

2023 Flood at the USMA at West Point, NY



And Its Effect on Outdoor Playing Fields

ASBA  2024

ASBA TECHNICAL MEETING & TRADE SHOW
DECEMBER 3-6, 2024 | ORLANDO, FLORIDA



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USMA Background

The Fort at West Point was occupied by the Continental Army during the Revolutionary War, allowing control of the Hudson River and preventing the British from cutting off New England from the other Colonies

West Point is the oldest continually occupied and operated military post in the United States and is the oldest of the five service academies (Army, Navy, Air Force, Coast Guard and Merchant Marine)

It became the first engineering college in the United States in 1794. The United States Military Academy (USMA) was officially established by Congress and President Thomas Jefferson in 1802.

Army West Point Athletics currently coordinates 25 NCAA Division I programs. They utilize both synthetic turf and natural grass outdoor playing fields. One Quarter of Cadets Participate on a Team



Notable West Point Graduates



Ulysses S. Grant and Robert E. Lee



Grant – Class of 1843

- Commanding General Union Army - Civil War
- 1st West Point graduate to be elected President of the United States (1868)

Lee – Class of 1829

- Commander Confederate States Army - Civil War
- Prior to joining the Confederacy, he served three years as the Superintendent of West Point

In 1869 President Grant invited Lee to the White House where the two discussed railroad construction in the south

President Grant: *“You and I General, had more to do with the destroying railroads than building them”*

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Dwight D. Eisenhower

“Ike”

Class of 1915

Football and Boxing

“The Class The Stars Fell On”

(1/3 of the graduates attained the rank of General)

Supreme Commander of the Allied Expeditionary Forces in Europe WWII

Elected President of the United States (1952)



George S. Patton

“Old Blood & Guts”

Class of 1909

Football and Modern Pentathlon

Athlete in the 1912 Summer Olympics

World War II Army General

US II Corps in North Africa, 7th Army in Sicily

and

3rd Army in Europe

“Patton” 1970 Film Starring George C. Scott



Apollo 11

July 1969



“Perform a Crewed Lunar Landing and Return to Earth”

Edwin “Buzz” Aldrin, Jr.

Lunar Module Pilot



Class of 1951

US Air Force after West Point
2nd Man to Walk on the Moon

Michael Collins

Command Module Pilot



Class of 1952

US Air Force after West Point
1 of 24 People to Orbit to the Moon



“Coach K”



Michael Krzyzewski - Class of 1969

Point Guard Varsity Basketball Team under Coach Bobby Knight

Team Captain Senior Year

Discharged from the Army with a Rank of Captain

Head Coach Army Basketball '75-'80 (73-59)

Head Coach Duke University '80-'22 (1,129-309)

Coached Five (5) NCAA Championship Teams



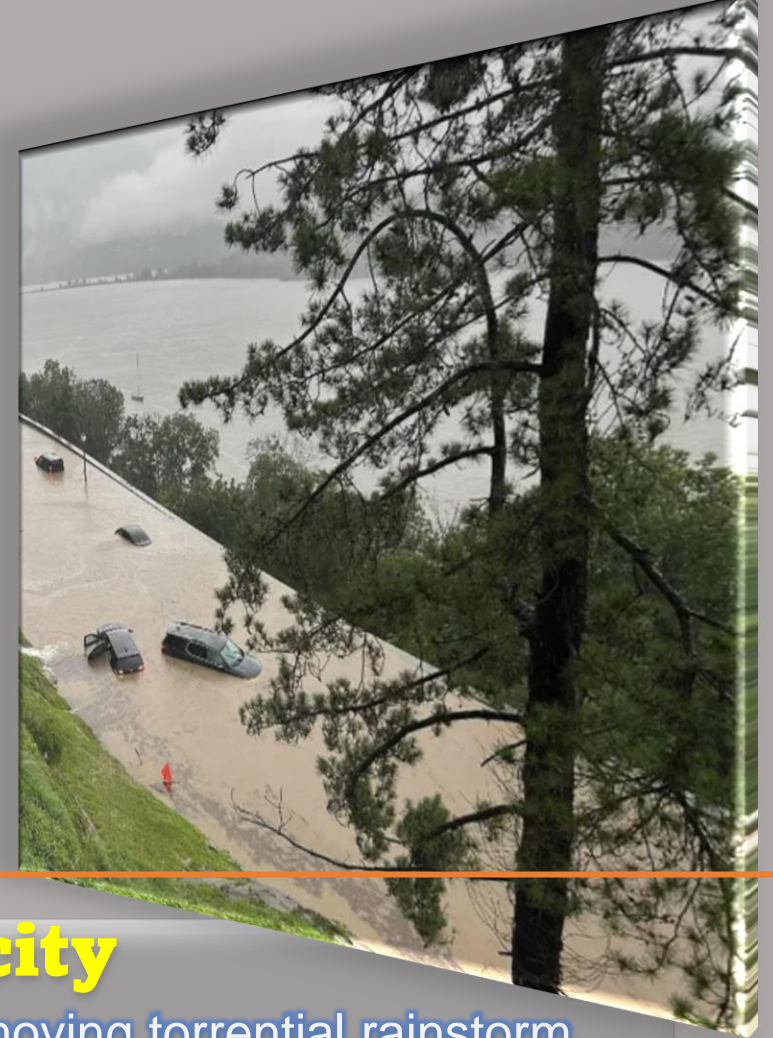
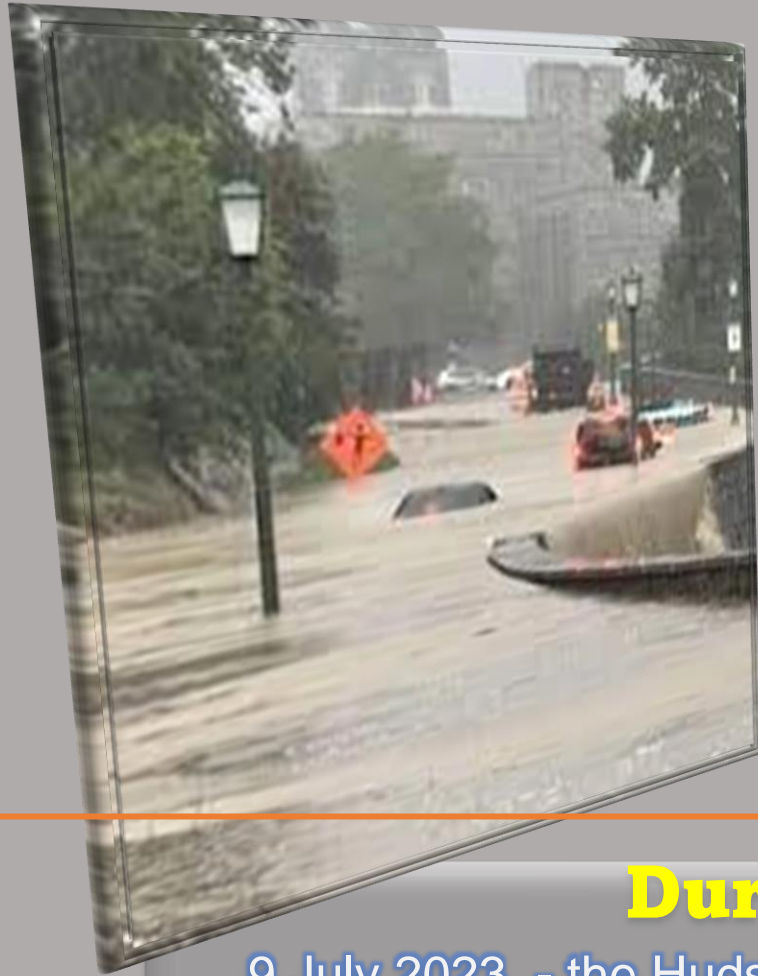
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Duration + Intensity + Velocity

9 July 2023 - the Hudson Valley area was pounded by a slow-moving torrential rainstorm

In one 3-hour period 9+ inches of rain fell on the surrounding solid rock mountains

Permeable soils were already saturated

Widespread damage across the entire Garrison property





NY Route 218
Parallel to and above
the USMA

The washouts caused
a closure of 5.5 miles of
road from
July 2023 – September 2024

Three outdoor synthetic turf infill playing fields were directly affected by the storms rushing debris

This presentation will focus on these fields and the steps taken at each

Anderson Rugby Field

(Army West Point Athletic Association/U.S. Army Corps of Engineers)

Target Hill Combat Fitness Field

(Department of Physical Education/Directorate of Public Works/Construction Contracts Services Branch)

USMA Preparatory School Lacrosse Field

(USMAPS/Directorate of Public Works/Installation Management Command)

Multiple Award Task Order Contract (MATOC) Contractors

“If a contractor has been awarded a MATOC new jobs take only a matter of weeks to award instead of months”

- Evaluation of each field/actions taken to remediate the conditions
- Process utilized to remove materials/disposition of removed materials
- Unique approach taken to accommodate programmatic needs while other flood repair work is occurring adjacent to a field



Anderson Rugby Field at Target Fields

Hudson River

Anderson Rugby
Field

Lee Rd

Upton Rd

Lee Rd

Crows Nest Brook

Crows Nest Brook

Upton Rd



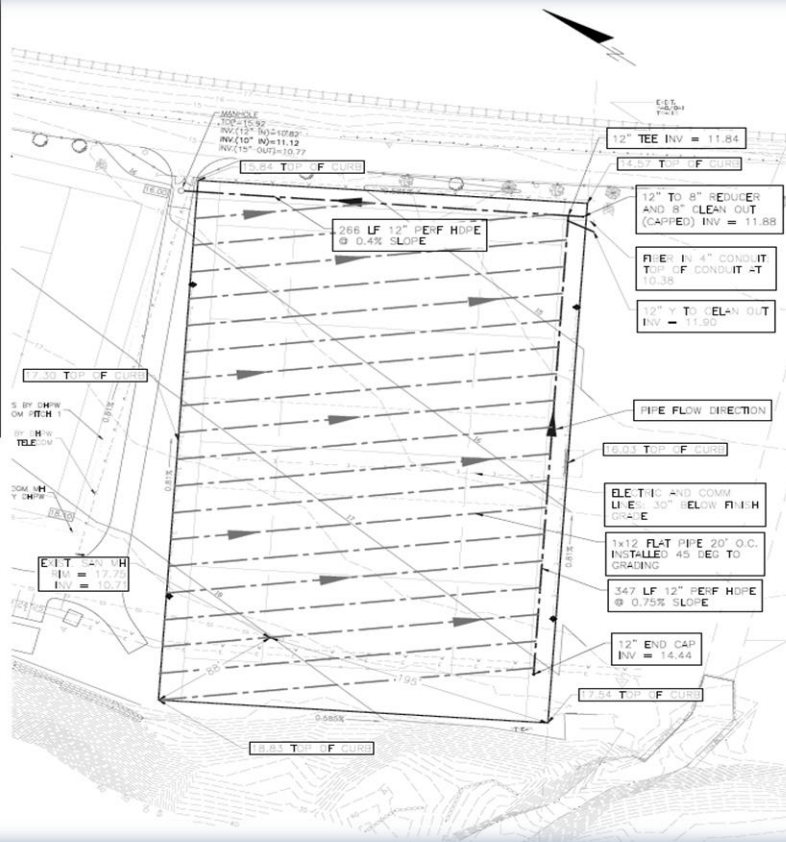
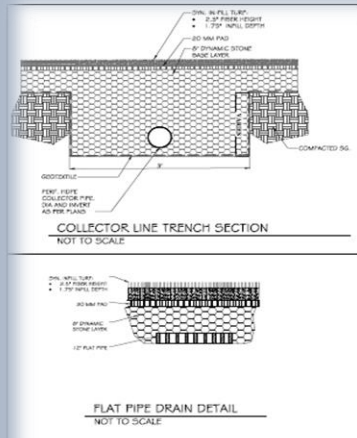
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ANDERSON RUGBY FIELD – 102,300 SF

Completed in 2021/World Rugby Certification 2022

2.5" Turf /1.75" of Sand/Rubber Infill on a 20 mm Shock Pad on 8" of Porous Stone
 (125) Rolls of Pad 4' x 205' and (31) Rolls of Turf 15' x 232'



CLARK
COMPANIES

CATELLA ENGINEERING LLC
P.O. BOX 464
DELHI, N.Y. 13753-1282

NO.	DATE	DESCRIPTION	APPROVED

WEST POINT
ANDERSON RUGBY RECONSTRUCTION

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PROPOSED CONDITIONS AND DRAINAGE ASBUILT

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1" = 30'





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SING SECOND

ARMY WEST POINT
WOMEN'S BUSBY

ARMY WEST POINT



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ASBA TECHNICAL MEETING & TRADE SHOW
DECEMBER 3-4, 2024 | 100-4000 ROUTE 1

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**The area is called
Target Fields for
a reason...**



Background

West Point's history dates back to the Revolutionary War when General George Washington considered it to be the most strategic position in America. Since that time, the United States Army has held West Point, making it the oldest continuously occupied military installation in the United States. Due to its strategic role in the Revolutionary War, and as the home of the United States Military Academy since 1802, unexploded ordnance (UXO) may be present on virtually every part of West Point and on some nearby recreational areas.

West Point includes nearly 14,000 acres of training areas and range complexes. Live-fire impact/dud areas are marked and off-limits to all personnel. There are numerous recreational areas for hunting, fishing, horseback riding, and camping on or near West Point where the potential to encounter UXO from past military activity exists.

Weathering may make munitions, which may be on the surface, buried, or whole or in parts, difficult to recognize. Even old munitions can still kill. As such, cadets and others should never touch, move or disturb anything encountered that may be a munition or part of one. All munitions should be considered dangerous, regardless of how long they have been in the environment or how frequently they have been handled.

Help protect yourself, your family and your community by learning and following the 3Rs of Explosives Safety.



West Point New York

West Point Information

Emergency Contacts

If you encounter a munition:

Call 911

or

if at West Point report to: **Military**

Police

845-938-3333

if found on ranges or training areas
report it to:

Range Control

845-938-3930

Learn and follow the 3Rs
of explosives safety



Visit the US Army's Explosive Safety Education website:
www.denix.osd.mil/uxo

3Rs Safety Guide



The "Report" is called into the Military Police. They Investigate and if they confirm the sighting...



These guys show up...

EXPLOSIVE ORDNANCE
DISPOSAL
(EOD) TEAM



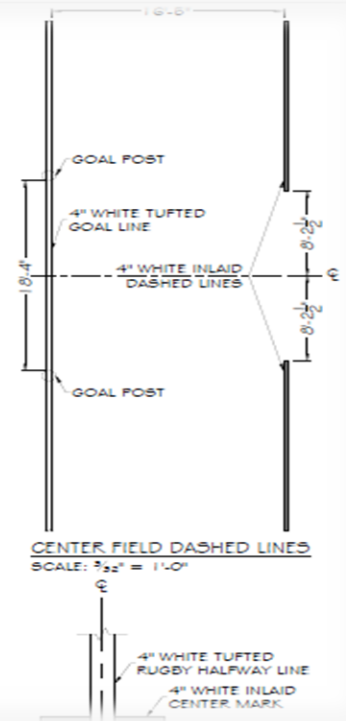
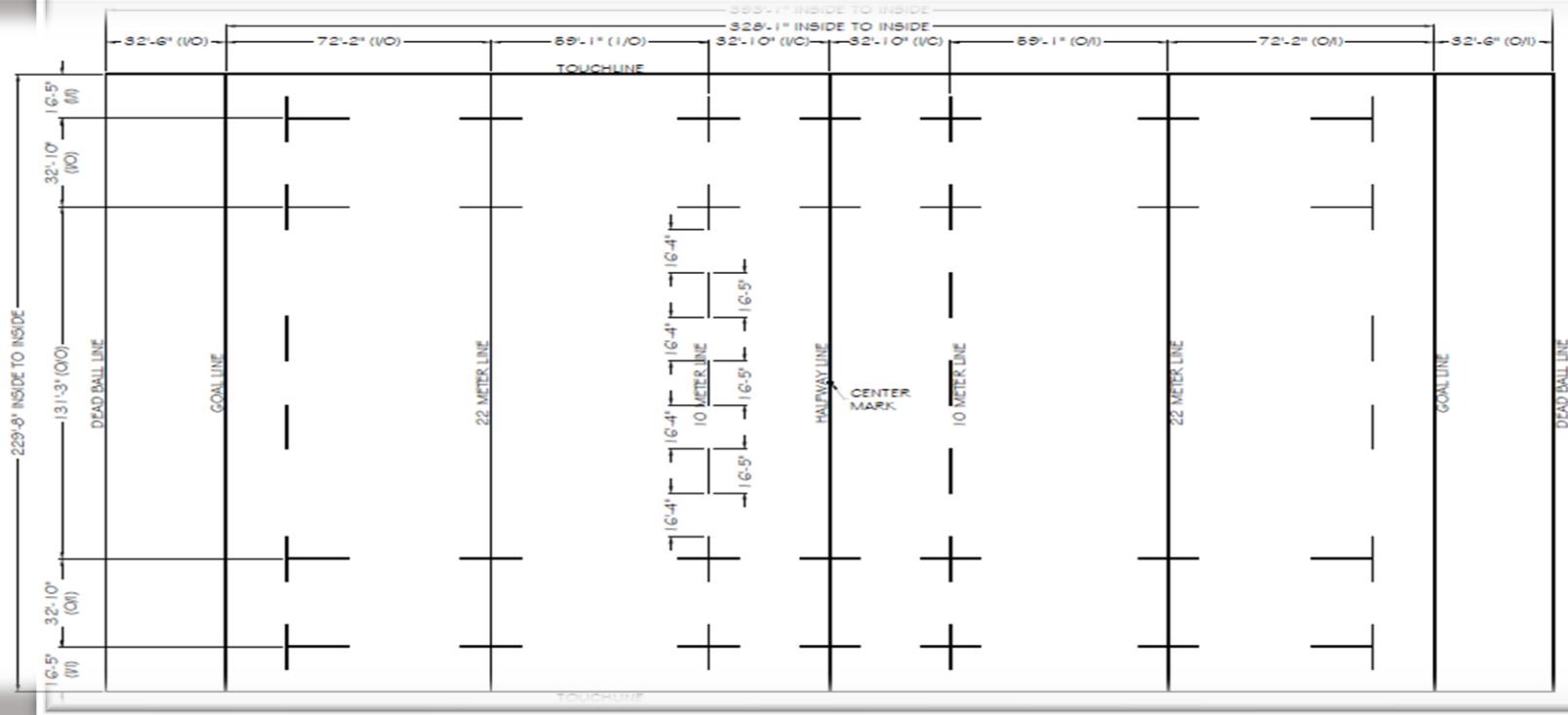


- The first step was to remove as much debris as possible and expose the turf system
- 3.5 Week process
- Flood debris was removed utilizing loaders, excavators, dozers and end dumps
- Some of the removed material remained on Post as fill at various locations
- A temporary remediation of the adjacent hillside was performed
- While decisions as to how to next proceed were being considered, the field was utilized for football gameday parking

Our determination was that the turf backing along with the 20 mm pad had indeed acted as a barrier and prevented silt and small debris from compromising the porous stone subbase

Programmatic Needs of Army West Point Athletics vs. the Remediation Work at the Hillside

- With the synthetic turf field out of play, Army Rugby was using the natural grass Warrior Game Pitch for practices and games, causing expedited wear and tear of the sand-based field. They wanted the synthetic turf replaced immediately
- The Army Corps of Engineers was in the process of awarding a significant multi-year remediation project of the adjacent hillside and wanted the entire field for staging purposes (the total overall Garrison remediation project = \$188,000,000)
- We were tasked to develop a few options to get a synthetic turf field “in play” which ultimately resulted with the decision to construct one half of the field ASAP and the other half following the completion of the remediation project



PHASE I

- The turf material was cut, rolled and removed
- The turf/infill system weight increased from 9 pounds per SF at installation to an average of 18 pounds per SF.
- The pad material was cut, rolled and removed
- A third-party independent laboratory performed infiltration testing of the stone base. These tests resulted in infiltration rates of greater than 100 inches/hour/location
- The 12" stormwater collector line connecting to the point of outflow was inspected via camera and found to be free of debris/silt
- A few small areas were boxed out and replaced with new porous stone. The entire field was precision fine graded and stone dust was applied as needed for receiving the Phase I pad and turf system







Phase I

Material Generated for Repurposing Facilities

**(71) Rolls of turf were sent to a turf recycling facility
in Wilkes Barre, PA.**

**(121) Rolls of pad were delivered to a repurpose
facility in Westminster, CO.**



A temporary wood nailer was installed at mid field utilizing a shiplap joint detail




Prepared Phase I
Ready for
Pad and Turf







Timeline Phase I
(Turf/Pad Removal to Turn-Over)
5/22/24 - 6/14/24



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Hudson River

Target Hill Combat Fitness Field at Target Fields

Anderson Rugby
Complex

Lee Rd

Upton Rd

Lee Rd

Crows Nest Brook

Crows Nest Brook

Upton Rd



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Army Combat Fitness Test (ACFT)

High Intensity Human Performance

Physical Fitness Assessment
Taken Twice During Cadet Basic Training

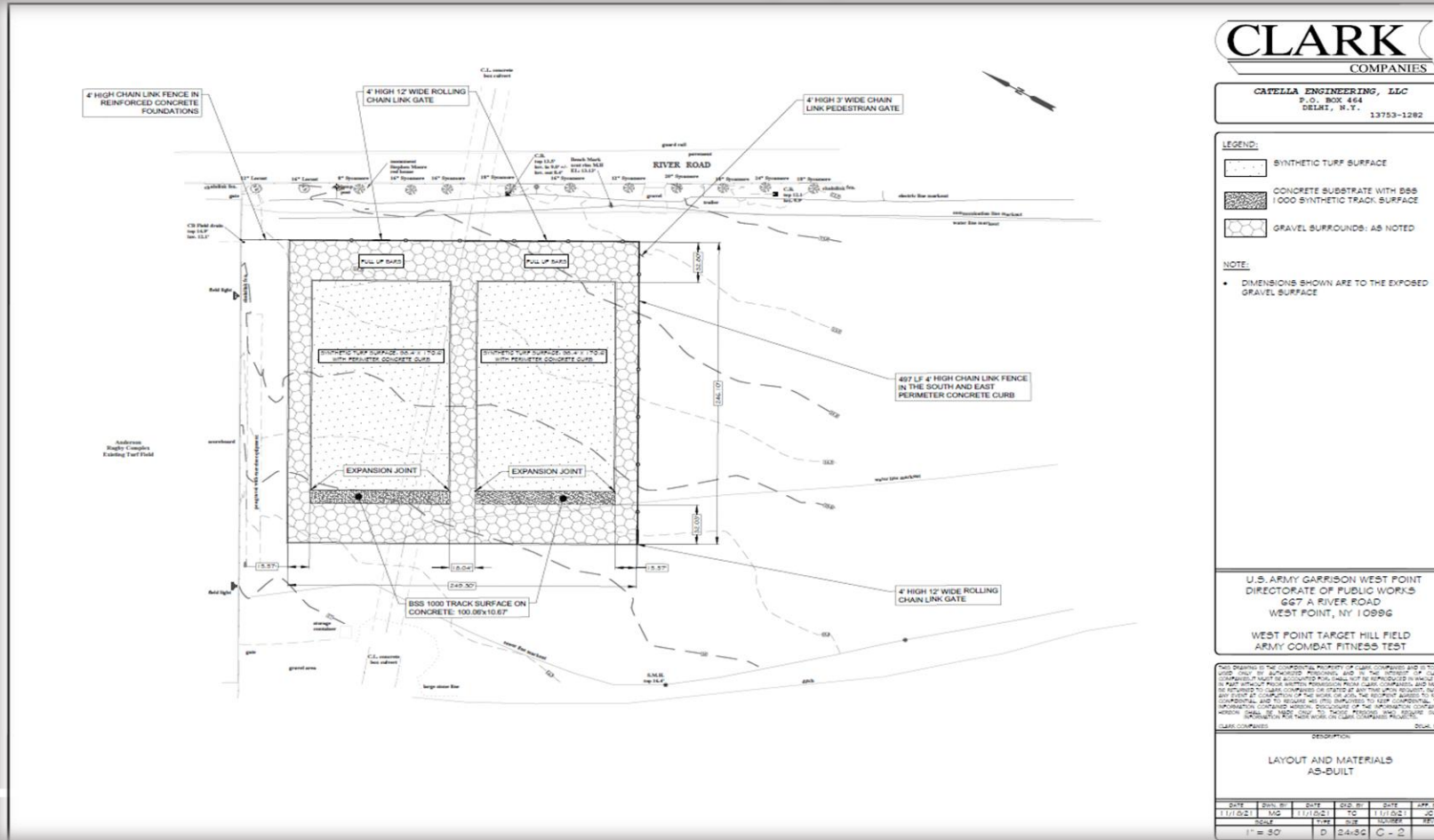
- 3-Event Test 2nd Week of Training
- 6-Event Test 6th Week of Training
 - Plank
 - Push Ups
 - Sprint, Drag and Carry
 - Standing Overhead Ball Toss
 - Dead Lift
 - 2 Mile Run



Target Hill Combat Fitness Field – Completed 2022

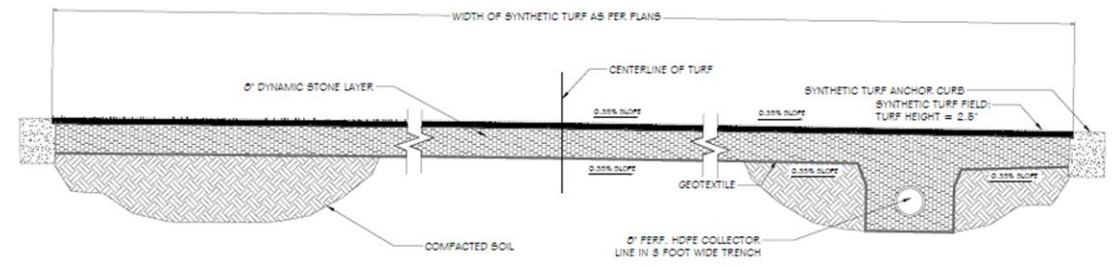
2.5” Synthetic Turf with 1.75” of Sand/Rubber Infill on an 8” Porous Stone Base

33,600 SF – (14) Rolls 15’x173’

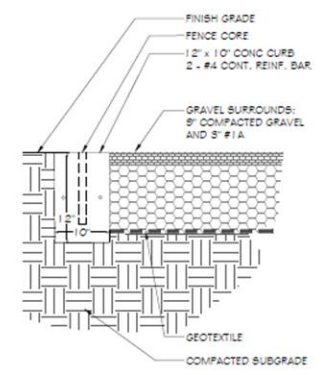




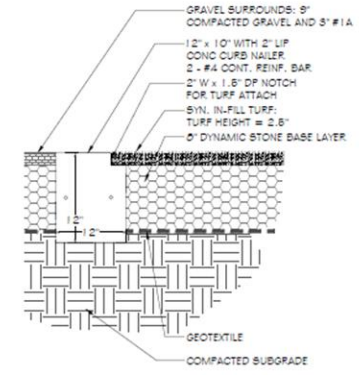
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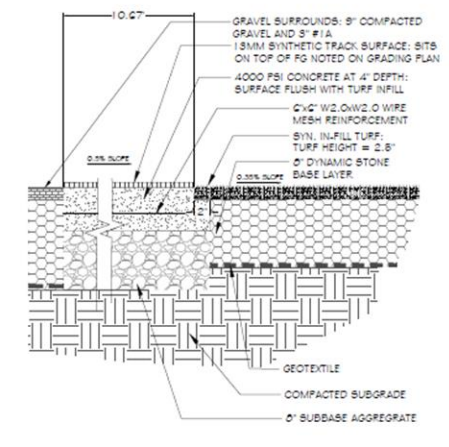
TRANSVERSE SECTION THRU FIELD
 NOT TO SCALE



PERIMETER CURB WITH FENCE
 NOT TO SCALE



SYNTHETIC TURF ANCHOR CURB
 NOT TO SCALE



BSS 1000 SYNTHETIC TRACK SURFACE SECTION
 NOT TO SCALE

U.S. ARMY GARRISON WEST POINT
 DIRECTORATE OF PUBLIC WORKS
 667 A RIVER ROAD
 WEST POINT, NY 10996
 WEST POINT TARGET HILL FIELD
 ARMY COMBAT FITNESS TEST

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- The perimeter chain link fence between Anderson Rugby and Target Combat Field prevented most debris such as rocks, timber, misc. items from getting onto Target
- The field was covered mainly in mud with medium to small aggregate material, ankle deep in places
- Our evaluation of the conditions led us to believe that the turf prevented the debris from getting into the stone base
- The mud was taken off with Skidsteers and the turf was cut, rolled and removed. Most was sent to the recycling center in PA.
- The in-place stone base was tested, resulting in infiltration rates of greater than 100 inches per hour/location
- The stone base was graded, and stone dust was applied as needed, ready for new turf









Timeline
10/30/23 - 11/27/23



United States Military Academy Preparatory School Lacrosse Field

218

Greenwich Ave

U.s. Mint - West Point



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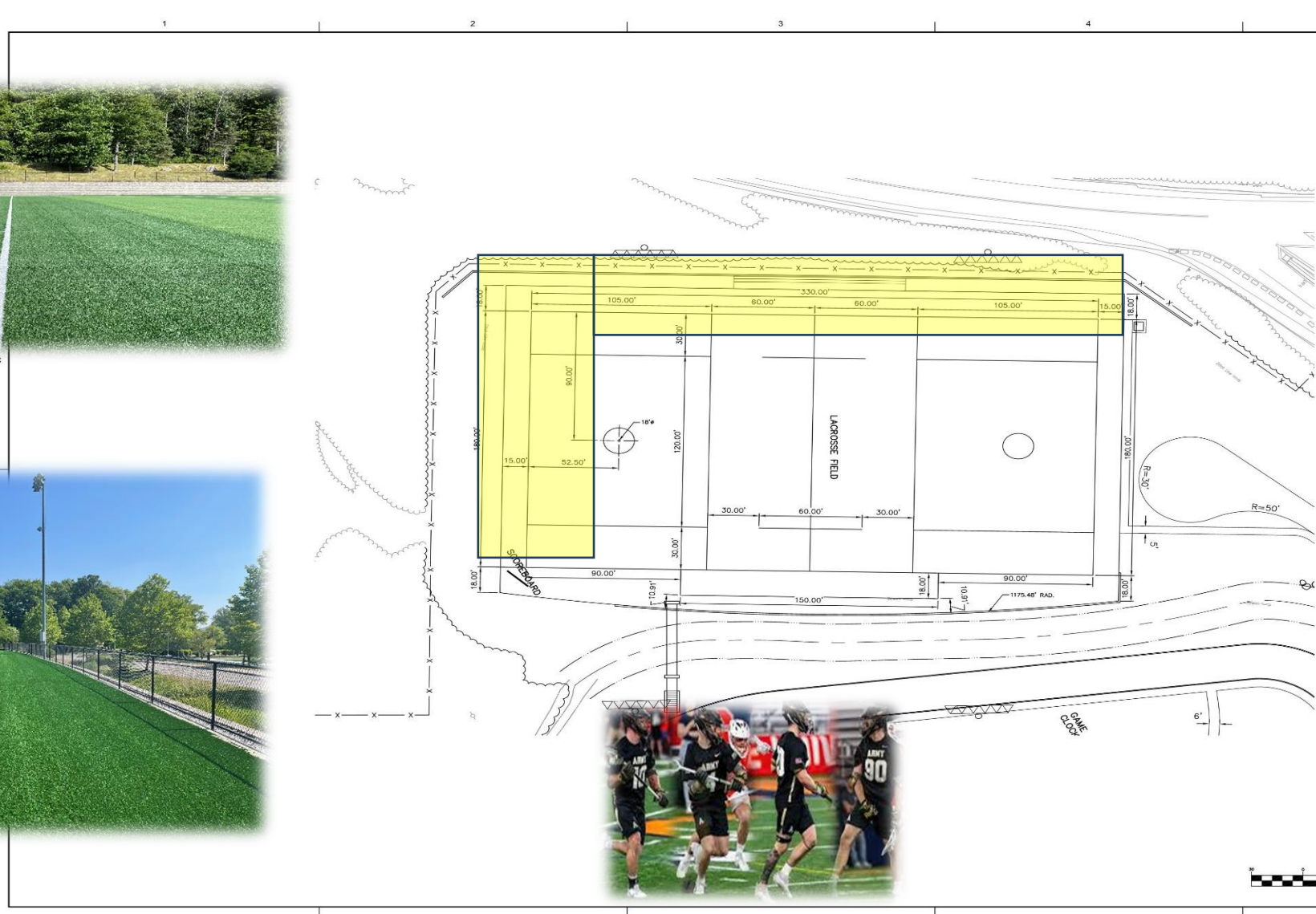
THE PURPOSE OF THE OF THE PREP SCHOOL IS TO PREPARE CANDIDATES FOR THE CHALLENGES OF THE ACADEMY. CANDIDATES ATTENDING THE PREP SCHOOL ARE HIGH SCHOOL GRADUATES OR ACTIVE ENLISTED ARMY, RESERVE OR NATIONAL GUARD PERSONNEL

ONE THIRD OF THE STUDENTS ARE RECRUITED ATHLETES
AVERAGE ENROLLMENT = 250



USMAPS Lacrosse Field -2.5" Turf/1.75" Sand/Rubber Infill/6" Porous Stone Base – 2023

86,200 SF – (30) Rolls 15'x182'



<p>US Army Corps of Engineers NY District</p>																																	
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<p>U.S. ARMY CORPS OF ENGINEERS NEW YORK DISTRICT Point of Contact: [Name]</p>	<p>DESIGNED BY: [Name] CHECKED BY: [Name] DRAWN BY: [Name] PROJECT NO.: [Number]</p>																																
<p>UNITED STATES MILITARY ACADEMY POINT OF CONTACT: [Name] WEST POINT, NY</p>	<p>DESIGNED BY: [Name] CHECKED BY: [Name] DRAWN BY: [Name] PROJECT NO.: [Number]</p>																																
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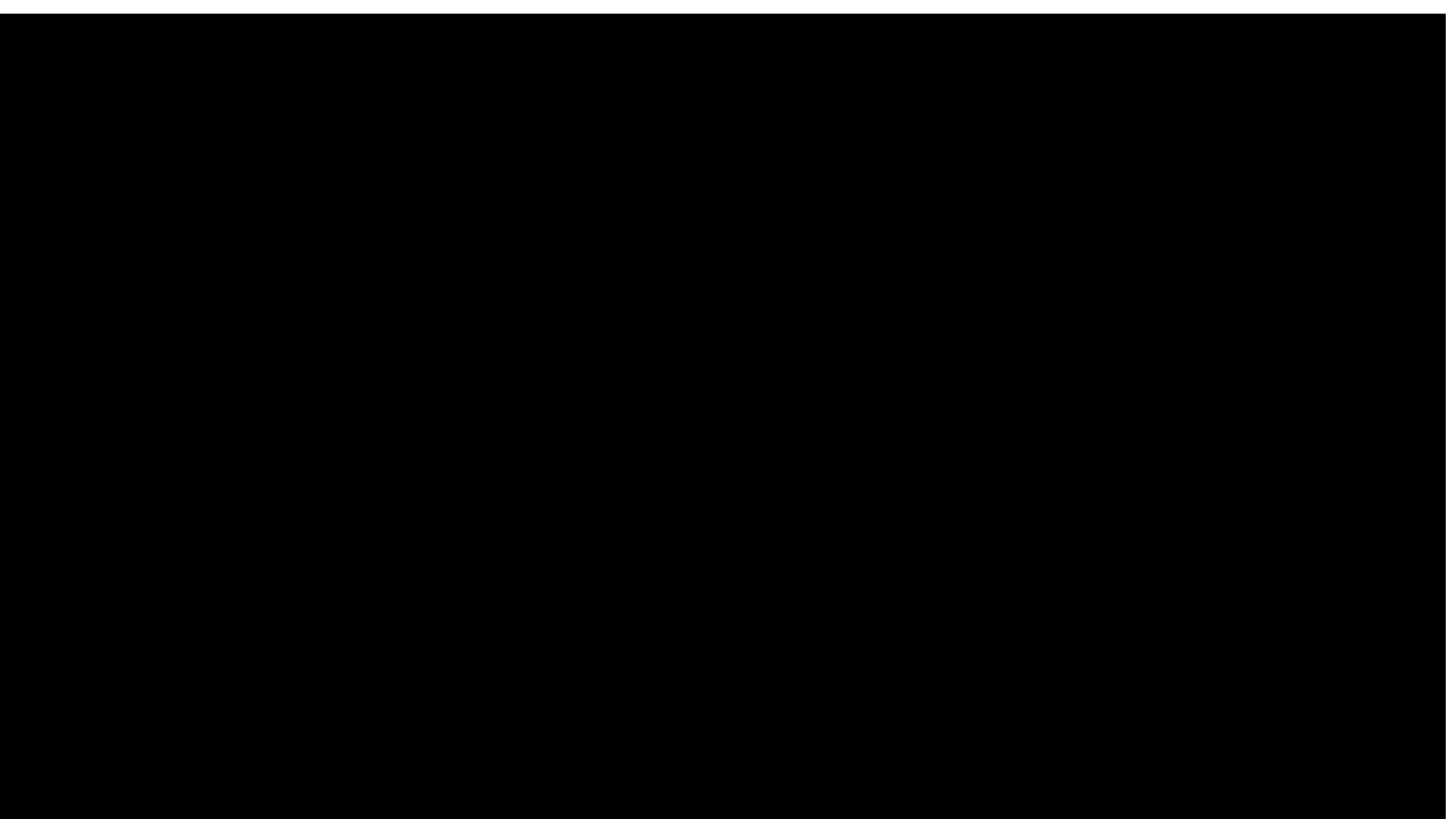
- As with Target Combat Field, the perimeter fence prevented most of the large flood debris from coming on to the field
- The mud on the field lacked the small to medium aggregate and our evaluation led to recommending an attempt to clean the field, salvaging the in-place turf



- The top layer of mud was removed with Skidsteers
- A Roto Tine was used to loosen/agitate the storm material and infill toward the top
- A Laymor pushed the debris to Skidsteers, and it was then put into containers for transport
- The turf was power washed utilizing a 150-gallon tow behind tank
- Most of the material removed from the turf was repurposed as fill at other locations on Post
- A new application of sand/rubber infill was installed









Timeline
8/5/23 - 8/16/23

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- One storm
- Three Fields
- Three Different Owners/End Users/Timelines
- Three Different Approaches Utilized for Remediation

Each Approach Customized to Fit the Unique Situation



Thank you

- Michael Rubbino, Assistant Athletic Director, Army West Point Athletic Association
- Rich DeMarco, Associate AD, Army West Point Athletic Association
- Robert McCormick, Facilities Operations Specialist, Installation Management Command, USMA
- James D. Catella, P.E., Clark Companies/Catella Engineering LLC
- Chandler Mason, Clark Companies
- Mabel Gutliph, CPESC, Clark Companies

DUTY/HONOR/COUNTRY