

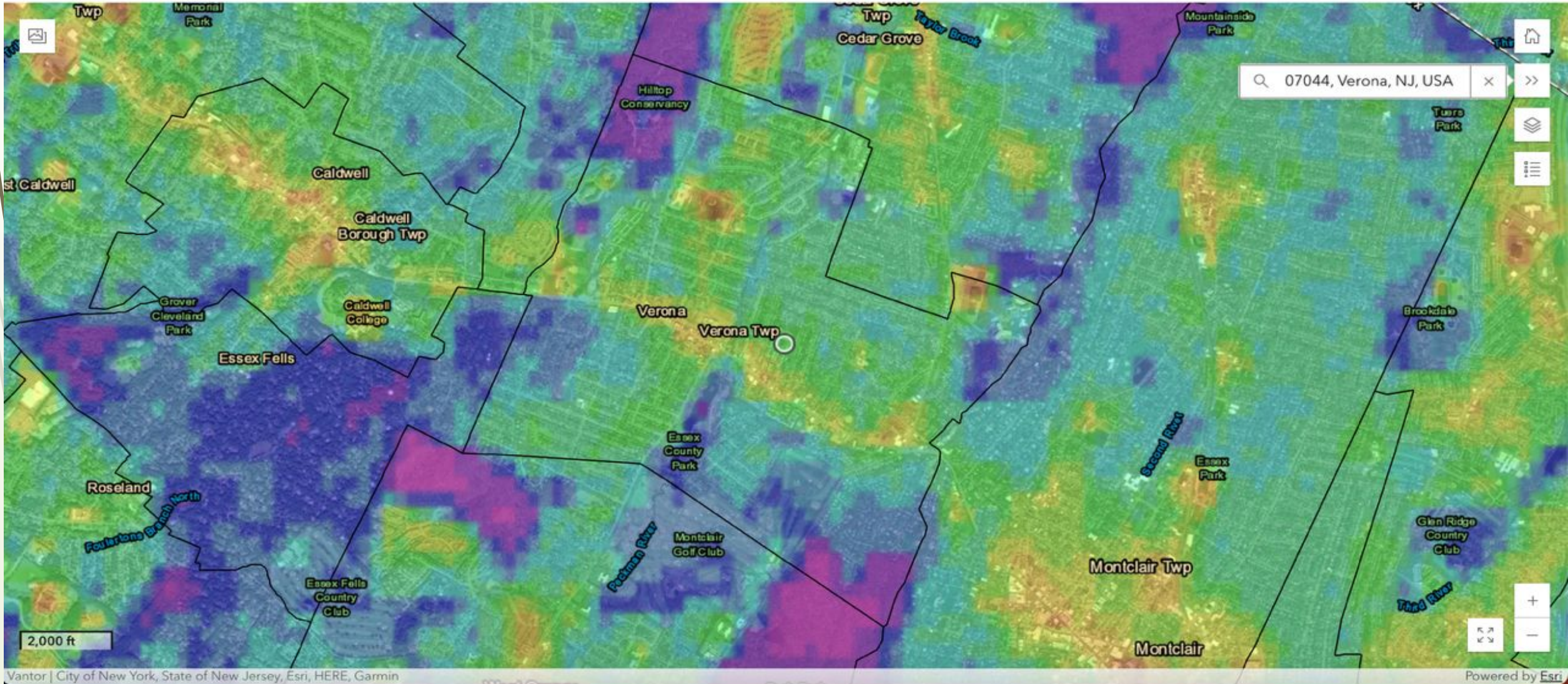
The Issues with Artificial Turf

Why the controversy exists and what to
do about it

Heat Island Map – Verona NJ



New Jersey Heat Island Map



Verona's Centennial Field Study - 2024



ORIGINATION – LIFE CYCLE OF AN ARTIFICIAL TURF FIELD

- Artificial Turf is a fossil fuel-based petrochemical product. Fossil Fuels are what are used to produce oil, gas and coal and they're also used to produce plastics.

- Manufacture Process:
 - An artificial turf field contains the equivalent of about 40,000 pounds of plastic

 - Manufacturing artificial turf requires significant amounts of water and energy
~**34,000 gallons** → approximate direct factory manufacturing water use estimate
~**2.24 million gallons** → life-cycle/embodied water footprint estimate.

 - High CO₂ emissions from artificial turfs occur during the manufacturing, production, transportation, installation, degradation, maintenance, and end of life such as incineration of fields



ARTIFICIAL TURF IS A PLASTIC BARRIER that harms everything underneath it

Starvation of Soil Life: Soil organisms rely on decomposing organic matter (leaves, grass clippings) to survive; artificial turf cuts off this supply.

Compaction and Suffocation: The preparation and installation process compacts the soil, reducing oxygen, while the plastic prevents rainwater infiltration, causing the ground to dry out.

Habitat Destruction: It acts as a permanent covering over the earth, killing insects and microorganisms and eliminating food sources for animals like birds.

Thermal Damage: Artificial turf can become significantly hotter than natural grass, creating temperatures that can damage soil health.

Microplastic Pollution: As it ages, it breaks down into synthetic particles, contaminating the soil beneath and nearby water sources.

New Jersey is widely recognized as one of the most turf-saturated states in America and may well rank #1 per capita

PFAS:

PFAS (per- and polyfluoroalkyl substances) are synthetic chemicals linked to cancer, hormone disruption and developmental harm. Known as “forever chemicals,” they persist in the environment – and in the human body.

The way PFAS are currently tested in Artificial Turf opens up loopholes for Artificial Turf companies to make it appear that their product has no PFAS. **“No detectable levels of PFAS” does NOT mean it is PFAS-free.**

The detection thresholds for these tests—<0.5 ppm and <10 ppm, respectively—are far too high to rule out PFAS contamination at levels relevant to public health, which are typically measured in parts per trillion.

TEST RESULTS

FLUORINE CONTENT

None Detected

***NOTE: Lowest calibration level is 1 ppm.**

PPM vs. PPT

PFAS need to be measured in every aspect of the lifecycle of this product. There is no safe level of PFAS.

1. The PFAS released during manufacture of this product
2. The PFAS released via runoff from this product
3. The PFAS released during the decomposition of this product

A credible PFAS disclosure should always answer three separate questions:

- Is there fluorine chemistry in the product at all? (ppm total fluorine)
- Are regulated PFAS compounds present? (**ppt-level testing**)
- Can anything leach out under real use conditions? (extract tests)



TenCate's website regarding PFAS

MYTH: ARTIFICIAL TURF CONTAINS PFAS

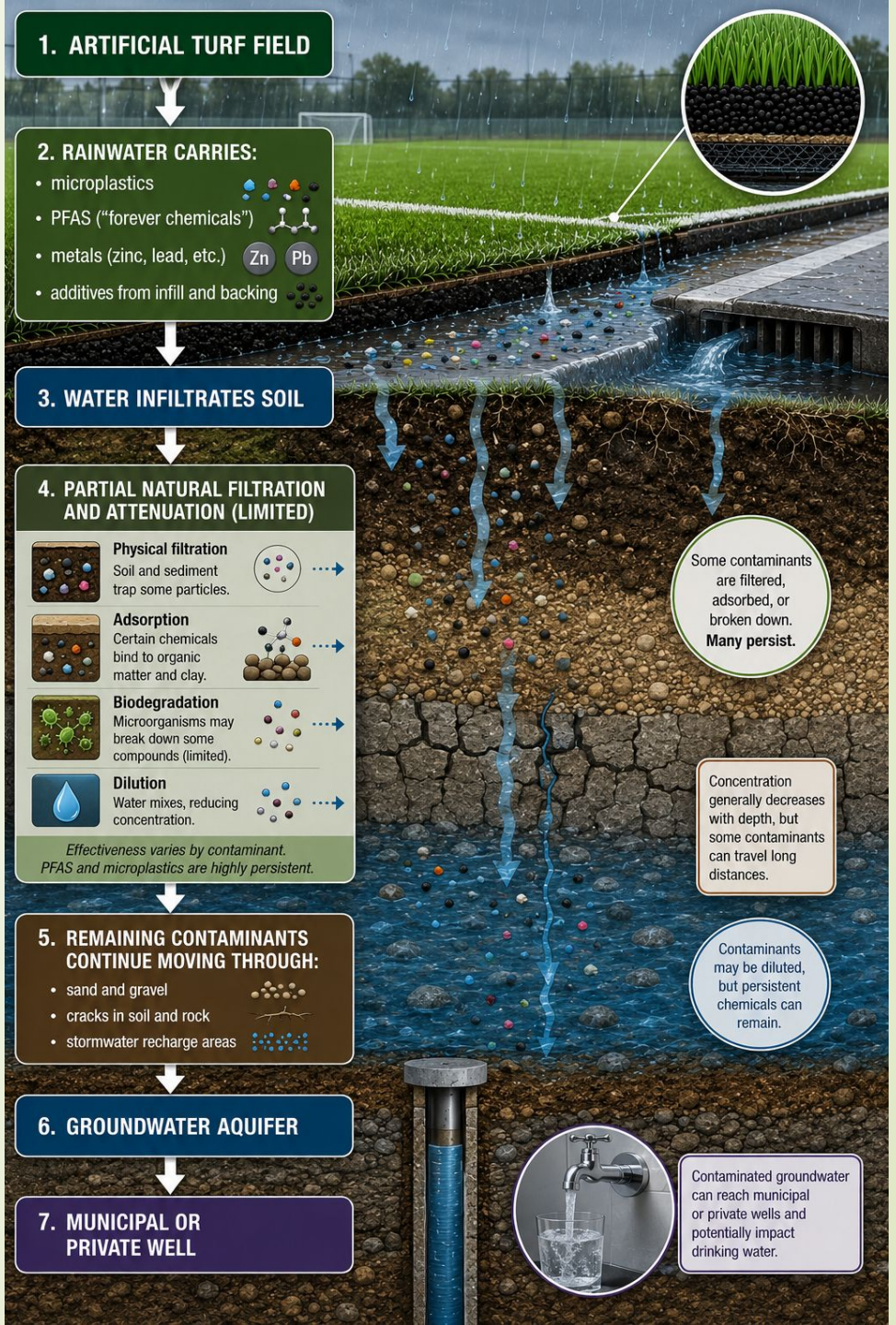
Fact: TenCate Turf is manufactured without PFAS

We are committed to providing safe and sustainable products. As of October 2023, we completely removed PFAS from our manufacturing process.

Did you know that the PFAS levels found in older generations of turf were actually **far lower** than what you'd find in common everyday products — like toothpaste, shampoo, beauty products, and even some medications?

RUNOFF

Haven't Verona taxpayers paid enough to protect drinking water quality? Why would we risk exposing our wells after \$5M in remediation?





PLASTIC POLLUTION

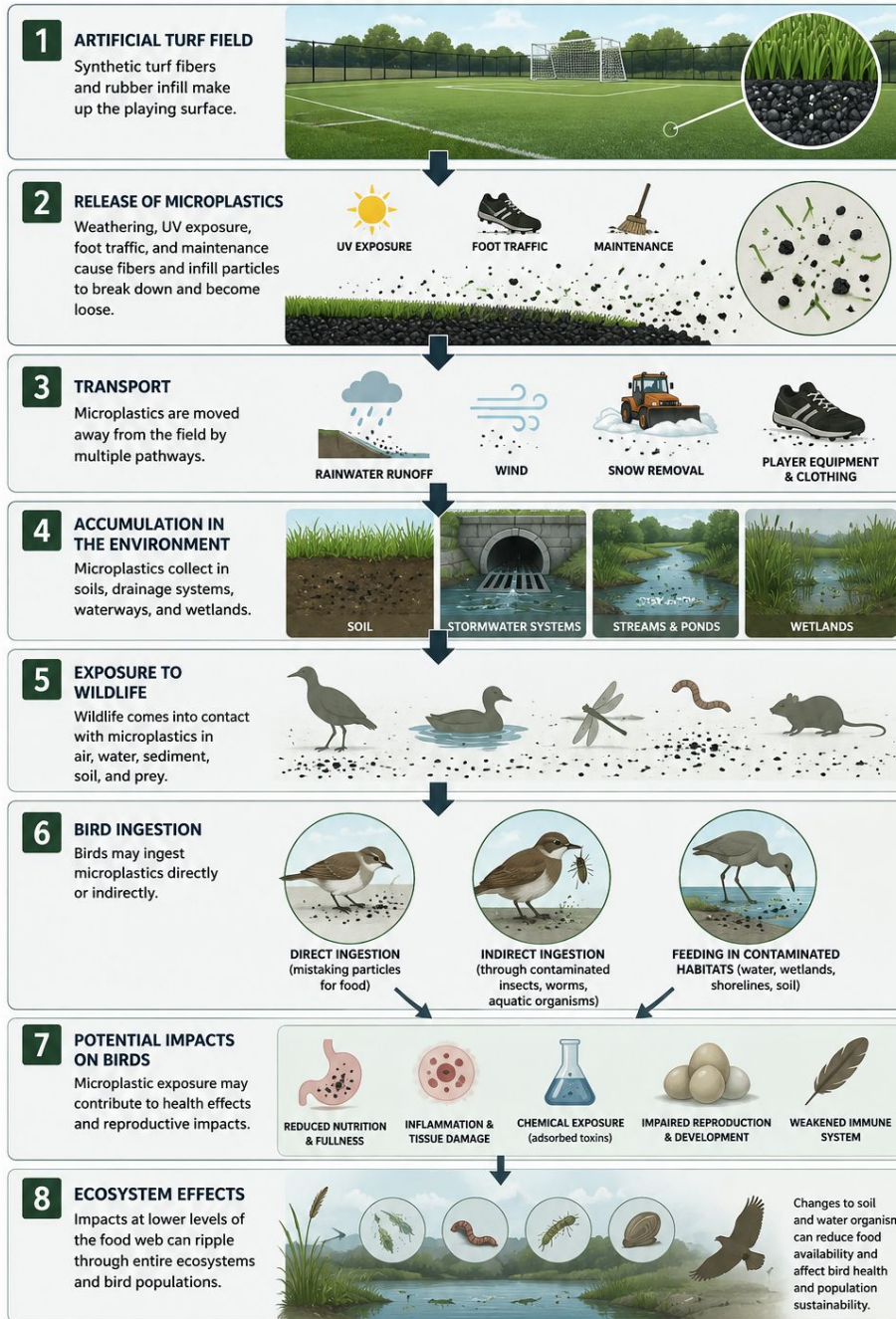
- TenCate Pivot's Artificial Turf field contains **16x** more plastic blades...conceivably **48k** pounds of microplastic blade loss to environment per regulation sized field PER YEAR.
- Usage, UV radiation and weathering induce degradation of artificial turf, generating NMPs (Nano- and Microplastics).
- A 2023 study from Japan found that Artificial Turf is a leading cause of NMP Pollution. Recent studies have identified artificial turf as one of the largest contributors to NMP emissions in urban environments, with current estimates suggesting that a single-size sports field can release several hundred kilograms of plastic particles annually, accounting for approximately 38% of the total estimated release in European environments.



PLASTIC POLLUTION

Bird Exposure: From field to stomach

POTENTIAL PATHWAY: FROM ARTIFICIAL TURF TO BIRD EXPOSURE

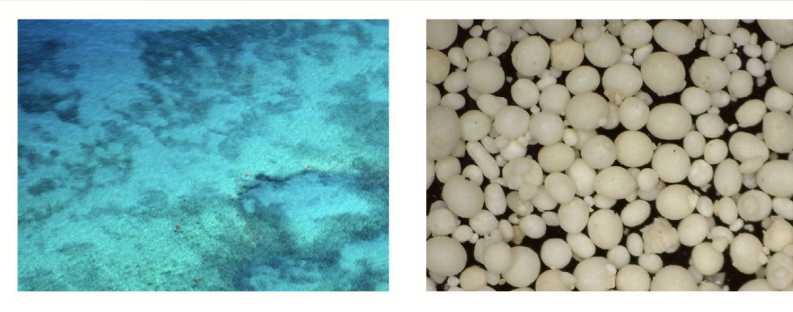


PIVOT COOL INFILL

What is this infill product, Pivot Cool, made of? And where does it come from? It is made of the mineral aragonite, which is mined from sea beds.

Mining causes:

- ❖ **Habitat Destruction**
- ❖ **Increased Water Turbidity**
- ❖ **Damage to Marine Biodiversity**
- ❖ **Carbon and Climate Effects**
- ❖ **Long-Term Ecosystem Recovery**



Just for Centennial alone **roughly 200,000–275,000 pounds of aragonite**, or about **100–140 tons** would be used.

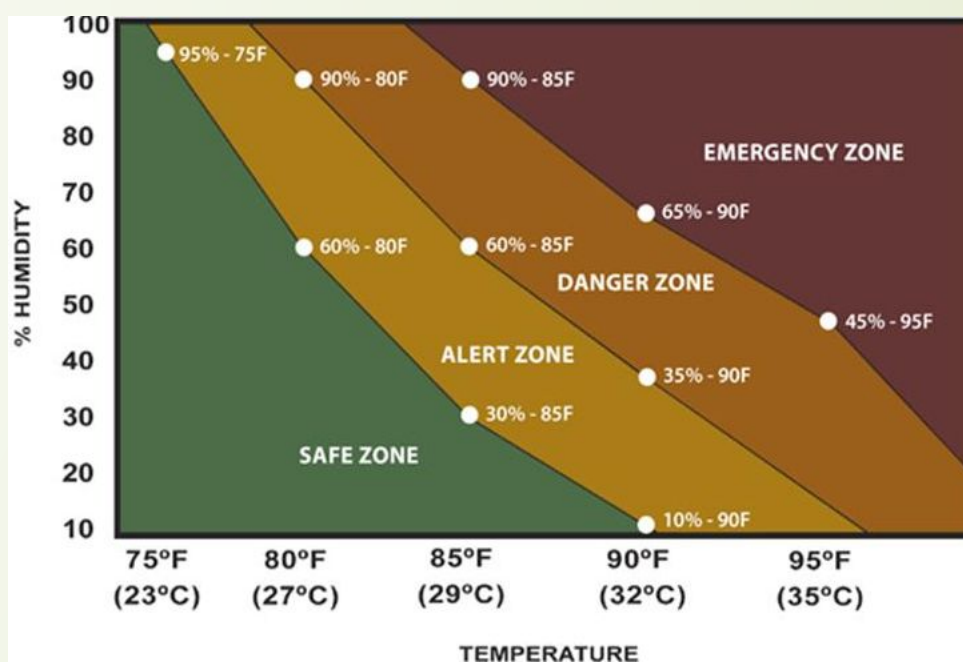


HEAT ISSUES

- ❖ Centennial Field, NJ (2024): 91° F / **150° F on field**
- ❖ SportPlex, San Diego, CA (2025): 85° F / **159.5° F on field**
- ❖ MKA Van Brunt Field, NJ (2026): 92° / **160° F on field**

There are no published independent field studies with before/after temperature data in search results. Most available information comes from TenCate marketing, partner sites, or trade magazines repeating company claims. Verona should not be basing a recommendation on a company's "claims", but on this temperature data taken.

Rutgers Youth Sports Council Recommendations



Safety zone	What to do
Safe Zone	<ul style="list-style-type: none"> Exercise as usual. Safe to exercise outdoors.
Alert Zone	<ul style="list-style-type: none"> Decrease your exercise intensity (slow your walking pace). Watch for signs (such as shortness of breath, increased tiredness).
Danger Zone	<ul style="list-style-type: none"> No outdoor exercise. Exercise in an air conditioned environment only.
Emergency Zone	<ul style="list-style-type: none"> Avoid going outdoors.



COST

Although Centennial is older, according to the TenCate PDF, the lifespan of artificial turf is 8-15 years, so Verona will need to replace this field in about 11.5 years, incurring that cost.

TenCate Pivot's new artificial turf product costs about \$100k more than traditional turf fields. Stormwater managements costs and recycling costs were not included in the estimate.

The MSU team compiled an in-depth cost comparison, which including the cost of a Sports Field Manager to manage Centennial, as well as a landscape maintenance company – and the cost over time was less than an artificial turf field.

RECYCLING ISSUES

According to TenCate Pivot:

- 1- Turf is removed by TenCate and sent to a processing facility in LA where it's separated
- 2 - The turf is sorted, then shredded and packaged for transport to Cyclyx in Texas
- 3 - Once Cyclyx processes it, it's sent to ExxonMobil in Texas where it is melted into bio-fuel, gas and charcoal (by pyrolysis)

While pyrolysis is often promoted as a way to recycle difficult materials like plastic, it has several negative environmental impacts, like air pollution, toxic emissions, and hazardous waste production.

PRICING

Turf processing: \$0.15/sq. ft.*

Calculate your field's cost at
turfrecycling.us/calculator

*Customer is responsible for freight charges and freight is not included in the processing price.

This could add \$15k to the cost, Verona pays for this.

PLAYER PREFERENCE – players don't like it!



Odell Beckham Jr ✓

@obj · [Follow](#)



Replying to @Mr4thAndLong

ALLL FIELDS SHOULD BE GRASS. But don't get me started

6:49 PM · Nov 8, 2022



New Heights ✓

@newheightshow · [Follow](#)



"I'd rather practice in sleet, snow, thunderstorm with a chance of getting struck by lightning than run inside on the turf"

[@tkelce](#) and [@JasonKelce](#) are firmly against turf fields



PRODUCT IS NEW

- Conventional infill helps stabilize fibers, affects ball response, and provides cushioning. Because Pivot replaces that structure with very dense fiber architecture, some turf professionals are watching to see:
 - how it compacts over years of use,
 - whether footing changes over time,
 - maintenance requirements,
 - and whether it performs consistently in different climates.

- The warranty is full of holes – if the product is defective, it doesn't cover removal, disposal or reinstallation of replacement turf. Requires intensive documentation and Verona would have to pay staff to do that.



NJ LEGISLATION

Regulatory Momentum:

- NJ Senate Bill **S2936** (2026) would prohibit municipalities from purchasing or installing artificial turf fields
- NJ Senate Bill **S3254** (2026) would bar Green Acres funds from being used for artificial turf, it unanimously passed on June 8, 2026 with a 5-0 vote, releasing it to the Senate Budget and Appropriations Committee
- Verona EC Resolution 2026-01 passed unanimously with an 8-0 vote on May 5, 2026 urging conversion to grass for Centennial
- Centennial Field is now registered in the Green Acres Program — aligning with grass supports funding eligibility

More and more towns are voting down artificial turf proposals, ie. Scotch Plains, Westfield, and Maplewood. Artificial Turf is not the future!



RECAP - ALL THE ISSUES

1. Fossil fuel product
2. Emits CO2 during entire life cycle
3. Harms soil biodiversity underneath
4. Contains PFAS & other chemicals which can be inhaled or absorbed, and leach into our waterways and wells
5. Contributes greatly to micro plastic pollution
6. Extremely harmful to marine, avian and aquatic life
7. Gets extremely hot
8. Requires maintenance & repairs
9. Tire crumb infill is carcinogenic and full of chemicals
10. New infills are not performing and are equally bad for the environment
11. Causes injury and abrasions
12. More professional players refuse to play on it, amateur players dislike it as well
13. Costs more than natural grass fields over time, warranties are limited
14. Is mainly not recycled despite industry claims
15. Misleading marketing intends to divert consumers from the truth about the product



NATURAL GRASS FIELDS

There are an abundance of webinars by natural grass experts on how to achieve a high-performing natural grass field, it is being done across the country today.

Why do grass fields get a bad rap – where's the gap? The answer is that it's poor soil quality, not hours of player use, that is responsible for poor field condition.

What it takes:

- ❖ Correct seed
- ❖ Aeration
- ❖ Irrigation
- ❖ Proper drainage
- ❖ Use of compost
- ❖ Monitoring

Sports Field Management

Municipal DPWs are not trained in soil science and management, and their expertise can be better devoted to other municipal needs.

Expecting DPWs to manage athletic fields without the time to devote to the fields, or the proper training, is the recipe for failure that has led towns to seek alternatives to natural grass fields so many years ago.





WHAT IT TAKES

THE KEY:

- A dedicated Sports Field Manager to manage Centennial Field and Veteran's Field

- ☐ Core Turf Maintenance
- ☐ Soil Health Management
- ☐ Repairing Wear Areas
- ☐ Managing Traffic
- ☐ Field Safety and Performance

A well-managed natural grass field can remain dense, safe, and playable for decades, but it requires continuous attention to soil health and recovery from wear. In fact, many professional and collegiate natural grass fields are maintained primarily through aggressive aeration, overseeding, fertility management, and traffic control rather than major reconstruction.

Natural Grass Fields that are performing:

Glen Ridge, NJ: Neff (grass consultant), Cowan (rec director). Director has said that \$30k will keep a field in good shape – using aeration, seeding, irrigation, etc.

Ramapo Hills, NJ: Maguire (manager). Maguire uses compost. His fields have won national awards. He also uses Integrated Pest Management. Ramapo High School's grounds crew had three separate fields recognized in the 2025 awards program.

Maryland Soccer Plex, MD:

