can benefit the project. Harvesting the stormwater and reusing it for irrigation allows for disposal and recharge of stormwater at a much more controlled rate across the site.

2. The School District has requested the A/E team to look into testing for and designing a well to pump water from below ground and use for irrigation to take the burden off of the district paying for water through the Bristol Water District. This requires applying for a withdrawal permit and ensuring that harvesting water from below ground will not impact nearby natural resources, wetlands and floodplain, and will not draw in seawater that will be deleterious to turfgrass fields. By harvesting water from rain events, we essentially put less pressure on withdrawing water from below ground.

3. The overarching, two-pronged approach noted above also has other added benefits including environmental and budget resourcefulness as well as meeting the athletic programming needs of the school. These include the following highlights:
    - An accumulation tank(s) will be required to store water and is included in scope for designing an irrigation well. This same tank(s) can be used to store harvested water.
    - There is a potential to reduce the amount of underground infiltration systems needed. **This benefit will not be realized until further design and testing and therefore not included in any permitting application at this time.*
    - On a rainy day, the irrigation system is not used the fields receive free water and the tank accumulates the excessive runoff to use for another day.
    - The synthetic turf field which is the primary rain water harvesting collector allows for over 3,000 annual hours of use, equating to the school being able to support a new field hockey team, can lead to revenue by renting the facility, and other programming needs outlined by the school.

4. The design of this system and all the other water systems noted herein will continue to be studied, tested and evaluated leading up to Preliminary Plan Approval for further review by your team. We greatly appreciate the opportunity to present these concepts that have a benefit to the school project and the community. Below is a graphic representing these systems conceptually.



End Memorandum

Bristol Warren Regional School District

MT. HOPE HIGH SCHOOL

Attachment 5

Synthetic Turf Memorandum prepared by Traverse Landscape Architects

TRAVERSE
landscape architects

Memorandum
Project: Mt Hope High School
Subject: Narrative for Synthetic Turf
Date: 9/25/2024
To: David Potter, PARE Corporation

This memo has been prepared to provide information to the Technical Review Committee of the Town of Bristol, RI. It is the intent that the information will ultimately be presented at the October 10, 2024 Planning Board Meeting for Master Plan Approval for the new Mt. Hope High School building project.

During the September 12, 2024 Planning Board Meeting there were a list of concerns that Board members had regarding the use of synthetic turf for the track and field replacement. Below outlines these items and further explanation. These items were reviewed at a recent School Building Committee as well where a few Planning Board members were present.

1. Concern about synthetic turf having PFAS (per and polyfluoroalkyl substances). The simple answer to this concern is that this project will fall under the laws meeting the State of Rhode Island General Assembly Legislation (2024-H 7356Aaa, 2024-S 2152Aaa). There are manufacturers who are now supplying turf carpet without ingredients containing PFAS responding to nation-wide demand.

2. Concern about metals and other contaminants from infill material leaching into natural resources. The crumb rubber infill, depending on it's source and makeup, is generally the source. This project will have a natural ingredient based infill called Brockfill (https://www.brockusa.com/athletes-matter-brockfill/). It's made up of harvested Southern Yellow Pine and has the added benefit of reduced heat on a field which was also a concern brought up by the Planning Board.

3. Concern about bacteria in fields. Several studies have been conducted relative to potential bacterium such as Staphylococcus aureus capable causing infections or diseases spread by contact with synthetic turf. Relative to infilled synthetic turf surfaces installed in outdoor environments the survival rate of bacteria is very low. This is due to the higher temperatures and the presence of Ultra Violet light in the outdoor environment. There are several products made to be applied topically to synthetic turf as a "disinfectant or anti-microbial" these have been shown to have no added benefit in outdoor environments because the bacteria can not survive long enough in the higher temperatures and UV exposure. Refer to the Penn State Study "Survival of Staphylococcus Aureus on Synthetic Turf" for more information. https://extension.psu.edu/survival-of-staphylococcus-aureus-on-synthetic-turf

4. Concern about higher incident of injuries on synthetic turf. Any synthetic turf system designed as part of the Mt. Hope High School project will be required to meet the standards of World Rugby Regulation 22, FIH and FIFA. These organizations have combined resources to identify best practice for multi-use long pile community-based fields and provide information to facility owners, managers and investors in ensuring that their fields reflect best practices in the areas of player welfare, performance, sustainability and longevity. This standard is known as "One Turf" and the testing documentation is attached. Many of these standards and tests are derived from and are also used for certification of natural grass fields.

   We would recommend testing of the existing natural grass fields in the School District as a reference data set for comparison to synthetic turf (ie would your existing natural grass fields pass the One Turf standard)

   All of this testing for safety and performance represents a snapshot in time. Sporting surfaces are dynamic and their conditions change, sometimes quickly. Maintenance is as key with synthetic turf as it is with any sporting surface. Maintenance and proper footwear/equipment are the biggest factors in mitigating injury risk for student athletes.
   End of Memorandum (see Attachment)

One Turf – Tables of Testing

WORLD RUGBY

Parameter	Test Method	Minimum Value	Maximum Value
Shock Absorption	AAA Version (FIFA Method)	55%	70%
Vertical Deformation		5mm	11mm
Rotational Resistance	EN 15301-1 (football studs)	25Nm	50Nm
Impact Attenuation (HIC)	EN 1177	1.3m	-
Ball Roll (large ball)	FIFA Method	-	12m
Vertical Ball Rebound (large ball)	EN 12235 (absolute)	0.6m	1.0m
Evenness (Surface Regularity)	EN 13606 (3m straight edge)	-	10mm
Slope	Surveyor's Level		1%

Performance Tests

WORLD RUGBY

Item C1.

Parameter	Dry	Wet	Temperature Extremes	After Simulated Wear	Hot Water Immersion	UV Exposure	Laboratory Requirement		
							Min	Max	Units
Shock Absorption	X	X	X	X			57	68	%
Vertical Deformation	X	X	X	X			6	10	Mm
Rotational Resistance	X	X		X			32	43	Nm
Impact Attenuation (HIC)	X	X	X	X			1.3	-	m
Ball Roll (large ball)	X	X		X			-	12	m
Ball Roll (small ball)	X	X		X			5	-	m
Vertical Ball Rebound	X	X		X			0.6	1.0	m
Angled Ball Rebound	X	X		X			45	70	%
Skin/Surface Friction	X						0.3	0.75	
Skin Abrasion	X						-30	30	%
Tensile Strength – Yarn	X					X	30	.	N
Tensile Strength – Joints	X				X		2,500	.	N/100mm
Tensile Strength – Carpet	X						25	.	N/100mm
Tensile Strength – Shock pad	X						25	.	N/mm
Colour Change – Yarn	X					X	3	.	Grey Scale
Colour Change – Infill	X					X	3	.	Grey Scale
Water Permeability		X					500	.	mm/h

Performance Tests

WORLD RUGBY

Item C1.

Parameter	Laboratory ID Test	Field ID Test – On installation	Field ID Test – Subsequent testing
Carpet			
Mass per Unit Area	X	X	
Tufts per Unit Area	X	X	
Tuft Withdrawal Force	X	X	
Pile Height	X	X	X
Total Pile Weight	X	X	
Yarns (per yarn)			
Pile Yarn Characteristic (DSC)	X	X	
Pile Thickness	X	X	X
dTex	X	X	
Infills (per infill)			
Particle Size	X	X	X*
Particle Shape	X	X	X*
Bulk Density	X	X	
Thermogravimetric Analysis (TGA)	X#	X#	
Shock Pad			
Thickness	X	X	
Shock Absorption	X	X	
Vertical Deformation	X	X	

Performed on non-natural infills only
* Only required on performance infills

Identification Tests

WORLD RUGBY

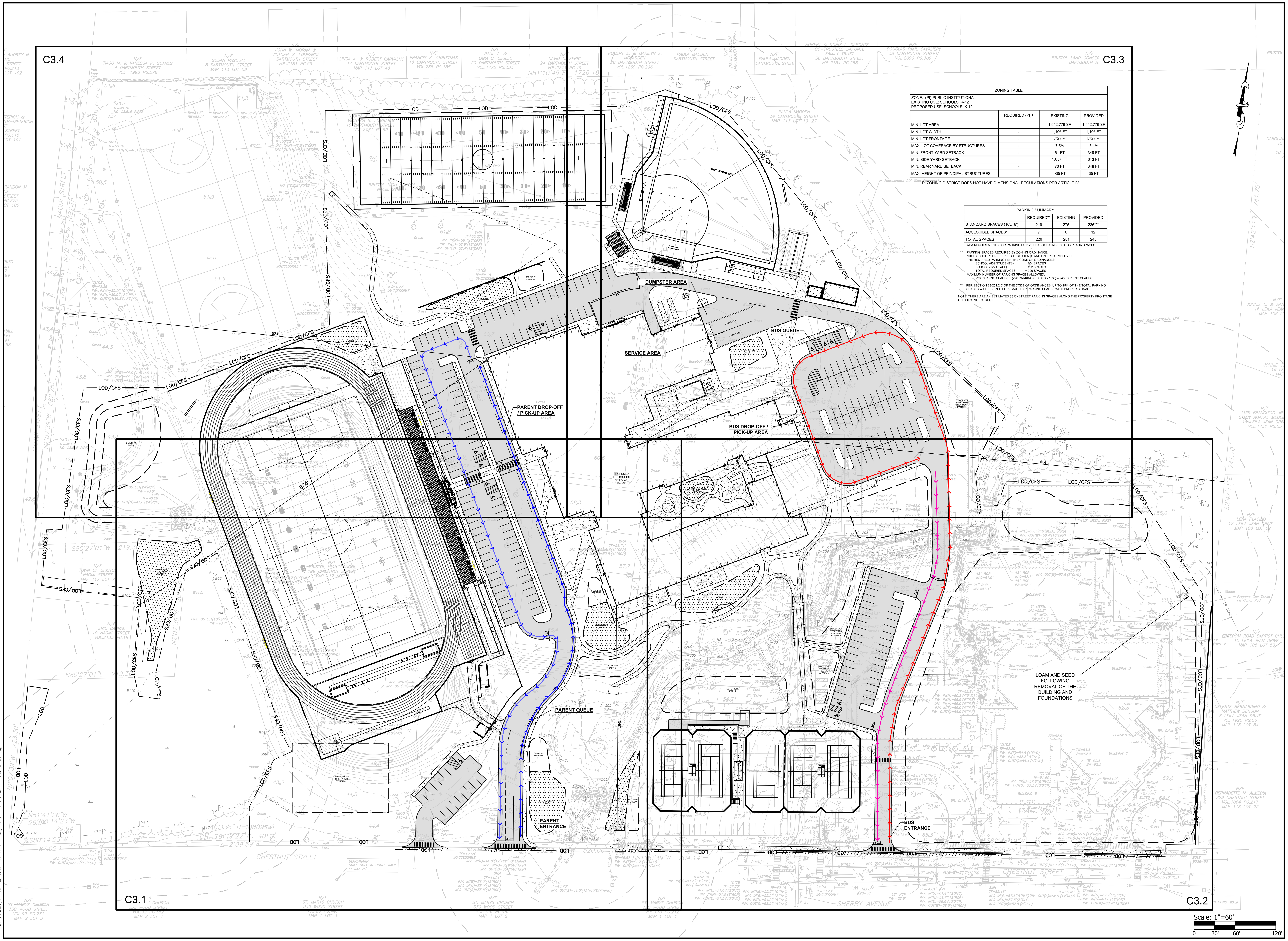
Item C1.

	FIFA	FIH	World Rugby
Certification process in place	X	X	X
Licensee process in place	X	X	X
Certification limited to licensees	X	X	
Accredited Test Institute Process	X	X	X
Lisport XL used for simulated wear	X		X
Lisport used for simulated wear		X	
Large Ball Roll Requirement	X		
Small Ball Roll Requirement		X	
Splash Rating Requirement	X		X
Heat Rating Requirement	X		X
Minimum Pile Height Requirement			X
HIC requirement			X
Energy Restitution Requirement			X

Sport Specific Requirements

WORLD RUGBY

Item C1.



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MIN. LOT WIDTH	-	1,106 FT	1,106 FT
MIN. LOT FRONTAGE	-	1,728 FT	1,728 FT
MAX. LOT COVERAGE BY STRUCTURES	-	7.5%	5.1%
MIN. FRONT YARD SETBACK	-	61 FT	349 FT
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MAX. HEIGHT OF PRINCIPAL STRUCTURES	-	>35 FT	35 FT

\+ PI ZONING DISTRICT DOES NOT HAVE DIMENSIONAL REGULATIONS PER ARTICLE IV.

PARKING SUMMARY			
	REQUIRED**	EXISTING	PROVIDED
STANDARD SPACES (10'x18')	219	275	236***
ACCESSIBLE SPACES*	7	6	12
TOTAL SPACES	226	281	248

* ADA REQUIREMENTS FOR PARKING LOT: 201 TO 300 TOTAL SPACES = 7 ADA SPACES

** PARKING SPACES REQUIRED BY ZONING ORDINANCE:
"HIGH SCHOOL": ONE PER EIGHT STUDENTS AND ONE PER EMPLOYEE
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NOTE: THERE ARE AN ESTIMATED 88 ONSTREET PARKING SPACES ALONG THE PROPERTY FRONTAGE ON CHESTNUT STREET

Item C1.

PARE

OWNER/APPLICANT:
BRISTOL WARREN REGIONAL SCHOOL DISTRICT
235 HIGH STREET
BRISTOL, RI 02809
401-253-4000

SCALE ADJUSTMENT GUIDE
0" 1"
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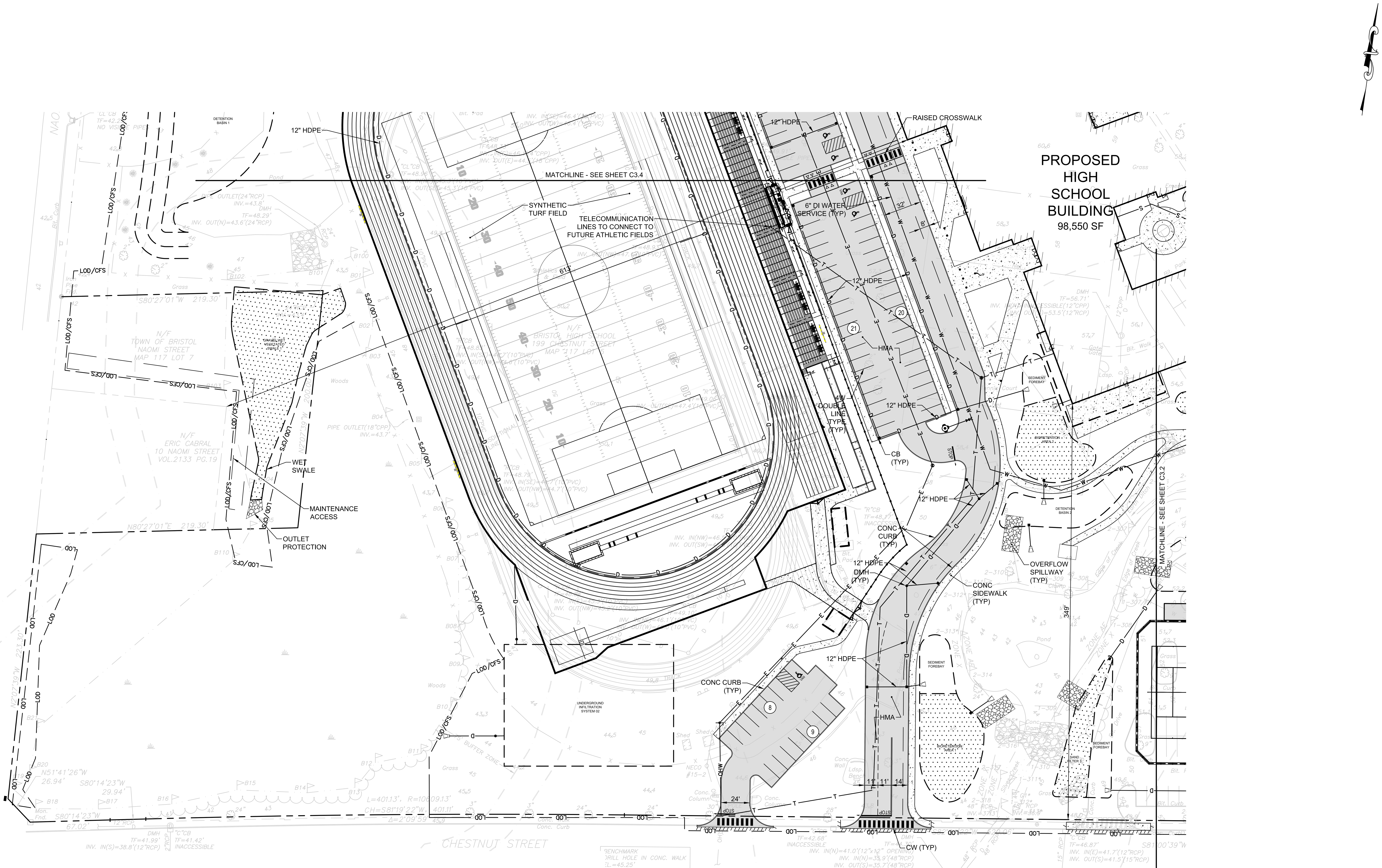
DRAWN BY: AKL
APPROVED BY:
DRAWING TITLE:

OVERALL CONCEPT PLAN

DRAWING NO.:
C3.0

SHEET NO. 5 OF 10

Item C1.



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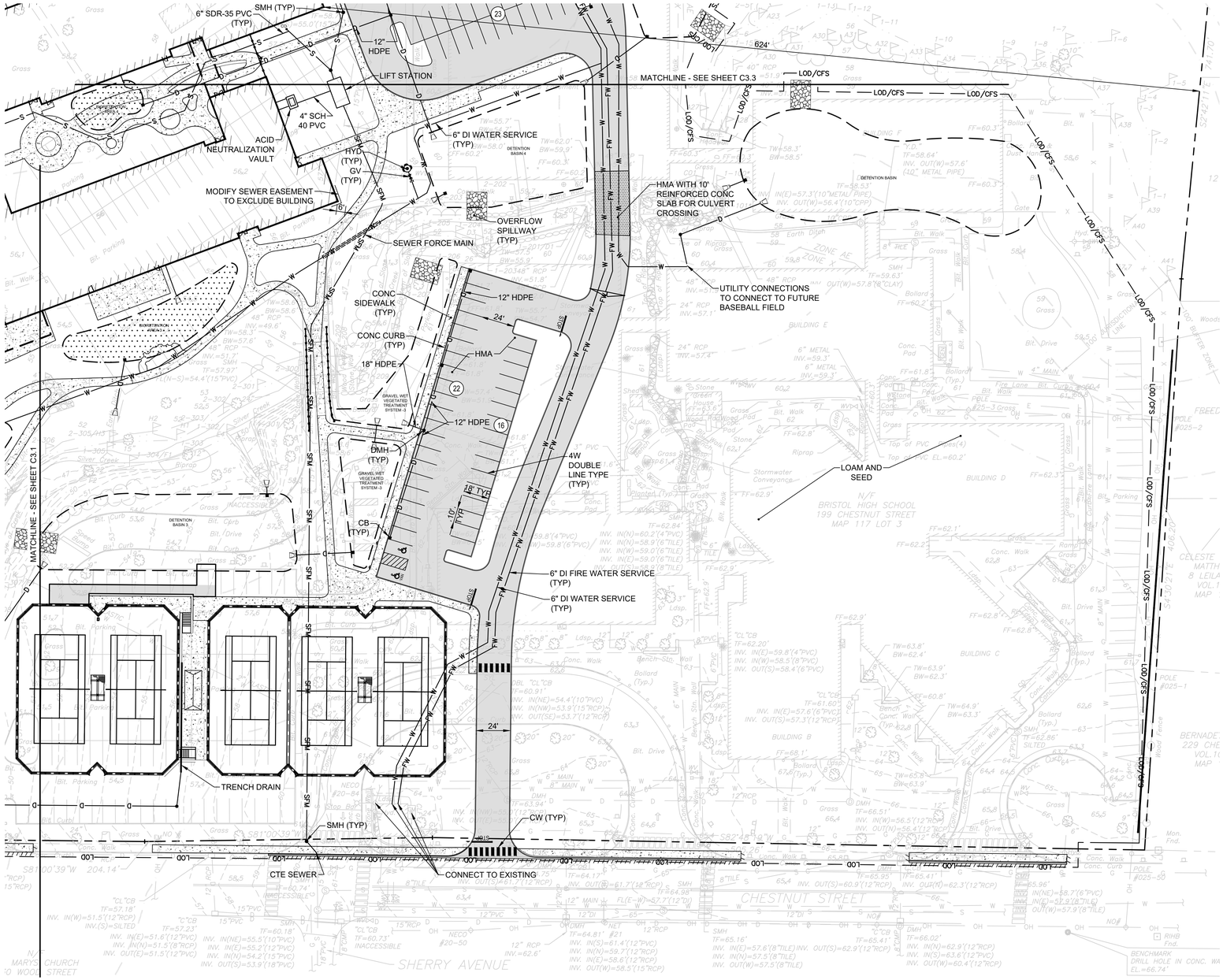

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APPROVED BY:	

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CONCEPT PLAN 1.2

DRAWING NO.:
C3.2

SHEET NO. 7 OF 10

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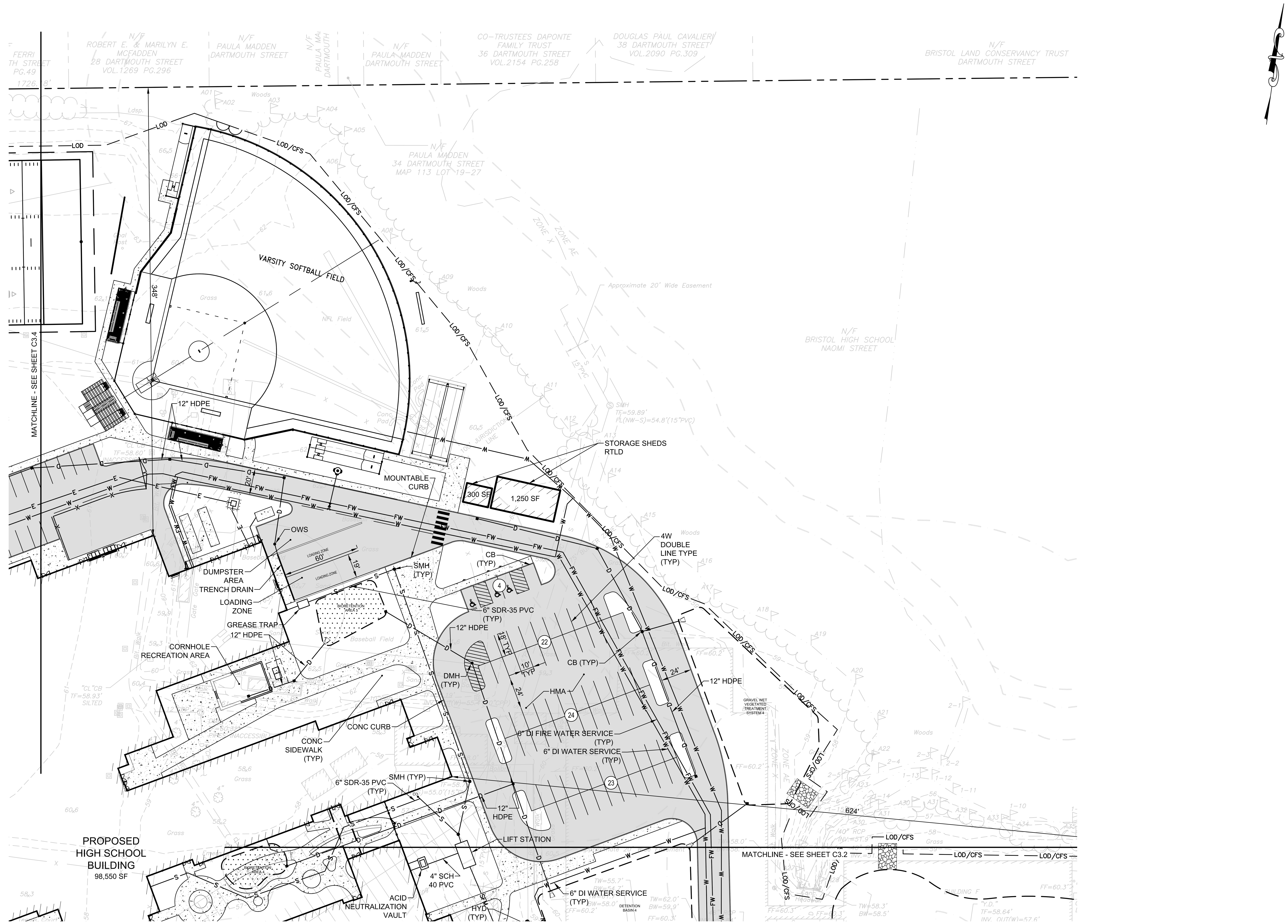

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APPROVED BY:
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CONCEPT PLAN 1.3

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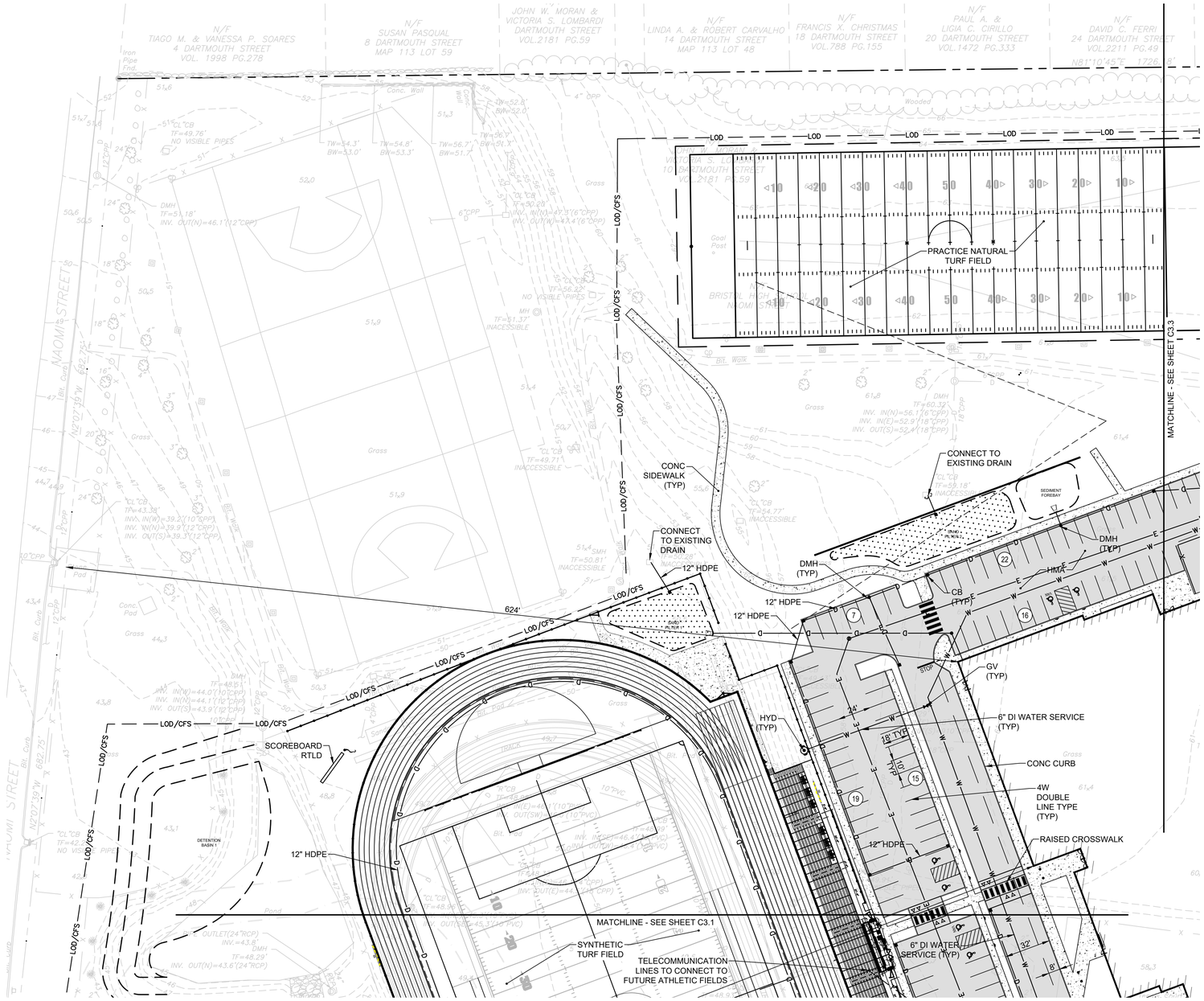

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APPROVED BY:	

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CONCEPT PLAN 1.4

DRAWING NO.:
C3.4

SHEET NO. 9 OF 10

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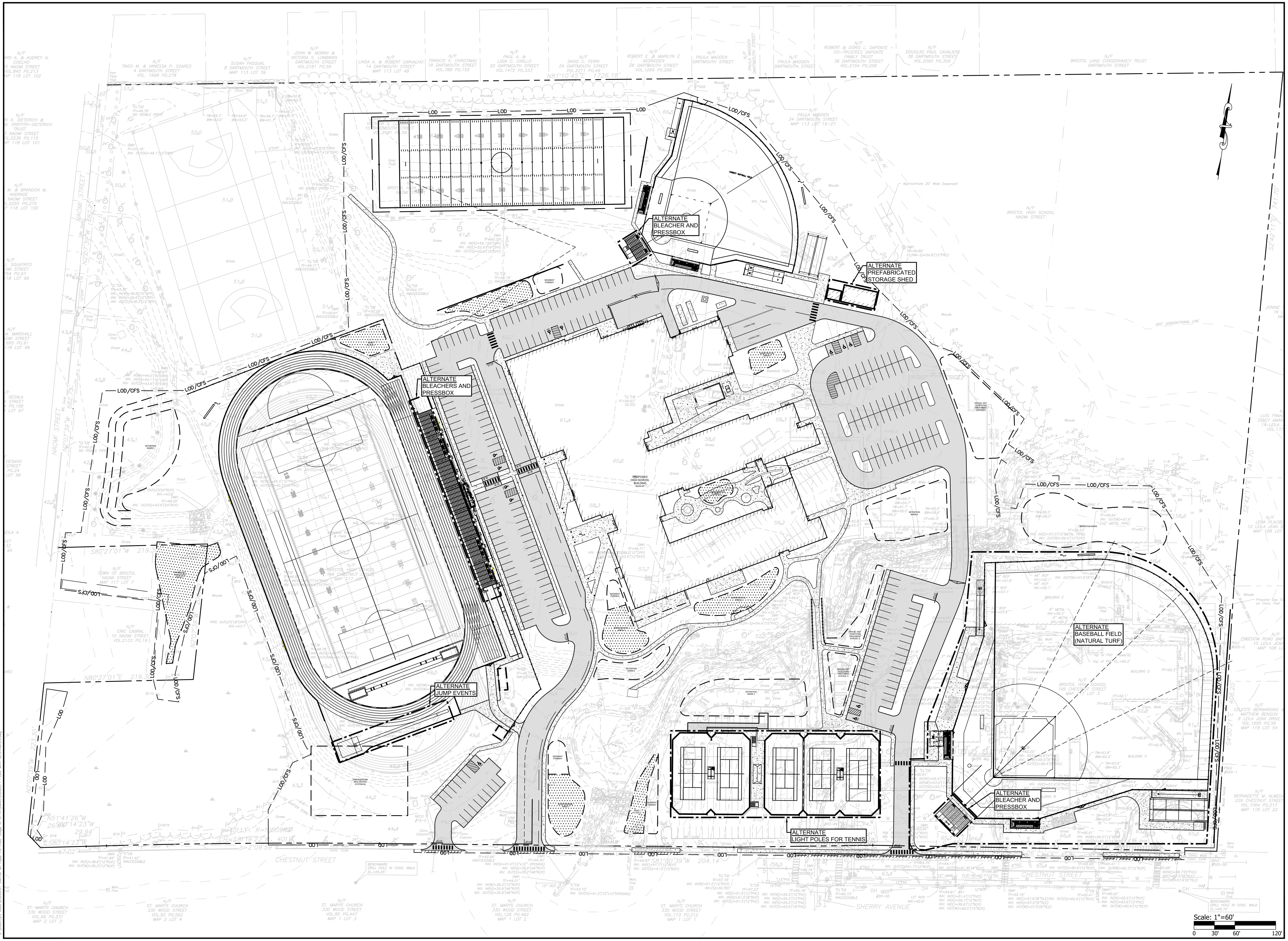
Item C1.



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APPROVED BY:	

DRAWING TITLE:
CONCEPT PLAN WITH ALTERNATES

DRAWING NO.:
C3.5

SHEET NO. 10 OF 10

September 27, 2024

Mr. Charles E. Millard, Jr.
Chair Bristol Planning Board
Town of Bristol Town Hall
10 Court Street
Bristol, RI 02809

RE: Master Plan Phase
Mt. Hope High School

Dear Mr. Millard and Members of the Bristol Planning Board:

This letter is written **in opposition to the granting** of Master Plan approval, and/or granting any waivers/deferrals in the application for the required RIDEM permits. The Master Plan – Supplemental Information provided by Pare Corporation, dated September 25, 2024, regarding Flood Plain, is both non-responsive and quite frankly, in my opinion, insulting to the neighbors' concerns with the existing flood problems.

The main concern is the flooding issue that is currently affecting our neighborhood, the high school, Chestnut Street, and adjacent areas of the Silver Creek watershed. The flooding problems are progressively getting worst and need to be addressed in a responsible and comprehensive manner. I believe the best way to address the flooding problem is to do the following:

Recommendations

1. Update the Silver Creek Drainage study using the latest version of the HEC RAS (Version 6.5 February, 2024) model and input the current increased rainfall amounts into the model.
2. Use the HEC RAS model to determine the impact of:
3. *existing (since 2007) and proposed new developments within the watershed.
   *the impact of filling in 40,000 square feet of wetlands upstream.
   *the impact of removing the old high school building. Could currently be acting as a dam blocking flood runoff to the high school property.
   *the decision to have the existing culverts remain.
   *the impact of sea level rise.
   the ability of the culvert(s) under St Mary's Cemetery to convey flood waters and their condition.

The Recommendations are based on the following Key Findings:

Key Findings From Master Plan---Supplemental Information

- **Using FEMA Map to Locate New High School is a Risk Not Worth Taking**

The supplemental information ignores the flood problems and bases its response on an outdated and erroneous FEMA map by citing Bristol Code of Ordinance Section 28-302

and Section 29-303. The Professional Consultants use the excuse that the FEMA map is the 'official' flood plain designation, and that the Beta study did not submit a 'Letter of Map Revision' to change the flood elevations.

The mere fact the FEMA map identifies: "Area of Minimal Flood Hazard" for Chestnut Street and the area in front of the high school shows that the map is not only outdated but inaccurate. This area is well known for flooding and traffic closures. Using *Rogers Free Library* digitized Bristol Phoenix, flooding and the closure of Chestnut Street was noted at least 14 times from 2001-2010. A police officer is quoted as saying per Bristol Phoenix "…and Chestnut Street saw flooding so bad that the police said a current running in the water was strong enough to sweep people off their feet." (Bristol Phoenix, October 20, 2005, page 12.)

It is our opinion that to locate a $200 (two hundred) million-dollar new high school based on a technicality that the FEMA map is correct, and Beta did not apply for a Letter of Map Revision is a risk not worth taking. This approach is beyond comprehension as it defies common sense and the overwhelming evidence of the flood problem affecting the high school area as well as all property within the Silver Creek Watershed.

- **BWRSD Informational Sessions and Design Team Outreach**

During these meetings we were told that our flooding concerns would be taken seriously; that there is a lot of oversight, including RIDEM permitting, to ensure flooding issues would be addressed. Furthermore, in an article written by Ethan Hartley for East Bay RI dated July 26, 2023, he asked the question of BWRSD: "if plans took into consideration rising sea levels and increased incidents of heavy rainfalls," the reply was: "This would be better answered by the professional on our design team. But I do know that planning for climate change has been top-of-mind,…"

- **Disconnect From What Was Assured.**

We are now at a point in realizing that the flooding problems within our neighborhood, as well as all property south of the Silver Creek Watershed to Silver Creek Bridge on Hope Street are not being properly addressed with the most accurate and recent data. It is our opinion that the Professional Consultants are not considering climate change by relying on a 2014 FEMA Map. Moreover, BWRSD is requesting waivers of State permits required for submission at the Preliminary Plan stage of review with the following permits to be provided as a condition of approval to be submitted prior to Final Plan Review. Such a waiver or deferral is contrary to what BWRSD assured; the argument that permits are provided as a condition of approval prior to Final Review is questionable and problematic.

- **RI Coastal Resources Management Council Questions Reliability of FEMA Maps**

The use of FEMA maps for flood plain designation has been determined to be unreliable by CRMC "These maps however are typically out of date and based on historical flooding and past development. They don't anticipate climate change trends, they often ignore rising sea levels, and they don't account for rapidly expanding development in flood prone suburban regions according to critics." The article continues to say that "Fugate (former Director CRMC) noted that FEMA maps are fundamentally inaccurate because of the geographical points they rely on called transits are two widely spaced". (eco' RI news; June 15, 2018). The Beta study had 23 sub watersheds and nearly 30 transits including Elbow Creek. Elbow Creek connects to Silver Creek in the high school area.

It is interesting to note that the FIS, in which the FEMA map is based on, did not consider the impact of sea levels. The FIS study said, "based on the results of the new coastal analysis, riverine backwater elevations have changed but are not incorporated into the new coastal study. The backwater elevations for East Branch Silver Creek, Walker Creek West Branch Creek will need to be updated in future revisions" (Flood Insurance Study, FEMA, 2013, p.12)

- **Acknowledge the Serious Flooding Problems and Perform a Responsible and Comprehensive Examination**

Let's not repeat the mistakes of the past. Flooding is serious and the impact of climate change worsens it. To disregard the flooding concerns is irresponsible. Therefore, it is critical that the most updated technical resources and tools are used.

It's worth noting that the BWRSC Professional Consultants conferred with U.S. Army Corps of Engineers regarding the special study of the Silver Creek Watershed. And they were told there is no preliminary data available. Moreover, the Professional Consultants concluded: "At this time, the Study does not include information that would supersede the FEMA Flooding Mapping depicted in the Master Plan." (Master Plan—Supplemental p. 3) Therefore, if there is no preliminary data available, how can the Professional Consultants conclude that the flood elevations would not change. The question then becomes how do the Professional Consultants plan on dealing with and when the revised FEMA study does show changes in flood elevations?

Summary of Key Findings From Master Plan-September 12

- **Flooding exists in our neighborhood, at the high school, at Chestnut Street, and adjacent areas of the Silver Creek watershed.** The problem of flooding was recently confirmed by the September 2nd, 2021 storm event that closed streets including Chestnut and flooded properly including Mount Hope high school. That storm event had a much smaller rainfall amount (essentially equal to a 25-year

storm event) than what would have occurred with a 100 -year storm event, in which the flood plain designation in elevations are based.

- **There is a proposed hotel development filling in 40,000 square feet of wetlands upstream of the new school site,** which potentially could increase flooding in the proposed location of the new high school. Potential increase in flooding from this proposed hotel development is a concern of the neighborhood, as expressed in a petition signed by over 100 residents. Also, many letters were written in opposition to DEM granting the permit without the hotel applicant performing the proper analysis of potential increase in downstream flooding. The Town Council also wrote a letter to DEM stressing the flooding concerns and included the Silver Creek drainage study to RIDEM quoting from there letter "that provides a comprehensive analysis of the area and highlights relevant factors." Additionally, the council stated there needs to be careful review because of the potential impact on construction of the new high school.
- **The use of an outdated flood map, which is included in the Master Plan Report.and the absence of the 2007 Silver Creek drainage study.** The flood plain (FEMA) identified in the Master Plan report is based on a FEMA flood insurance study dated February 21, 2013. The map National Flood Hazard Layer Firmette is based on the 2013 FIS that states "hydraulic analysis for the East Branch Ssilver Creek was obtained from the original FIS for the Town of Bristol (US Department of Urban and Housing Development 1971)"
- **The Town of Bristol commissioned Silver Creek Drainage Study,** Bristol RI (Beta Engineers-Scientists, November 2007). The Silver Creek Study utilized HEC RAS which is the proper method or the standard of practice for flood plain analysis. The analysis of the Silver Creek study showed potential increases in the flood elevations, including in the area of the high school campus.
- **Rainfall amounts have increased**. Changes have been made since the FEMA and Beta studies. The Rhode Island Stormwater Design and Installation Manual (RIDEM and CRMC, 2015) increased the rainfall amount associated with the 100-year Storm Event. Therefore, increased rainfall amounts will increase runoff that will have the potential to further increase flood elevation.
- **Storm events are occurring more frequently** and more significantly.
  In a newspaper article from the Providence Journal dated September the 7, 2022 It said "we're in a different time zone now' said Boving who studies hydrology. Historical design parameters can be thrown out of the window where in a new climate what was 100-year storm back then is more like a 25 or 10 year storm today". (Providence Journal, September 7, 2022, p.10A)
- **There is a rise in sea level** that restrict flow and causes backup again increasing flood areas and elevations.
- **Stormwater Management proposed by BWRSD is not addressing the serious flood problem**. The intent of stormwater management is to mitigate the increase

in stormwater flow rate, resulting from additional impervious areas to predevelopment rates. Generally, this is accomplished by detaining the stormwater and releasing it at a controlled rate similar to the predevelopment rate. One of the concerns with this approach is what RIDEM classified as "Coincidental peaks". "…it is possible that upstream peak discharge may arrive at the same time a downstream structure is releasing its peak discharge, thus increasing the total discharge" (*Rhode Islan Stormwater Design and Installation Manual,* RIDEM CRMC, 2015 p3-20). BWRSD and the Consultants must understand and take the existing flooding issue seriously and perform the proper analysis. Stormwater Management is not the proper examination for flood problems.

We understand the need to construct a new high school and we also understand the project schedule, but we feel it is necessary to do the proper examination. Let's not repeat the mistakes of the past by exacerbating an already flooding problem or by locating the high school in a flood prone area.

Therefore, we request that **the Planning Board does not approve the granting** of Master Plan approval, and/or granting any waivers/deferrals in the application for the required RIDEM permits.

Thank you for your attention to this request. I will be happy to answer any questions that you may have.

Sincerely:

Edward J Spinard

Edward J Spinard
35 Dartmouth Street

cc: Diane Williamson Director of Community Development

Town of Bristol, Rhode Island

Department of Community Development

10 Court Street
Bristol, RI 02809
www.bristolri.gov
401-253-7000

TECHNICAL REVIEW COMMITTEE MEETING

The meeting was held on **Wednesday, October 2nd, 2024** at 11:00 am
at 235 High Street, 1st Floor Conference Room, Department of Community Development
The Technical Review Committee (TRC) held a meeting for the purpose of review of the application for **Master Plan Review Phase / Major Land Development for the Bristol-Warren Regional School District construction of a new Mt. Hope High School**

Present for the Town of Bristol:
Diane Williamson, Director of Community Development & TRC member
Edward M. Tanner, Zoning Officer/Principal Planner & TRC member
Charles Millard, Planning Board Chairman & TRC member
Brian Clark, Planning Board member & TRC member
Jessalyn Jarest, Alternate Planning Board member & TRC member
Nicole Iannuzzi, BETA Engineering
Amy Goins, Assistant Town Solicitor

Present for the Applicant:
Lisa Pecora, Perkins Eastman
Joe Drown, Perkins Eastman
Walter Hartley, PMA Consultants
Chad Crittenden, PMA Consultants
Chris Loeffler, PMA Consultants
Annelise Boylan, Pare Corporation
David Potter, Pare Corporation
Ana C. Riley, Bristol-Warren Regional School District
Danielle Carey, Bristol-Warren Regional School District
Christina Houghton-Belise, Bristol-Warren Regional School District
Nicky Piper, Bristol-Warren Regional School Committee member
Mike Igo, Aqueous
Justin Robertshaw, Traverse
Kris Bradner, Traverse

Agenda: Master Plan Phase review for Major Land Development proposal to construct a new Mt. Hope High School, including new tennis courts and athletic fields, at **199 Chestnut Street** and to demolish the existing

high school building. Owner: Town of Bristol / Applicant: Bristol Warren Regional School District/Lisa Pecora, Perkins Eastman, applicant representative. Zoned: Public Institutional. Assessor's Plat 117 Lots 3-7.

Introductions by Diane Williamson. This is the second TRC meeting for Master Plan review. The Planning Board requested additional information at their 9/12/2024 meeting. The applicant submitted follow up information and revised plans to address the board's questions and concerns. The applicant will review each topic separately with the TRC.

Review of On-Site Parking

Currently there are 281 spaces that exist as off-street parking on the high school property. 240 spaces were initially proposed by the applicant, now 248 spaces are being proposed with the new high school. That total does not include Chestnut Street on-street parking. The maximum required by the Zoning ordinance is 248, 10% more than the minimum required in Zoning. Applicant feels this is sufficient based upon their evaluation of existing parking usage and needs for the property.

The TRC members are concerned about parking for special events - sporting events and community events.

Applicant's engineers discussed access and flow of traffic at the new high school. Access and flow will be improved from existing conditions. Discussed proposed layout of school parking.

Entrance to sports stadium will be moved to interior of site near larger parking lot & bleachers. This will avoid Chestnut Street parking as an ease of access. Overall circulation (pedestrians & autos) is improved in proposed conditions. TRC feels parking issue has been addressed.

Review of Flooding Concerns

Concerns have been expressed from the planning board and members of the public about the floodplain on the site. FEMA maps were reviewed. The applicants reviewed additional information: FEMA maps, BETA study for Silver Creek watershed. This study was not conducted to amend FEMA maps. Recent work by FEMA and USACOE on a study of Silver Creek, but it is early in the process and nothing new at this point in time. So the flood plain information from FEMA is the latest, dated 2014. Other localized flooding in the area may be related to drainage infrastructure or other issued that will not be shown on flood maps.

The proposed school will be located outside of the mapped floodplain. The existing school is located partially within the floodplain. The new school will not fill in the flood zone. Any fill will need to be compensated for on-site. This will be shown on later plans. The only are of potential fill in floodplain is near the proposed baseball field (if needed). Detailed grading will be shown at Preliminary Plan phase. Discussed concerns about wetlands and Dartmouth Street neighborhood and potential impact to neighbor's properties. No impacts to off-site flooding are anticipated.

Review of Stormwater Management

Applicant's consultants reviewed all comments from the Planning Board meetings and responded with updated information. Benefits of proposed system for water quality volume and runoff rates were discussed. The existing site has very limited stormwater management; almost nothing around the school building and parking lots. The new design has many areas for stormwater management. Small dispersed

systems – 15 separate systems – are shown on the plans. Final design may change with further calculations and design at Preliminary Plan phase. Water quality benefits will be significant with proposed design. Low impact development (LID) and best management practices (BMP) for stormwater will be used. All designs will be reviewed by RIDEM and will utilize DEM design guidelines. Designs will include disconnecting impervious areas, combinations of BMP's, sand filters, bio-retention, and infiltration practices. Maintenance requirements were discussed. TRC members concerned about future maintenance. Applicant discussed maintenance needs.

Peak flow management – detention ponds will be used to hold back flow of runoff to manage rate of runoff from the site. 72-hour detention is maximum allowed per RIDEM. Slow release with sub-drains after infiltration. Flow is delayed to control peak flow.

Runoff volume - goal is to reduce increase in volume of runoff per town ordinance. Systems designed to reduce the volume leaving site. The applicant has reduced the amount of impervious surfaces in design. Synthetic athletic field will result in an increase of impervious as precipitation will be collected below the field. Management of runoff from the field is required to mitigate the increase in impervious on the site.

Discussed staff and maintenance needs for stormwater management. Operations and maintenance (O&M) manual will be submitted to the town for review and approval. Maintenance agreement with applicant and Town will be prepared.

Water quality treatment and runoff volume reduction are addressed in many of the same areas. Underground system at athletic fields to collect and infiltrate runoff. Applicants engineer is confident they can manage runoff properly from the athletic field impervious surface. Soils at this property are difficult but designs are still being finalized. Potential benefits of using pervious surfaces such as pervious pavement parking lots and walks (pervious asphalt & pavers) will not be great due to underlying soils. Sidewalks and paths have been reduced to 6' wide and increase in width at more high traffic areas such as bus drop off areas.

Review of Irrigation

Discussed irrigation for athletic fields and the potential for using a well rather than using public potable water. Reviewed permit requirements with RIDEM for well water withdrawal. Applicant will need to evaluate water withdrawal. Will also need to evaluate volume of water that the ground will yield. There will need to be a high volume of water at specific times. A study will need to be conducted to determine the potential impacts on nearby streams and wetlands. Once the data is gathered they will need to design an irrigation system. Timing for design and permitting of an irrigation system was discussed. Construction documents for bidding need to include this information. Accumulation tank is an item needed to collect and store water if the rate is not large enough to pump overnight. May be able to collect runoff from synthetic turf field to use in accumulation tank for irrigation. Design will be for 50,000 gallons a day.

A hydrogeologist will be needed to determine the best location for drilling a well (or wells). To be determined if multiple wells are needed, depends on yield of well. Potentially could be several smaller irrigation systems to work different locations and fields. There will need to be more data (drilling & fracture analysis) collected to determine what is needed. The size of the accumulation tank will be determined by how much volume demand is needed. The flow rate of the ground is the biggest concern and question.

Geotech engineers will be on-site this week to drill test wells for design of a geo-thermal system for the high school building, so there will be more data after that is conducted. Rainwater may be able to be harvested from the field to assist with irrigation. Multiple opportunities with use of turf field.

Discussed programmatic needs of school athletic fields. There are different uses and teams that could use the field throughout the year. A synthetic field would also allow rental of the field to many other uses; school and community sporting activities. Maintenance of fields has a cost and that cost could be made up by rentals. $80,000 a year will be budgeted by the school department to maintain the field.

The TRC raised concerns about potential runoff and pollutants from synthetic turf field. There are multiple ways to limit contamination of the water from the field. Field consists of carpet, pad beneath, and binder materials for infill of the carpet. They will not be using a crumb-rubber infill. It will be organic wood-chip material so no contaminants from carpet or infill (not a petroleum based product). State legislation requires elimination of PFAS. There are new carpets that are PFAS-free. Applicant proposed a PFAS-free system for entire synthetic turf field.

TRC also raised concerns for health and safety from the synthetic turf field. Bacteria contamination from staff, MRSA, and other bacteria due to abrasions from sliding on carpet. Heat & UV light from the sun eliminate this risk. Safety was discussed from falls and use of the synthetic turf. Sports regulating bodies have standards for design of synthetic turf fields. Reviewed industry standards for design of synthetic turf fields. Review industry testing protocols and standard relative to natural grass fields. Project specifications will include all safety considerations. It was noted that existing high school sports teams play on synthetic turf, approximately 80% of the time in other communities, and many of those fields are not as high standard as what is proposed.

Next Steps

TRC discussed the timing of Planning Board review going forward. Applicant will be asking for a checklist–item waiver to submit the Preliminary Plan application without RIDEM permit in hand. There will be a review by the Town and RIDEM concurrently. TRC supports this waiver request.

Steps:

- Master Plan review by Planning Board at October meeting with approval of a waiver for the applicant to submit Preliminary Plan application without RIDEM permits.
- Stormwater management report will be submitted with Preliminary Plan application
- Public Hearing for Master Plan review is still open.

A **motion** (1st Chuck Millard, 2nd by Jessalyn Jarest) was made to send this Master Plan application to the Planning Board with recommendations to support the Master Plan and also to support a checklist waiver request for the applicant to apply for Preliminary Plan without first obtaining RIDEM permit. All were in favor.

Meeting adjourned at 1:15pm.
Notes by Ed Tanner

IMPROVING COMMUNITIES TOGETHER

MEMORANDUM

Date:	10/8/2024 Job No.: 23099.01
To:	Diane Williamson, AICP, CFM - Town of Bristol Director of Community Development; Edward Tanner – Town of Bristol Principal Planner
Cc:	
From:	Nicole Iannuzzi, PE – Vice President (BETA Group, Inc.)
Subject:	Mount Hope High School Master Plan Review Planning Board Meeting October 8, 2024

This memo is to provide some clarification in regards to the public comments about stormwater requirements for the Mount Hope High School Project. A letter from Mr. Spinard was received on September 27, 2024. The following provides answers to the following questions.

Recommendations

- An updated model could be performed in the future to depict the changes since 2007.
- It is not the responsibility of any one development along the Silver Creek to perform a more detailed model of the entire creek. It is the development's responsibility to mitigate the stormwater generated on the site to meet the existing conditions. The proposed project can not convey any additional flow to the creek.

Key Findings From Master Plan

- The Design Team can address these more in depth as they are about their Master Plan submission.

Summary of Key Findings From Maste Plan- September 12

- Flooding exists in our neighborhood, at the high school, at Chestnut Street, and adjacent areas of the Silver Creek watershed.
  - The Design Team is responsible to mitigate the stormwater generated on the site to meet the existing conditions. The proposed project cannot convey any additional flow to the creek.
- There is a proposed hotel development filling in 40,000 square feet of wetlands upstream of the new school site.
  - That is not a part of this project.
- The use of an outdated flood map, which is included in the Master Plan Report and the absence of the 2007 Silver Creek drainage Study.
  - The most up to date FEMA information is being used. The baseline information provided by FEMA is the industry standard for evaluations of this nature.
  - The 2007 Silver Creek Drainage Study was not intended to be used as a design tool or to set flood elevations for any projects along Silver Creek. It was a planning level study.
- The Town of Bristol commissioned Silver Creek Drainage Study.
  - This was a planning level study and the intent was to identify problem areas. It was not based on survey information and was not a detailed enough study to be used to indicate flood elevations. It was meant to identify restrictions within the creek so that future drainage improvements projects could be identified. This study should not be

compared to FEMA or used to determine flood elevations. A very different, more detailed approach would be necessary to construct a model to gain that information.

- Rainfall amounts have increased.
  - Agreed. The Design Team will use increased rainfall amounts in their calculations.
- Storm events are occurring more frequently and more significantly:
  - The Design Team will use increased rainfall amounts in their calculations.
- There is a rise in sea level
  - This area is not tidal. The baseline information provided by FEMA is the industry standard for evaluations of this nature.
- Stormwater Management proposed by BWRSD is not addressing the serious flood problem.
  - The design is required to meet the stormwater regulations set forth by the Town of Bristol and the Rhode Island Department of Environmental Management.

Bristol Warren Regional School District

RIDE Necessity of School Construction

PMA Consultants | PERKINS EASTMAN

BRISTOL PLANNING BOARD | 10.10.2024

OVERVIEW

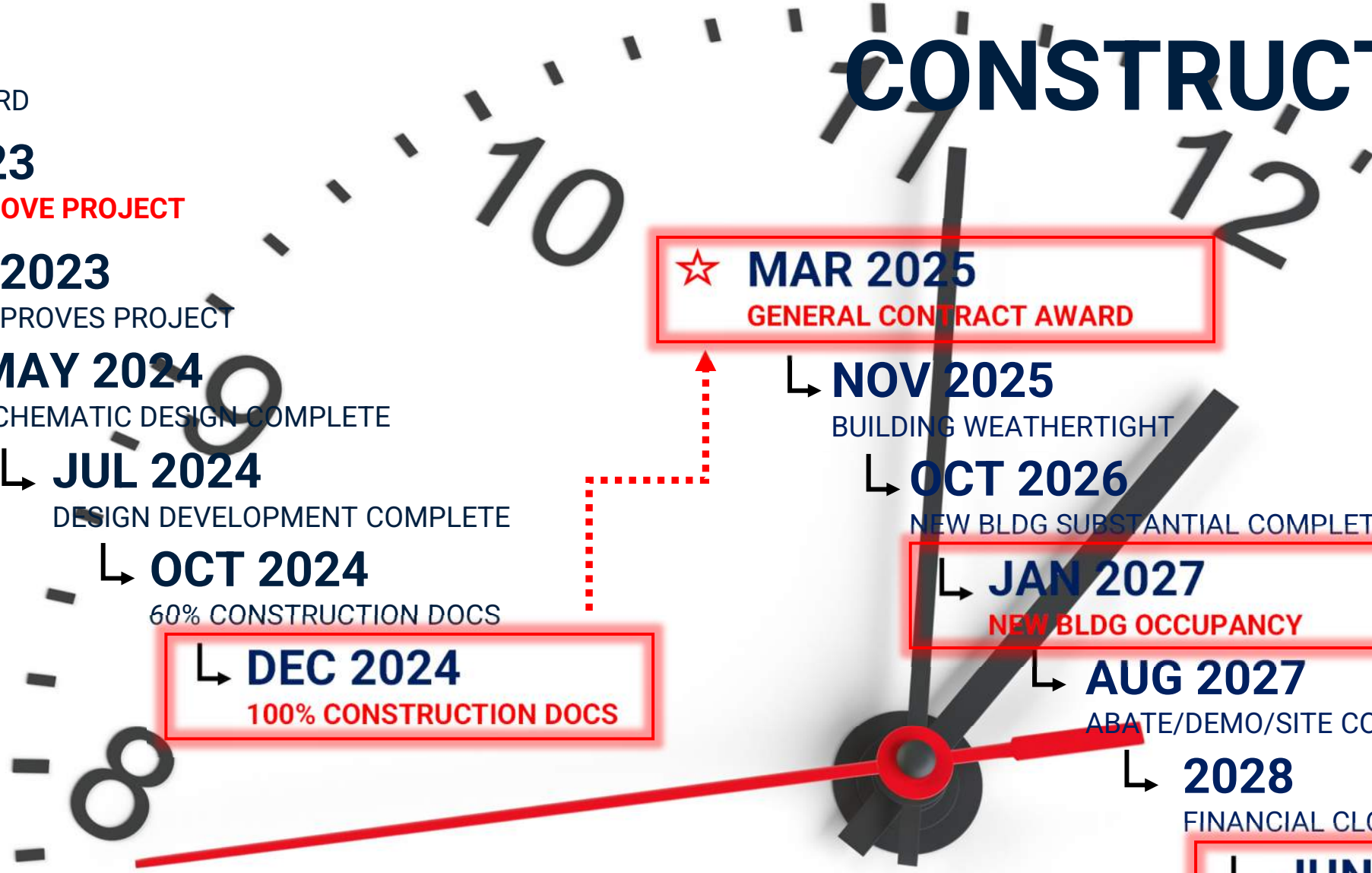
- ❑ Project Timeline / Public Outreach
- ❑ Construction logistics
- ❑ Parking Capacity
- ❑ Stormwater Management
- ❑ Athletics Fields / Irrigation

PROJECT TIMELINE

PMA Consultants
Est. 1971

PERKINS EASTMAN

PROJECT TIMELINE



DESIGN

☆ **JUN 2023**
ARCHITECT ONBOARD

NOV 2023
VOTERS APPROVE PROJECT

DEC 2023
RIDE APPROVES PROJECT

MAY 2024
SCHEMATIC DESIGN COMPLETE

JUL 2024
DESIGN DEVELOPMENT COMPLETE

OCT 2024
60% CONSTRUCTION DOCS

DEC 2024
100% CONSTRUCTION DOCS

CONSTRUCTION

☆ **MAR 2025**
GENERAL CONTRACT AWARD

NOV 2025
BUILDING WEATHERTIGHT

OCT 2026
NEW BLDG SUBSTANTIAL COMPLETE

JAN 2027
NEW BLDG OCCUPANCY

AUG 2027
ABATE/DEMO/SITE COMPLETE

2028
FINANCIAL CLOSEOUT

JUN 2029
RIDE DEADLINE

COMMUNITY OUTREACH

SINCE RIDE STAGE II:

- **School Building Committee**
  - May-23-Set-24
    - 26 Public Meetings
- **School Committee**
  - May-23-Sep-24
    - 20 Public Meetings
- **Community Outreach**
  - Bristol Town Council
  - Joint Finance Committee
  - Abutters Meetings
    - 10-11-2023
    - 11-01-2023
    - 09-16-2024
  - Community Forums Events
    - 21 Events
  - Community Forum Meeting's
    - 10-2-2023
    - 11-1-2023

70+ Public Events Since Stage II

CONSTRUCTION LOGISTICS

PMA Consultants
Est. 1971

PERKINS EASTMAN

CONSTRUCTION LOGISTICS PLAN

PARKING CAPACITY

PMA Consultants Est. 1971 | PERKINS EASTMAN

PARKING CAPACITY

- **FRIDAY 9/13/24 10:45AM**
  - **84 VACANT SPACES**
    - 63 STUDENT
    - 21 TEACHER

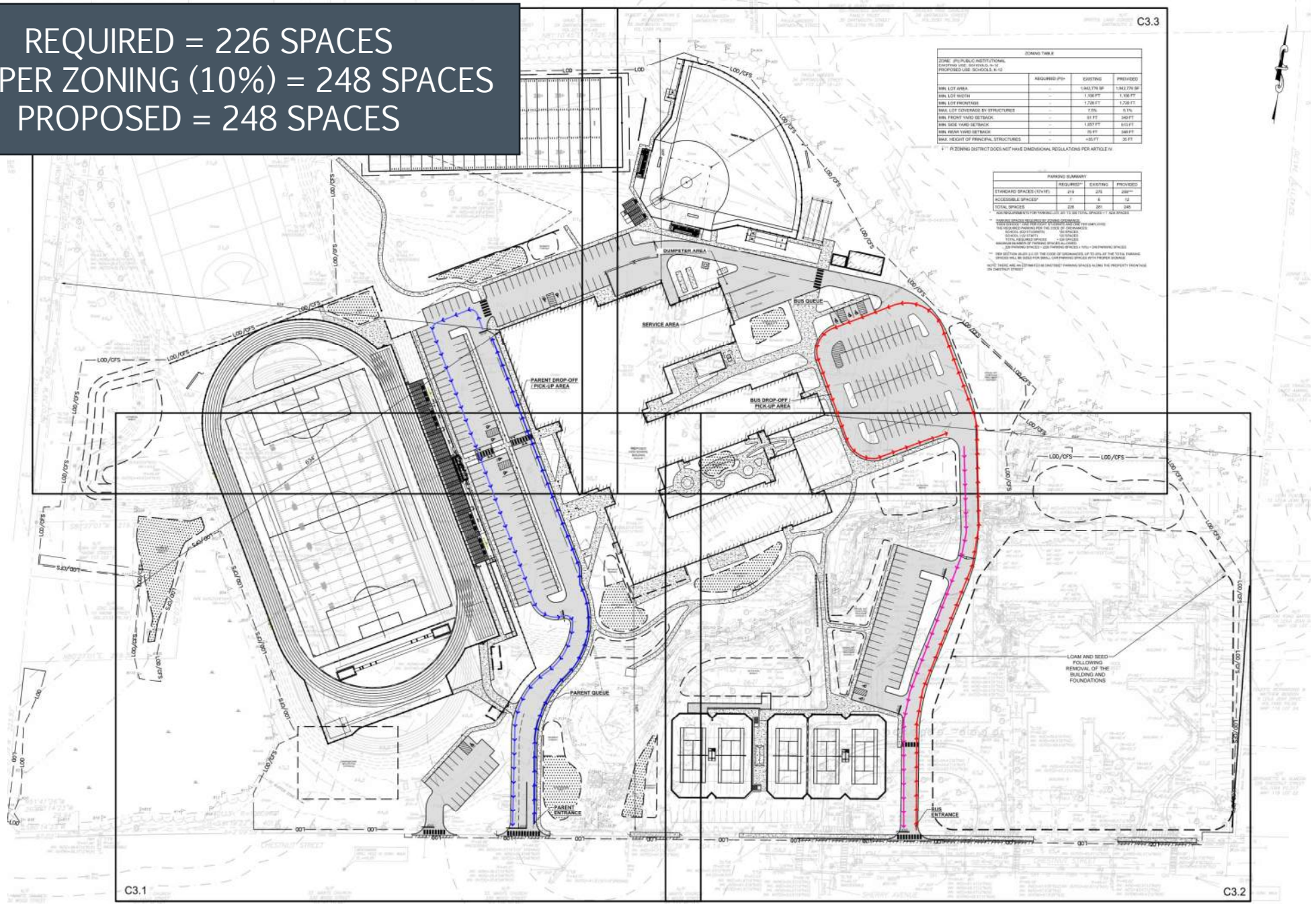
- **THURSDAY 9/19/24 11:00AM**
  - **107 VACANT SPACES**
    - 74 STUDENT
    - 33 TEACHER

- **FRIDAY 10/3/24 8:30PM** (MHHS Football Game)
  - **64 VACANT SPACES** (w/ 4 BUSES)
    - 52 STUDENT
    - 12 TEACHER

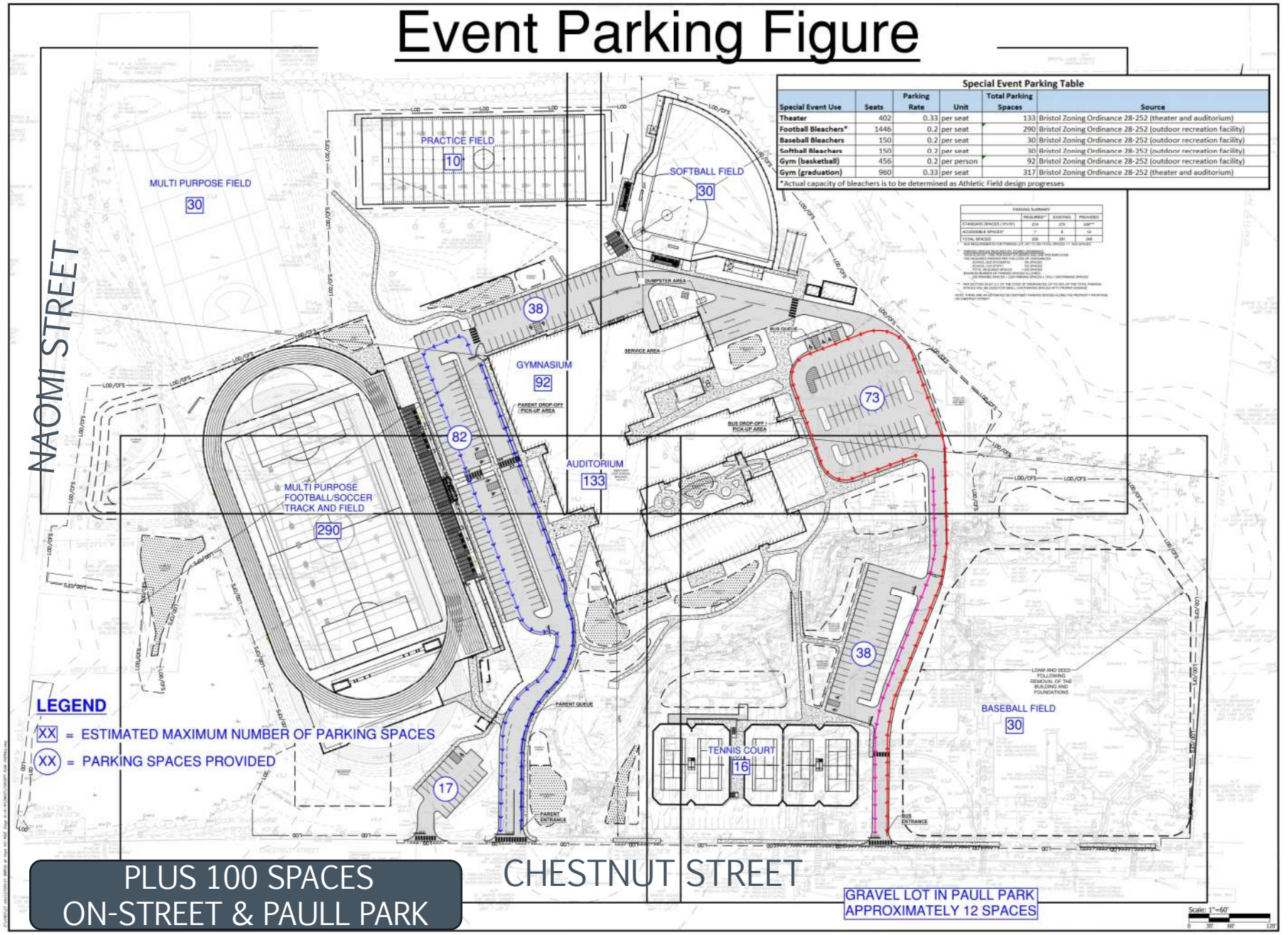
- **TUESDAY 10/8/24 1:00PM**
  - **88 VACANT SPACES**
    - 60 STUDENT
    - 28 TEACHER

PROPOSED – OFF-STREET PARKING

REQUIRED = 226 SPACES
MAX PER ZONING (10%) = 248 SPACES
PROPOSED = 248 SPACES



PROPOSED – PARKING DISTRIBUTION



FLOODPLAIN

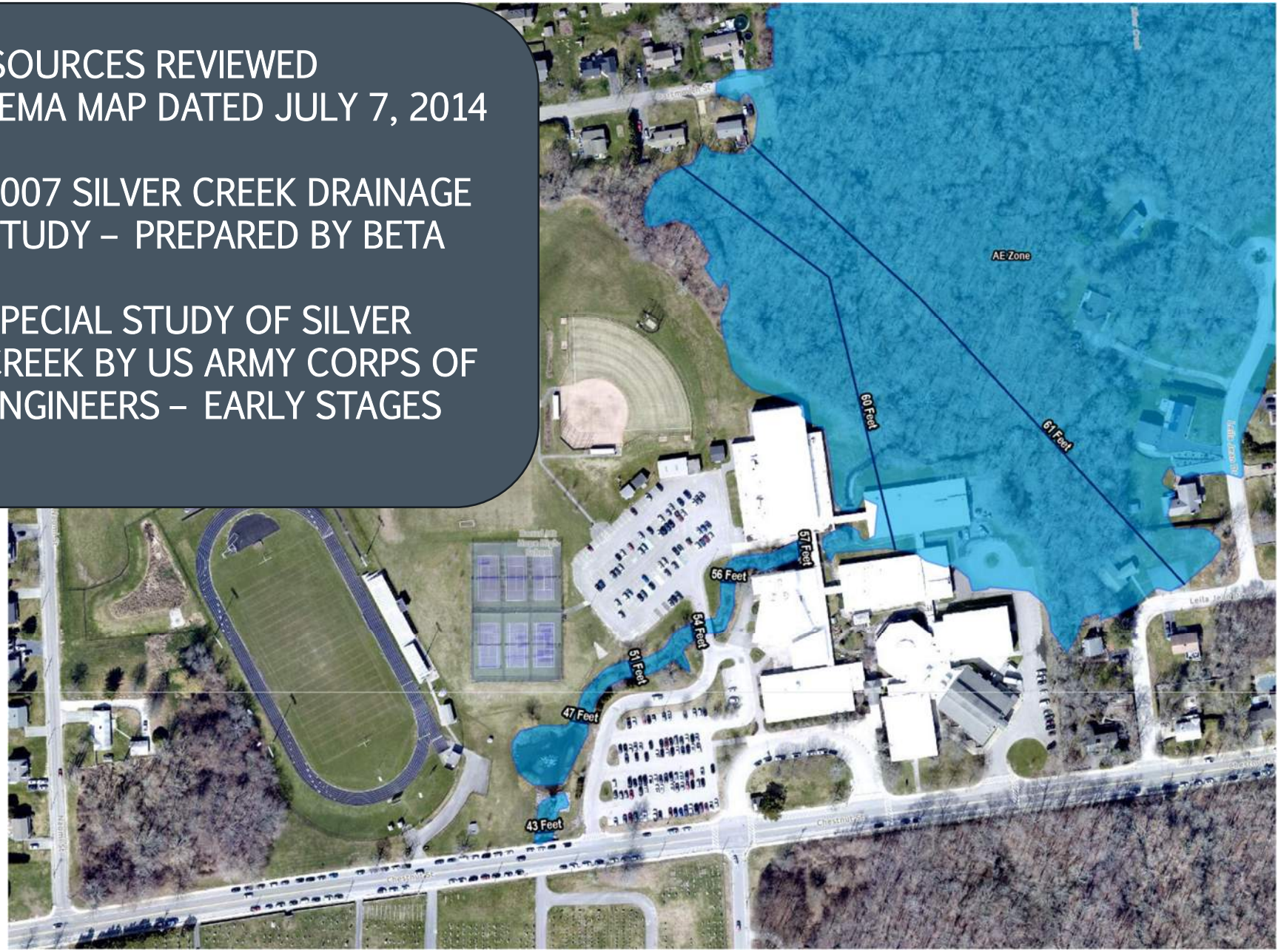
PMA Consultants
Est. 1971

PERKINS EASTMAN

FLOOD PLAIN

DATA SOURCES REVIEWED

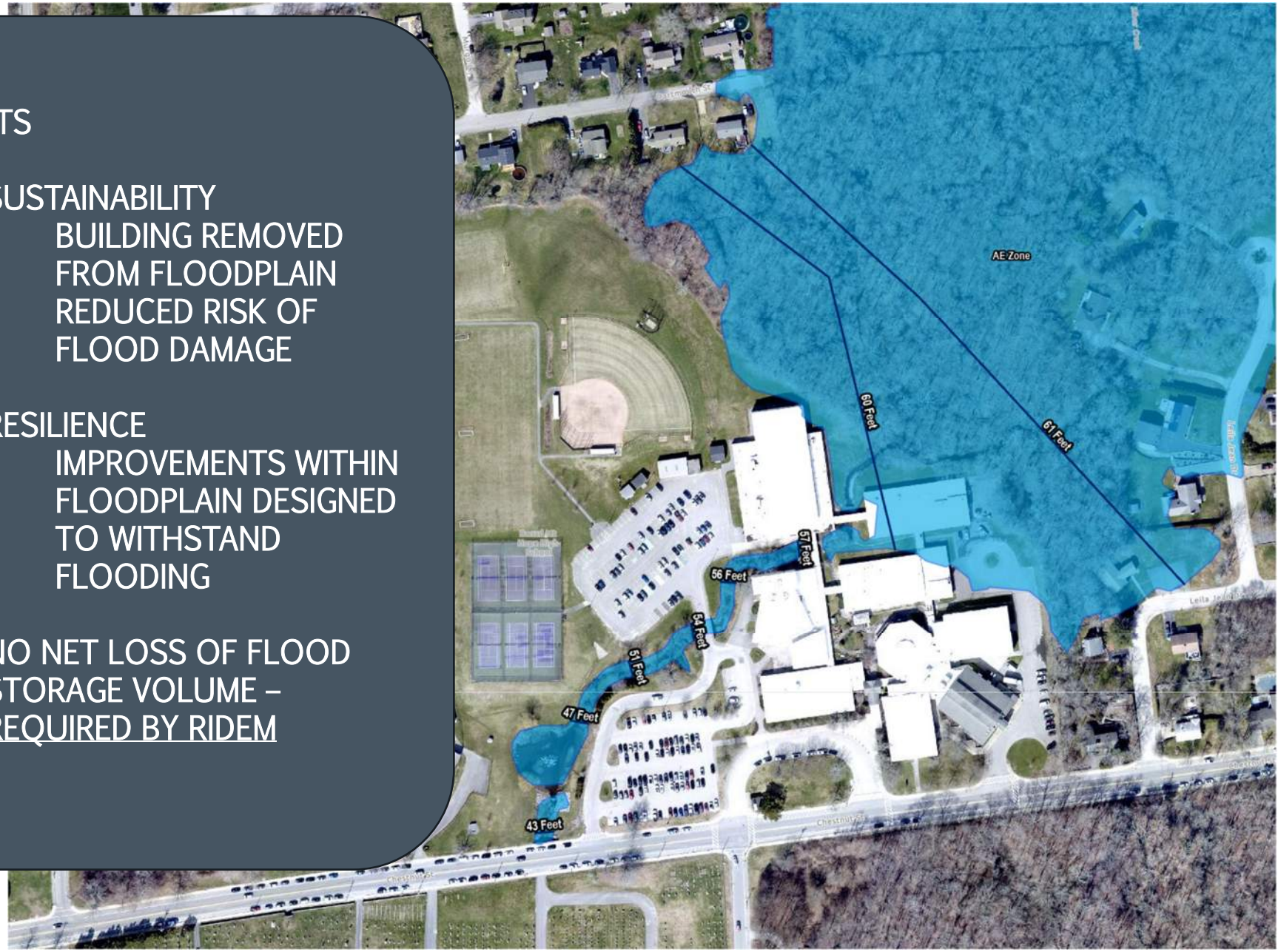
- FEMA MAP DATED JULY 7, 2014
- 2007 SILVER CREEK DRAINAGE STUDY – PREPARED BY BETA
- SPECIAL STUDY OF SILVER CREEK BY US ARMY CORPS OF ENGINEERS – EARLY STAGES



FLOOD PLAIN

BENEFITS

- SUSTAINABILITY
  - BUILDING REMOVED FROM FLOODPLAIN
  - REDUCED RISK OF FLOOD DAMAGE
- RESILIENCE
  - IMPROVEMENTS WITHIN FLOODPLAIN DESIGNED TO WITHSTAND FLOODING
- NO NET LOSS OF FLOOD STORAGE VOLUME – <u>REQUIRED BY RIDEM</u>



FLOODPLAIN

BENEFITS

- SUSTAINABILITY
  - BUILDING REMOVED FROM FLOODPLAIN
  - REDUCED RISK OF FLOOD DAMAGE
- RESILIENCE
  - LIMITED IMPROVEMENTS WITHIN FLOODPLAIN
  - IMPROVEMENTS WITHIN FLOODPLAIN DESIGNED TO WITHSTAND (EX. CROSSINGS)
- NO NET LOSS OF FLOOD STORAGE VOLUME – REQUIRED BY RIDEM

ALL REVIEWED BY RIDEM

STORMWATER MANAGEMENT

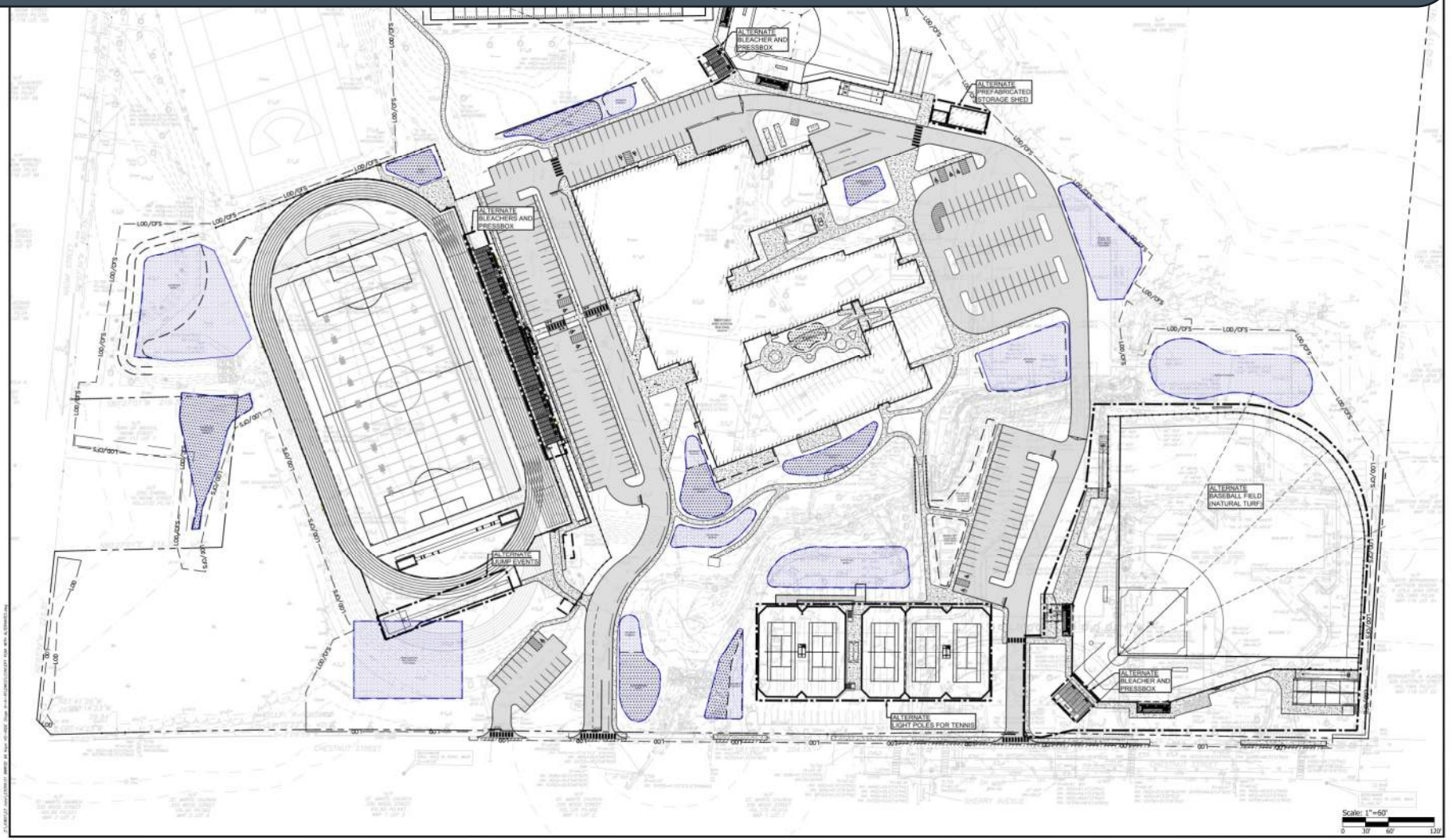
PMA Consultants
Est. 1971

PERKINS EASTMAN

PROPOSED STORMWATER – BENEFITS TO SILVER CREEK WATERSHED

MITIGATING IMPACT OF NEW IMPERVIOUS SURFACES

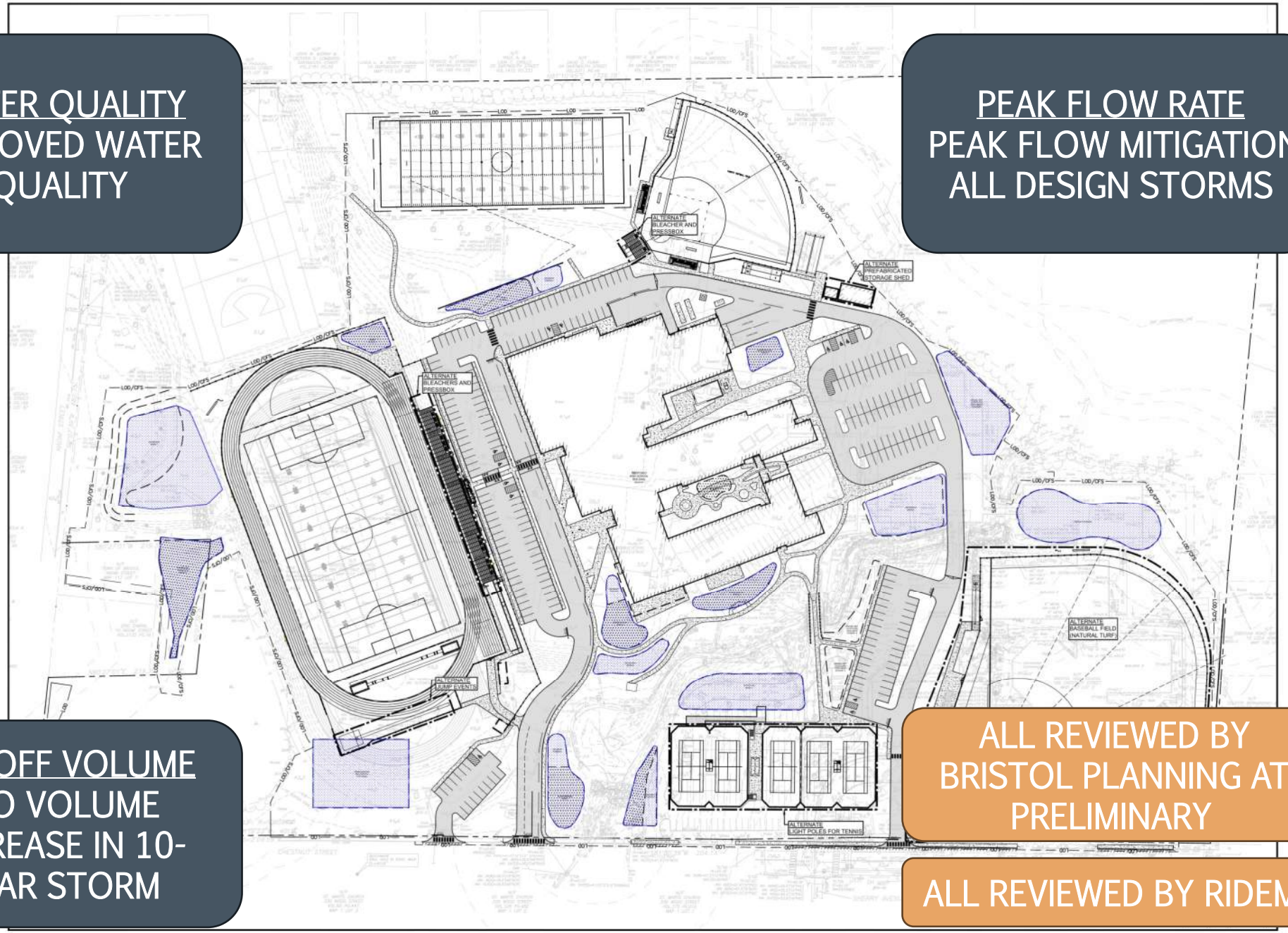
IMPROVING MANAGEMENT OF EXISTING IMPERVIOUS SURFACES



PROPOSED STORMWATER – BENEFITS TO SILVER CREEK WATERSHED

WATER QUALITY
IMPROVED WATER QUALITY

PEAK FLOW RATE
PEAK FLOW MITIGATION
ALL DESIGN STORMS



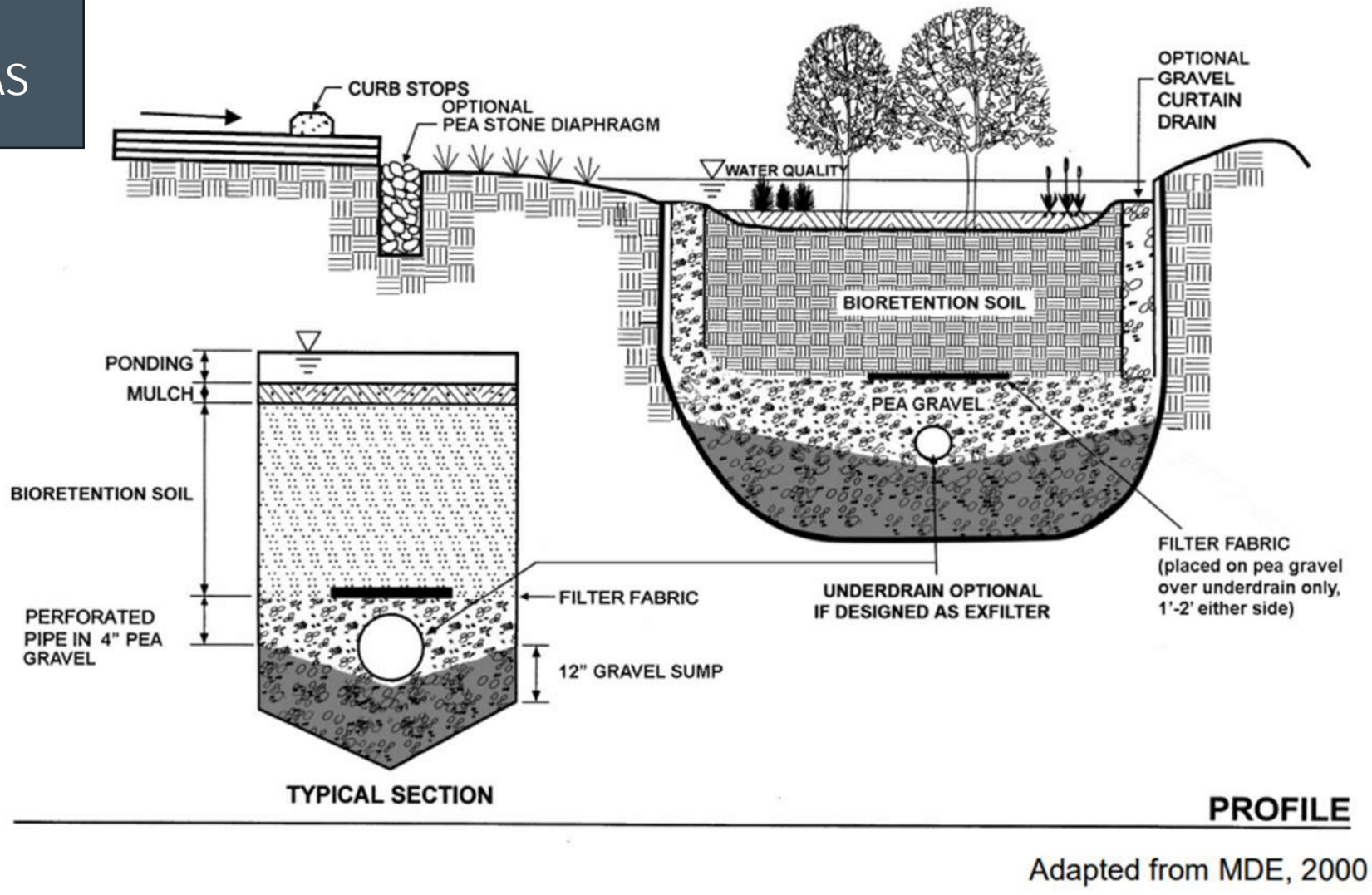
RUNOFF VOLUME
NO VOLUME INCREASE IN 10-YEAR STORM

ALL REVIEWED BY BRISTOL PLANNING AT PRELIMINARY

ALL REVIEWED BY RIDEM

WATER QUALITY

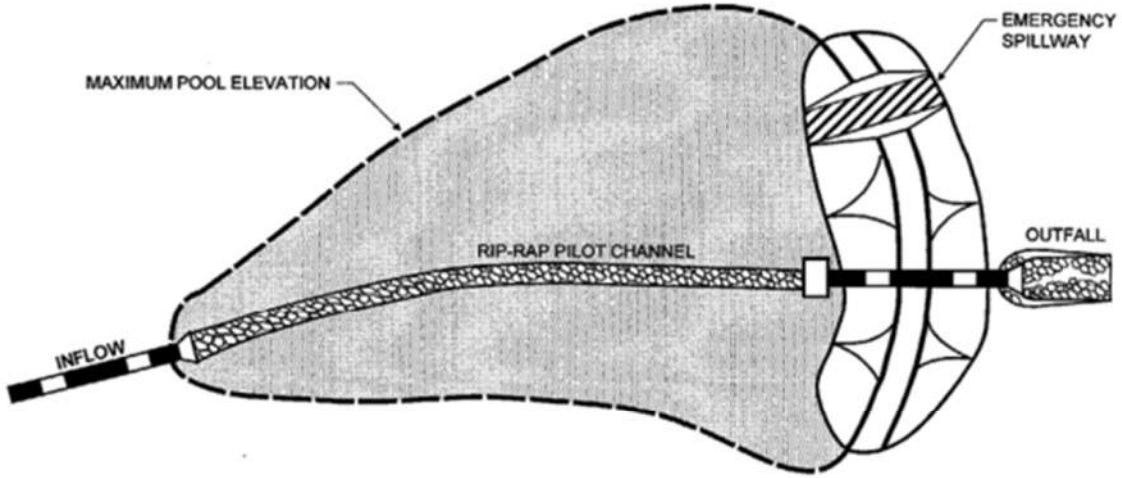
SAND FILTERS
BIORETENTION AREAS



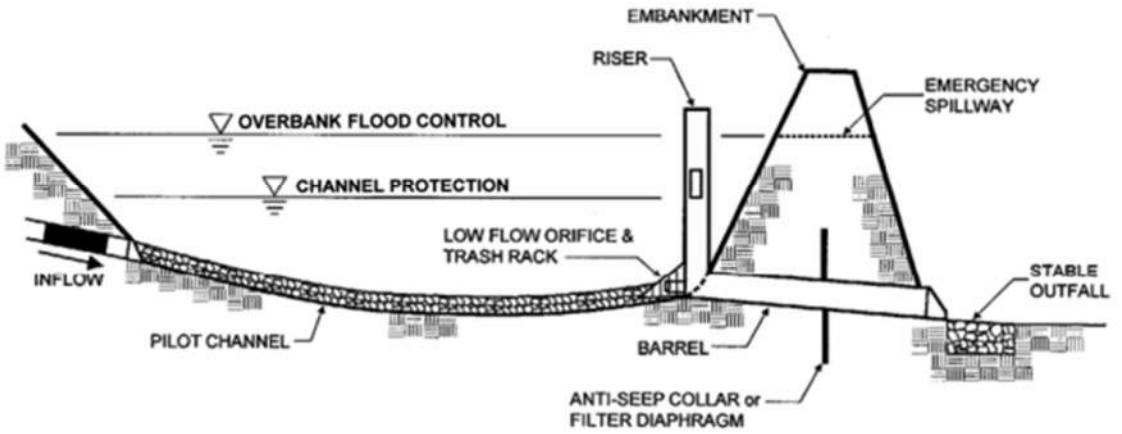
Adapted from MDE, 2000

PEAK FLOW RATE

DETENTION BASIN



PLAN VIEW



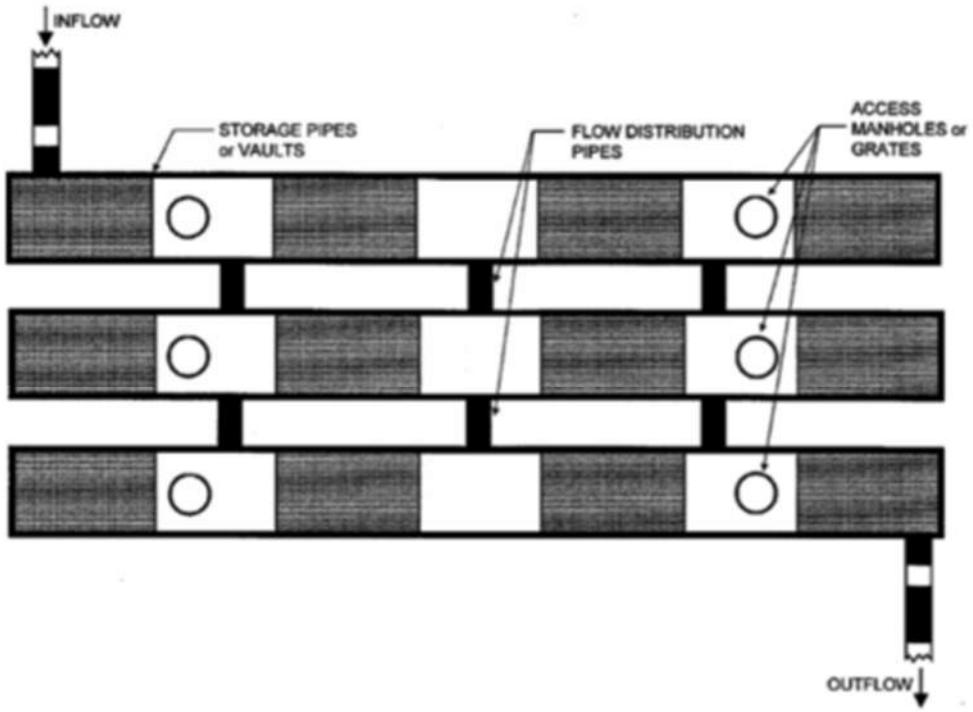
PROFILE

Adapted from MDE, 2000

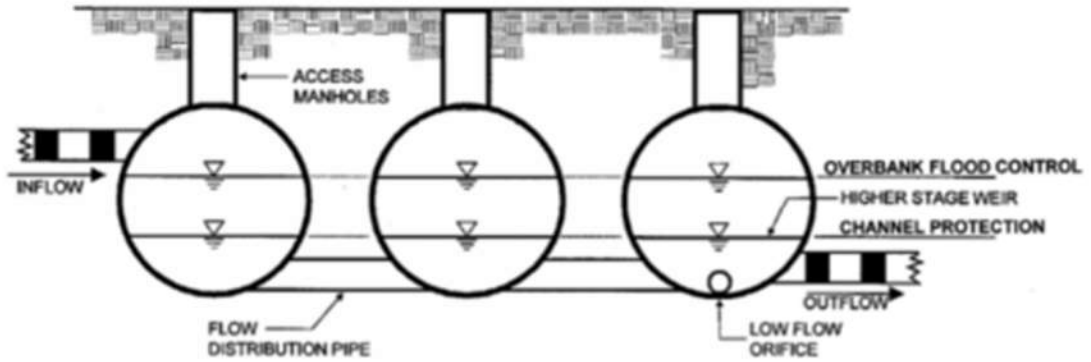
RUNOFF VOLUME

UNDERGROUND INFILTRATION SYSTEM

Figure 7-3 Underground Storage Vault



PLAN VIEW



TYPICAL SECTION

STORMWATER – RIDEM & SYNTHETIC TURF

RIDEM
PREAPPLICATION MEETING JULY 2024

CONTACTED RIDEM STORMWATER
SEPTEMBER 2023

SYNTHETIC TURF FIELDS DESIGNED BY PARE PERMITTED BY RIDEM FWW

CASS PARK – WOONSOCKET

EAST PROVIDENCE

NORTH KINGSTOWN

LINCOLN HIGH SCHOOL

MAX READ PAWTUCKET

JOHNSTON HIGH SCHOOL

SMITHFIELD HIGH SCHOOL

CUMBERLAND HIGH SCHOOL

BUCKLIN PARK PROVIDENCE

STATE OF RHODE ISLAND
Department of Environmental Management

PROPOSED STORMWATER – OPERATION AND MAINTENANCE

OPERATION AND MAINTENANCE

TYPICAL MAINTENANCE REQUIREMENTS

- REMOVE TRASH, LITTER, SEDIMENT, AND DEBRIS
- MOW GRASS
- MULCH

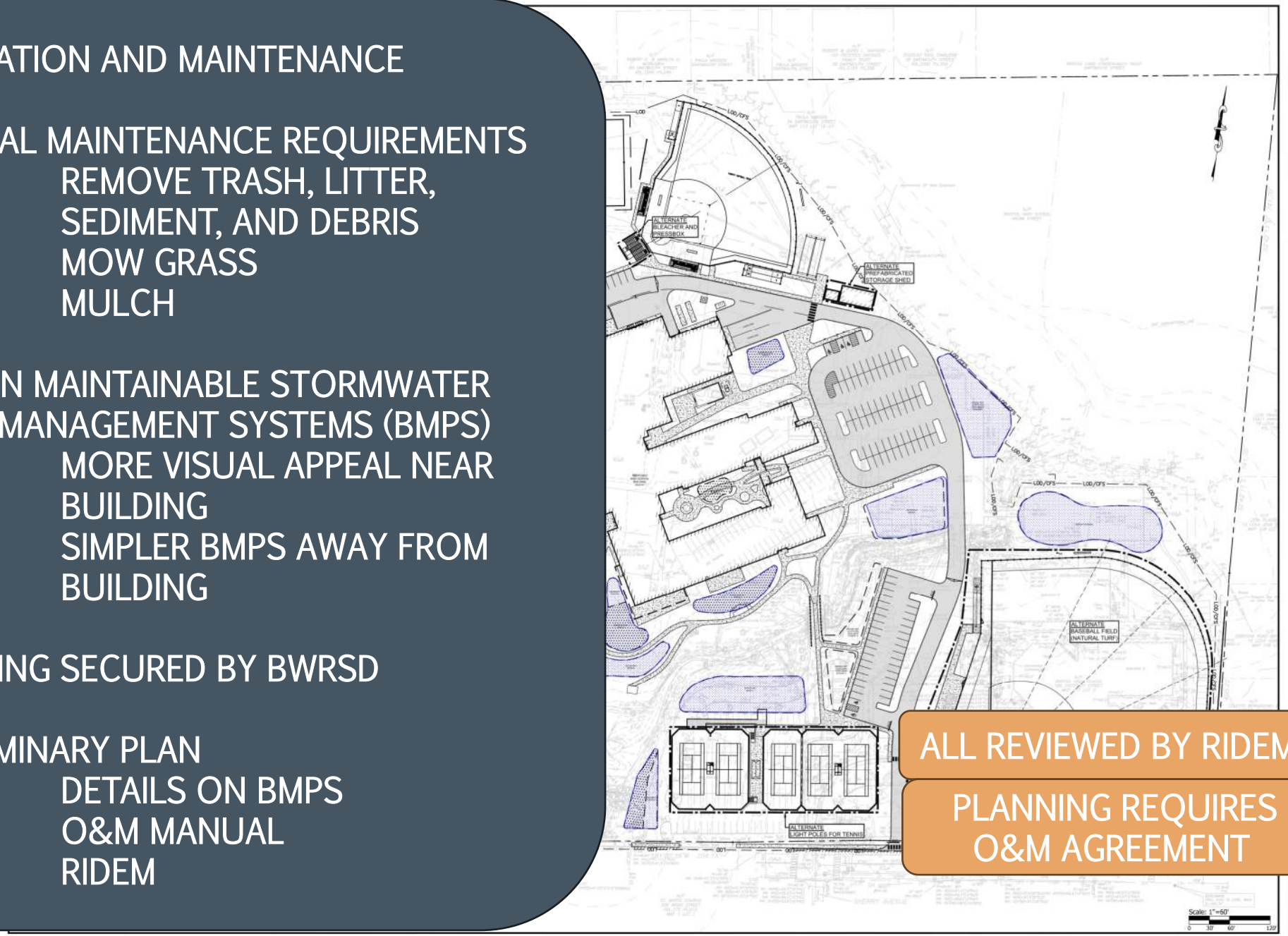
DESIGN MAINTAINABLE STORMWATER BEST MANAGEMENT SYSTEMS (BMPS)

- MORE VISUAL APPEAL NEAR BUILDING
- SIMPLER BMPS AWAY FROM BUILDING

FUNDING SECURED BY BWRSD

PRELIMINARY PLAN

- DETAILS ON BMPS
- O&M MANUAL
- RIDEM



ALL REVIEWED BY RIDEM

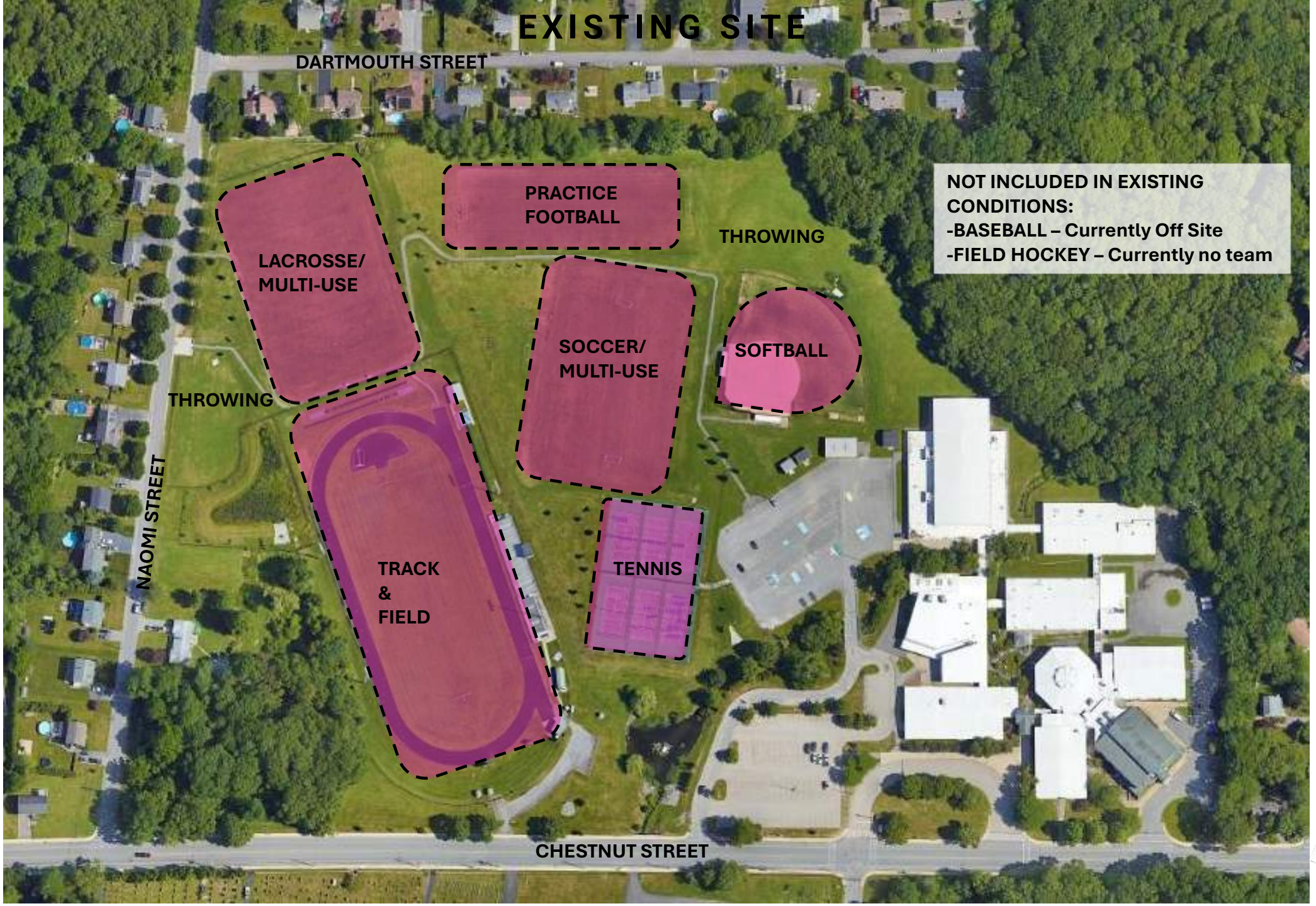
PLANNING REQUIRES O&M AGREEMENT

ATHLETIC PROGRAM

PMA Consultants
Est. 1971

PERKINS EASTMAN

EXISTING SITE



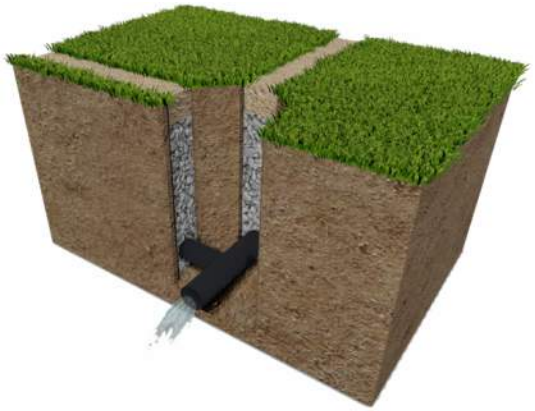
NOT INCLUDED IN EXISTING CONDITIONS:
-BASEBALL – Currently Off Site
-FIELD HOCKEY – Currently no team


PROPOSED SITE
PRACTICE FOOTBALL
SOFTBALL
EXISTING LACROSSE/ MULTI-USE
THROWING
NOT INCLUDED IN -PURPOSED
-ONE TENNIS COURT
NEW MT HOPE HIGH SCHOOL
THROWING
TRACK & SYNTHETIC FIELD
-SOCCER/
-LACROSSE/
-FOOTBALL
- Potential for new FIELD HOCKEY/
NAOMI STREET
BASEBALL [ALTERNATE]
TENNIS
CHESTNUT STREET

MHHS PROGRAM NEEDS FOR SYNTHETIC TURF

- ✓ Increased playing time for all sports
- ✓ Not limited by climate - teams can begin practicing in early spring
- ✓ Allows students more field time to develop skills
- ✓ Overflow use for sports without turf such as baseball & softball
- ✓ Can allow for other sports to be added to the program (ie. field hockey)
- ✓ Reduces the need to cancel and reschedule games
- ✓ Allows the physical education program to have an outdoor space year round
- ✓ Flag team and Celebrated MHHS band use without getting goose poop and dirt on instruments
- ✓ Can create revenue when not being used by the high school
- ✓ Community use for kids and adult leagues when available (currently cannot host Pop-Warner or Lincoln Club)
- ✓ Baseball's location is dependent on synthetic turf (Guiteras or MHHS)

	Low-End Grass Field	High-End Grass Field	Synthetic Turf Field
Installation Cost	$300,000-400,000	$700,000-800,000	$1,200,000-1,600,000
Annual Maintenance Cost	$35,000-40,000	$50,000-55,000	$15,000 -18,000
Hours of Use	550-850	850	3,000+



LOW END GRASS

Construction Cost
$400,000

Annual Maintenance
$40,000

10-Year Total
$800,000

Annual Hrs of Use
550

Cost/Hour of Use
$127.27

HIGH END GRASS

Construction Cost
$800,000

Annual Maintenance
$55,000

10-Year Total
$1,350,000

Annual Hrs of Use
850

Cost/Hour of Use
$158.82

SYNTHETIC TURF

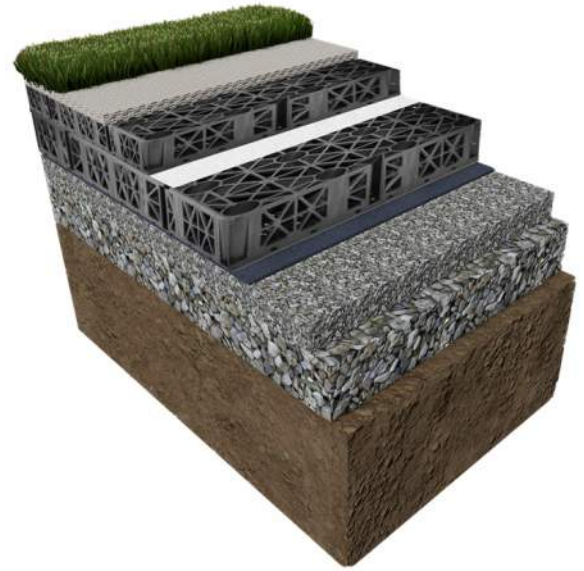
Construction Cost
$1,600,000

Annual Maintenance
$18,000

10-Year Total
$1,780,000

Annual Hrs of Use
3000+

Cost/Hour of Use
$59.33



EVOLUTION OF SYNTHETIC TURF

GENERATION 1- 1960'S

- NYLON FIBERS (ABRASIVE)
- SHORT PILE HEIGHTS
- GLUED OVER ASPHALT OR CONCRETE
- SMALL CUSHION LAYER

GENERATION 2- 1970'S

- POLYPROPYLENE FIBERS (LESS ABRASIVE)
- SHORT PILE HEIGHTS
- SAND INFILL
- SMALL CUSHION LAYER

GENERATION 3- 2000'S

- INTRODUCTION OF SOFTER POLYETHYLENE FIBERS.
- SAND AND RUBBER USED TO IMPROVED TRACTION, SAFETY AND SOFTNESS UNDERFOOT
- TALL PILE HEIGHT 2-2 1/2"

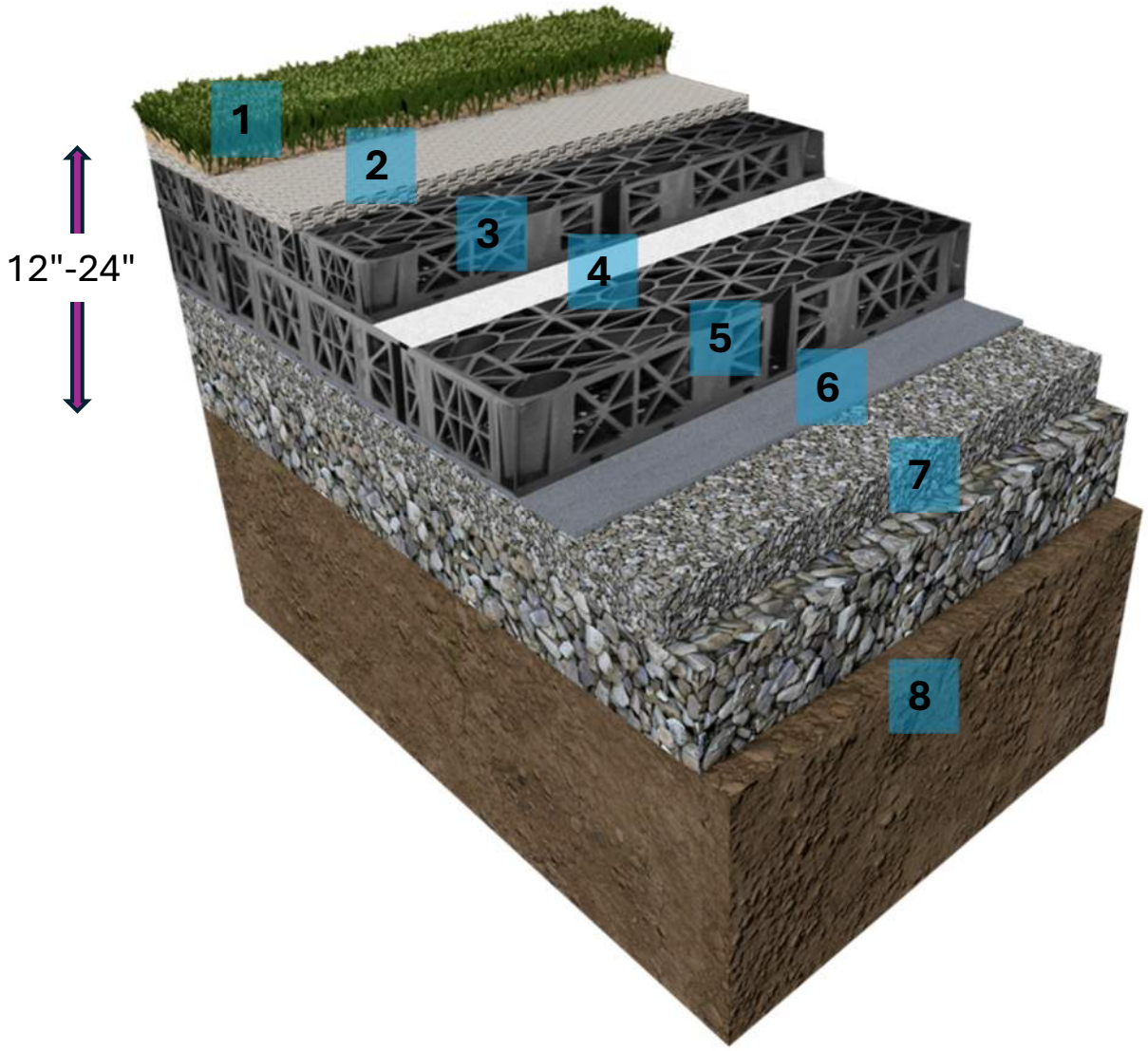
GENERATION 4- 2010'S

- CONT. USE OF POLYETHYLENE FIBERS.
- SAND RUBBER INFILL
- TALL PILE HEIGHTS 2-2 ½"
- INTRODUCTION OF SHOCK PAD FOR IMPROVED SAFETY

GENERATION 5- PRESENT

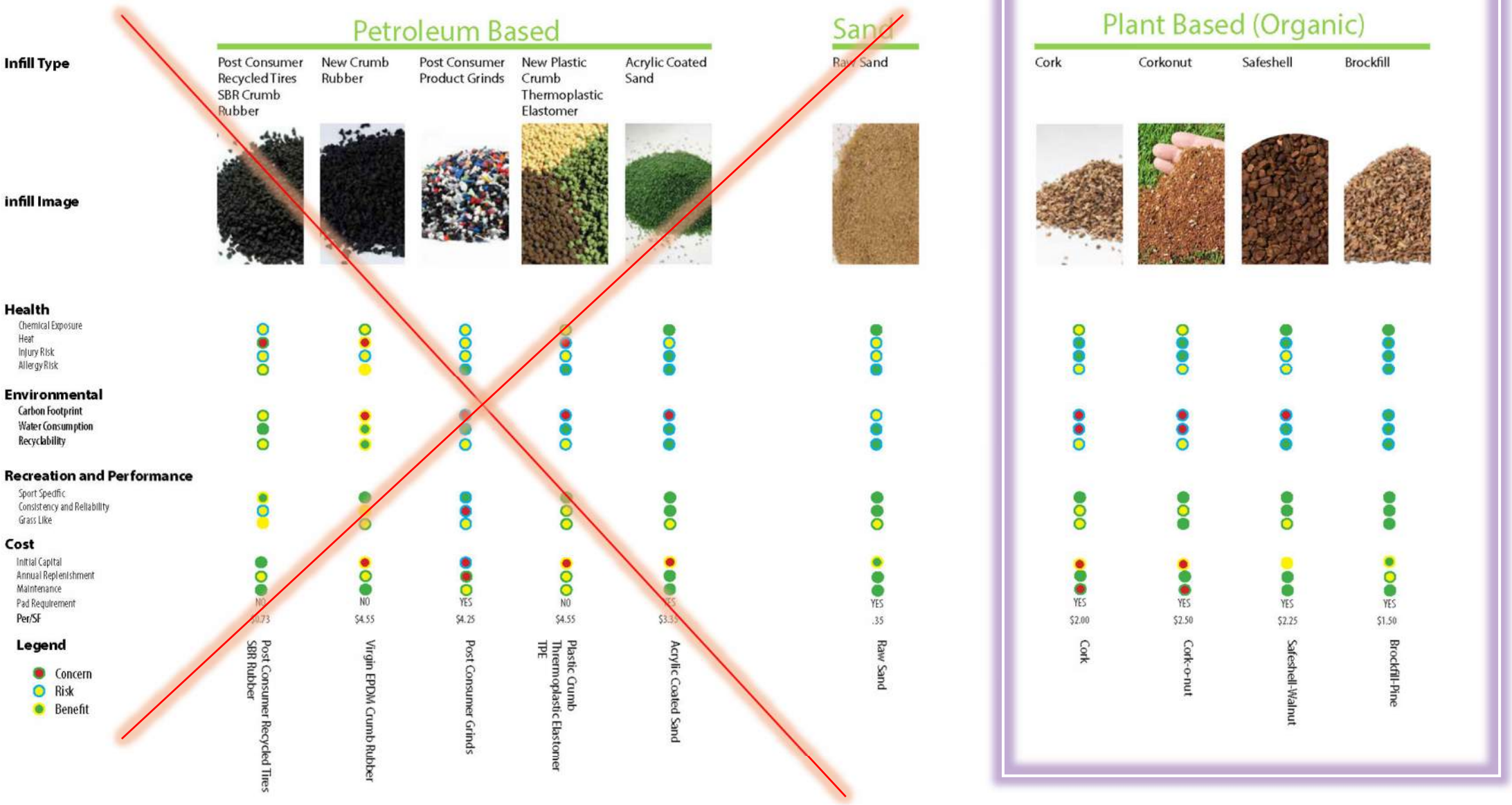
- CONT. USE OF POLYETHYLENE FIBERS.
- SAND AND ALTERNATIVE INFILLS
- TALL PILE HEIGHTS 1.75"-2"
- PERFORMANCE PAD FOR SAFETY AND FINE TUNING OF SYSTEMS BASED ON FIELD AND BIOMETRIC TESTING

SYNTHETIC TURF SYSTEM

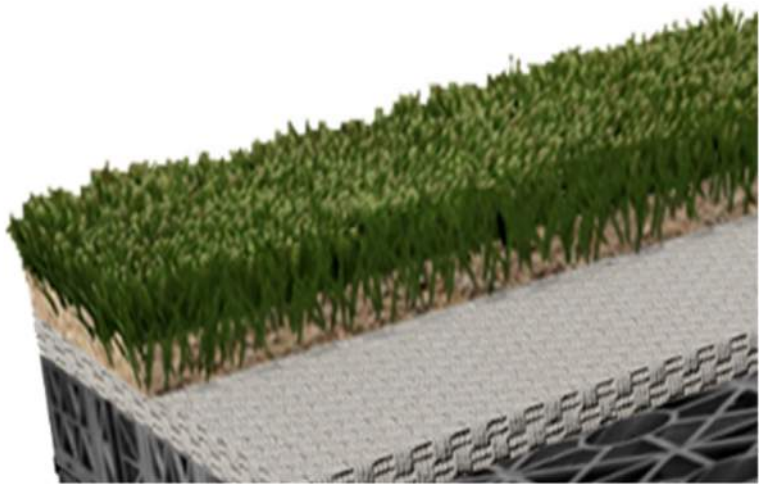


1. CARPET WITH INFILL
2. SHOCK PAD
3. AIR DRAIN (12-24 inches)
4. GEOTEXTILE
5. STORMWATER MODULE
6. GEO-MEMBRANE
7. STONE BASE
8. SUBGRADE

SYNTHETIC TURF INFILL SYSTEMS



ENVIRONMENTAL CONCERNS



1. SYNTHETIC TURF– Based on RI legislate State of Rhode Island General Assembly Legislation (2024-H 7356Aaa, 2024-S 2152Aaa) PFAS will not be allowed in synthetic turf.

2. INFILL – This project will have an organic-based material made from natural material. Recycled crumb rubber will not be used.

3. BACTERIA – The UV rays and higher temps in an exterior environment does not allow for bacteria to live very long.

ATHLETE SAFETY

Gmax

HIC (Head Injury Criteria)

Vertical Deformation

Force Reduction

Rotational Resistance

Abrasion

Ball Rebound/Ball Roll

Planarity

Infill Depth

Maintenance

Equipment

Any synthetic turf system designed as part of the Mt. Hope High School project will be required to meet the standards of World Rugby Regulation 22, FIH and FIFA.

These organizations have combined resources known as “One Turf” to identify best practices for multi-use, community-based fields in the areas of player welfare, performance, sustainability and longevity.

These standards and tests are derived from and are also used for certification of natural grass fields.

The benchmark for athletic safety testing is a high-end natural grass field.

There is much more to athlete safety than the surface they play on. <u>Maintenance and Athlete Equipment are essential to Athlete Safety</u>

IRRIGATION WELL

- ❑ **Well test locations Identified (2 locations)**
- ❑ **Well test scheduled week of Oct 28th**
  (Subject to SDR11 Lead Time)
- ❑ **Well test to evaluate water condition and capacity**
- ❑ **Well design based on findings**

THANK YOU

PMA Consultants
Est. 1971

PERKINS EASTMAN