75 Fields, 3 Solutions

How to tackle circularity challenges of artificial turfs?

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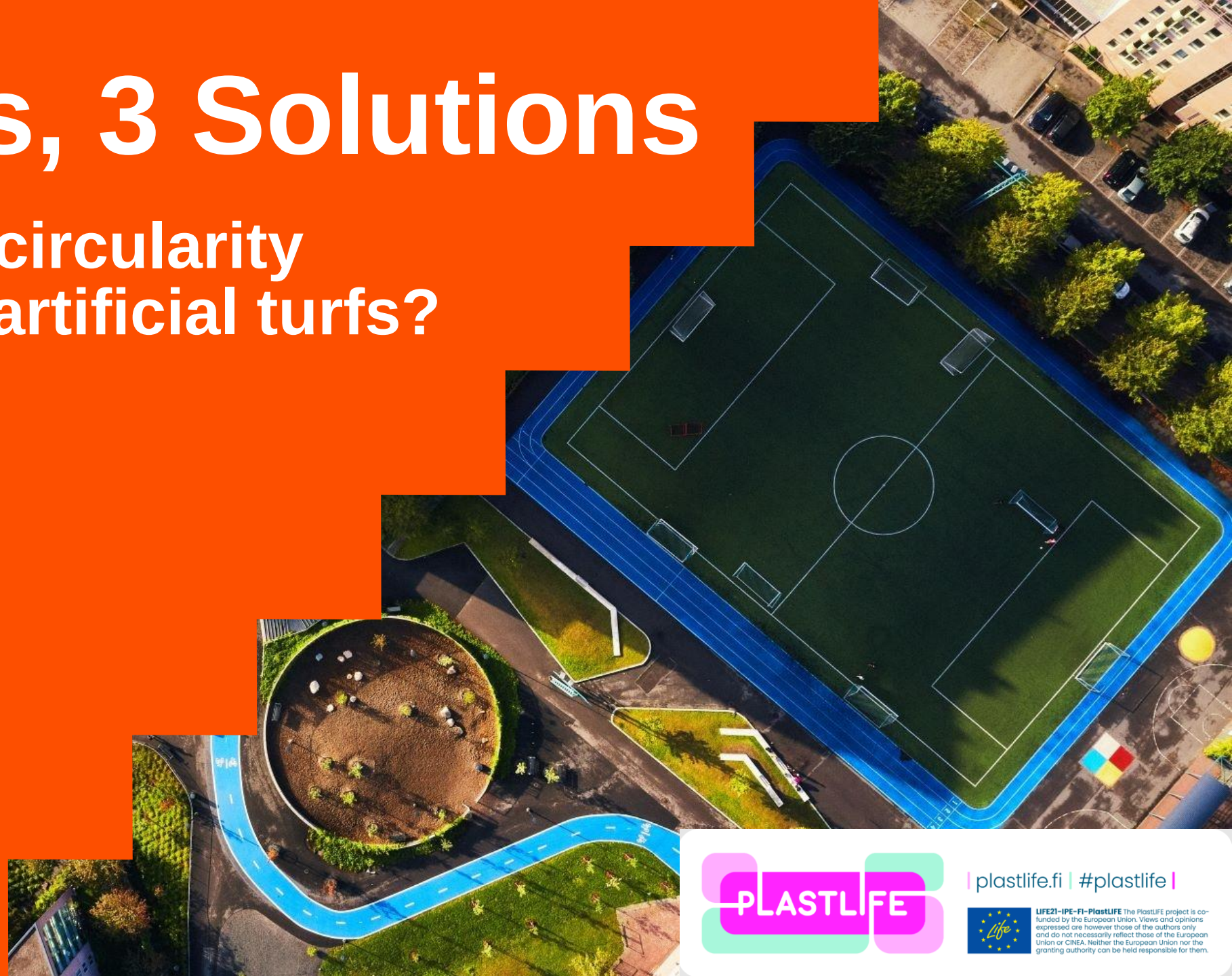

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75 Fields, 3 Solutions:
How to tackle circularity challenges of artificial turfs?

Artificial turfs in Helsinki and Finland

Solution 1: Artificial turf studies

Solution 2: Procurement pilot for end-of-life turfs

Solution 3: New Turf & Infill Materials

What's next?

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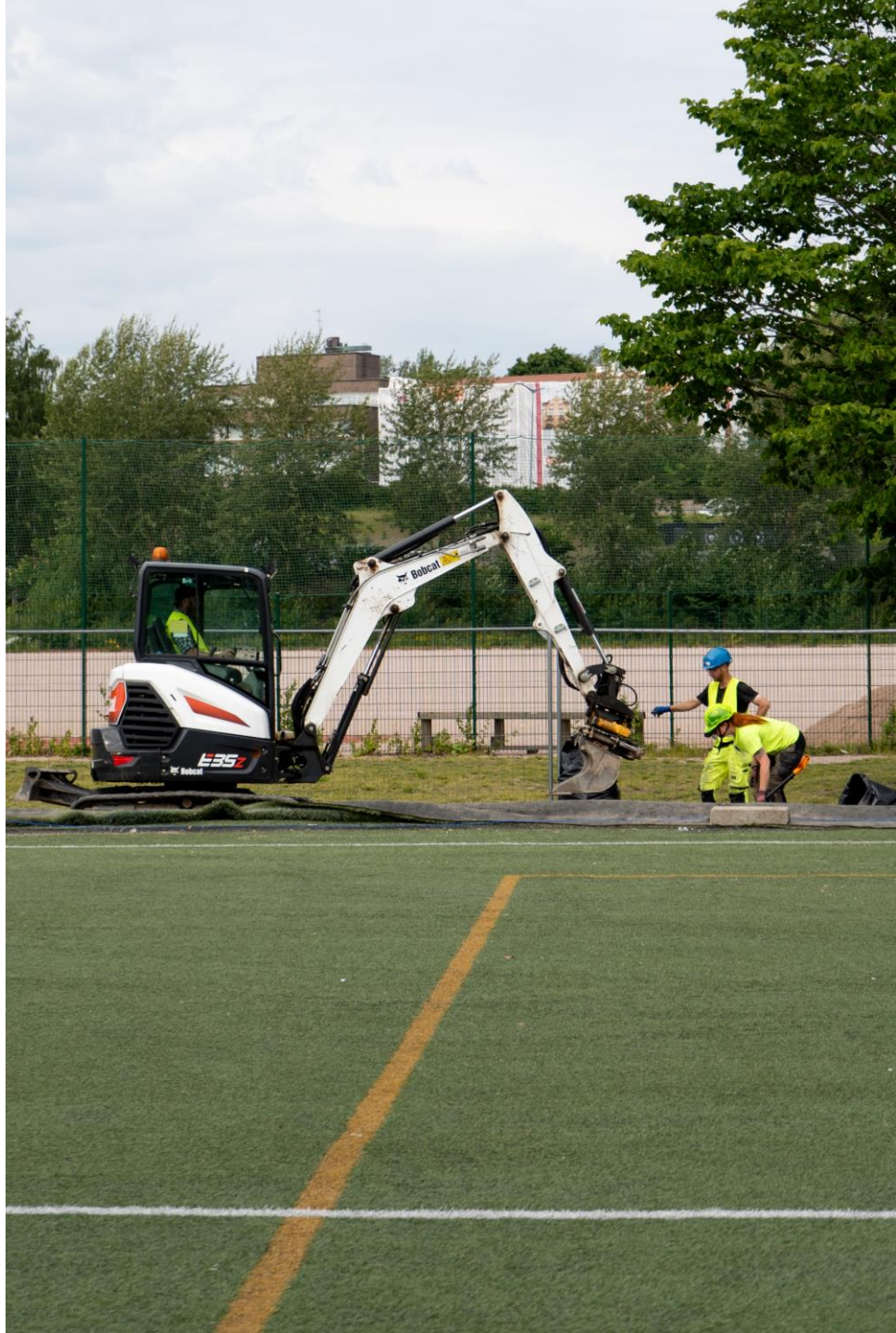

Current Situation:

Artificial Turfs in Helsinki and Finland

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Current Situation: Artificial Turfs

The main components of artificial turfs

- **Turf: backing & yarns**
- **Infillings: sand and rubber granulate**

Full-sized football field is 7500 m2 and weighs over 200 000 kg

38 % of microplastics from intentionally added products to environment comes from rubber infill *(Vasilou, 2024)*

- **Rubber infill is banned from 2031 onwards**

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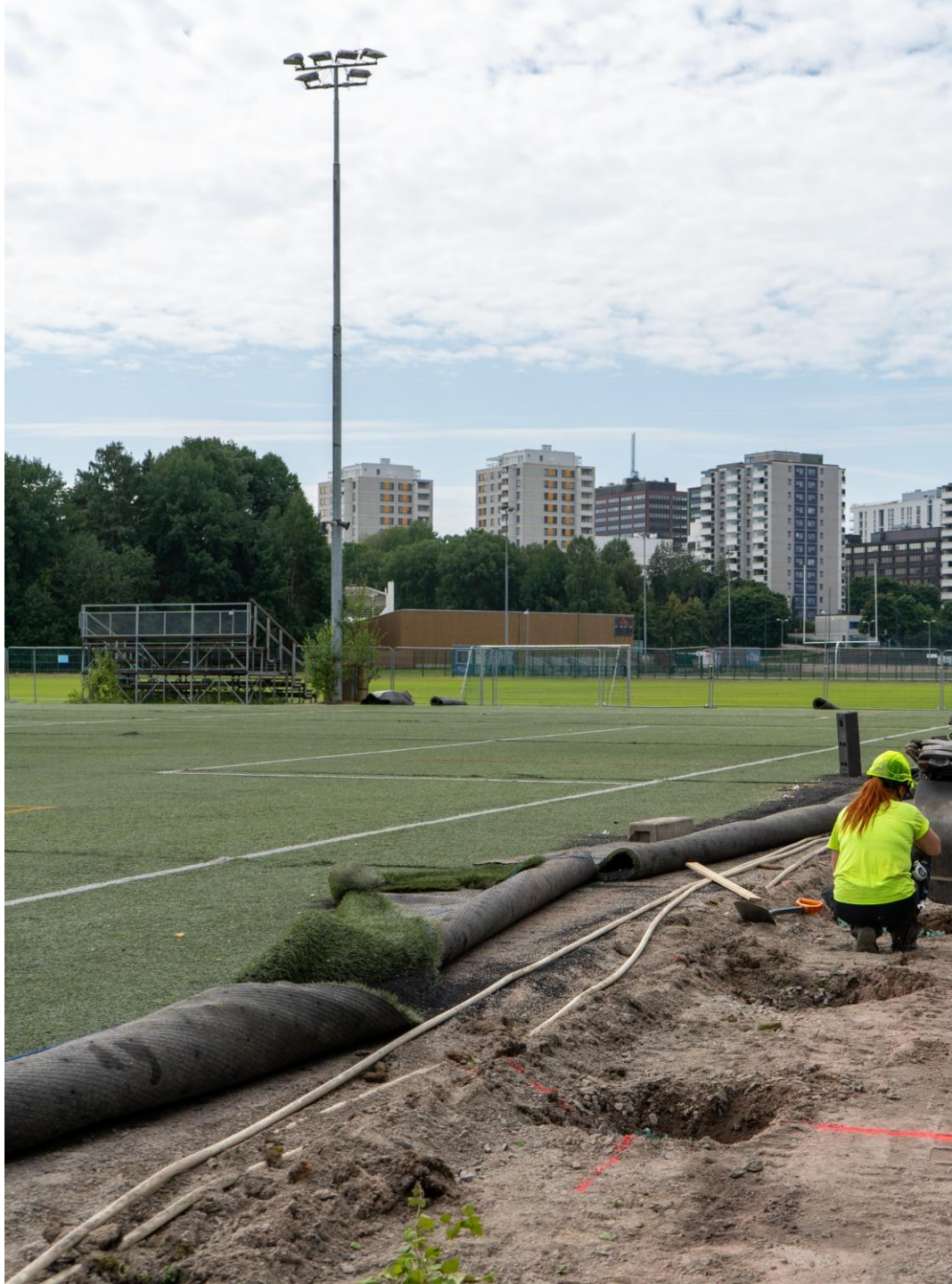

Picture: Veera Laanti

Current Situation: Artificial Turfs in Helsinki and Finland

Estimated 550 artificial turfs in Finland, 75 in Helsinki

Every year, 5-10 turfs needs to be renewed in Helsinki

Why artificial turfs are so popular?

- **More durable than grass, more comfortable than gravel**
- **Longer season & less maintenance**

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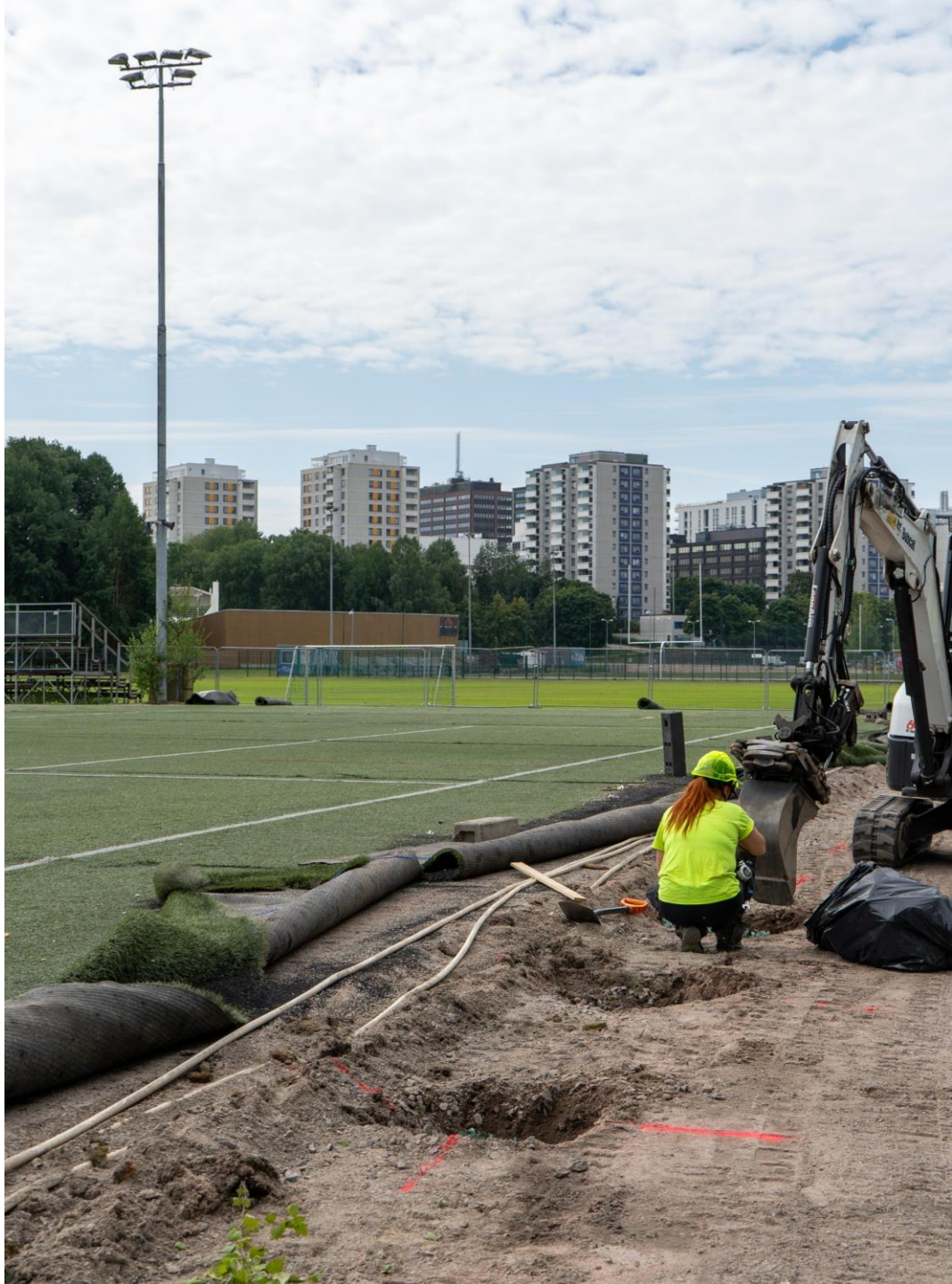

Picture: Veera Laanti

Solution 1:

Artificial Turf Studies

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Solution 1:
Artificial Turf Studies

Life cycle analysis of artificial turfs by Ramboll

Student projects by students from Turku UAS & Metropolia

National study: circularity of end-of-life turfs by Ramboll

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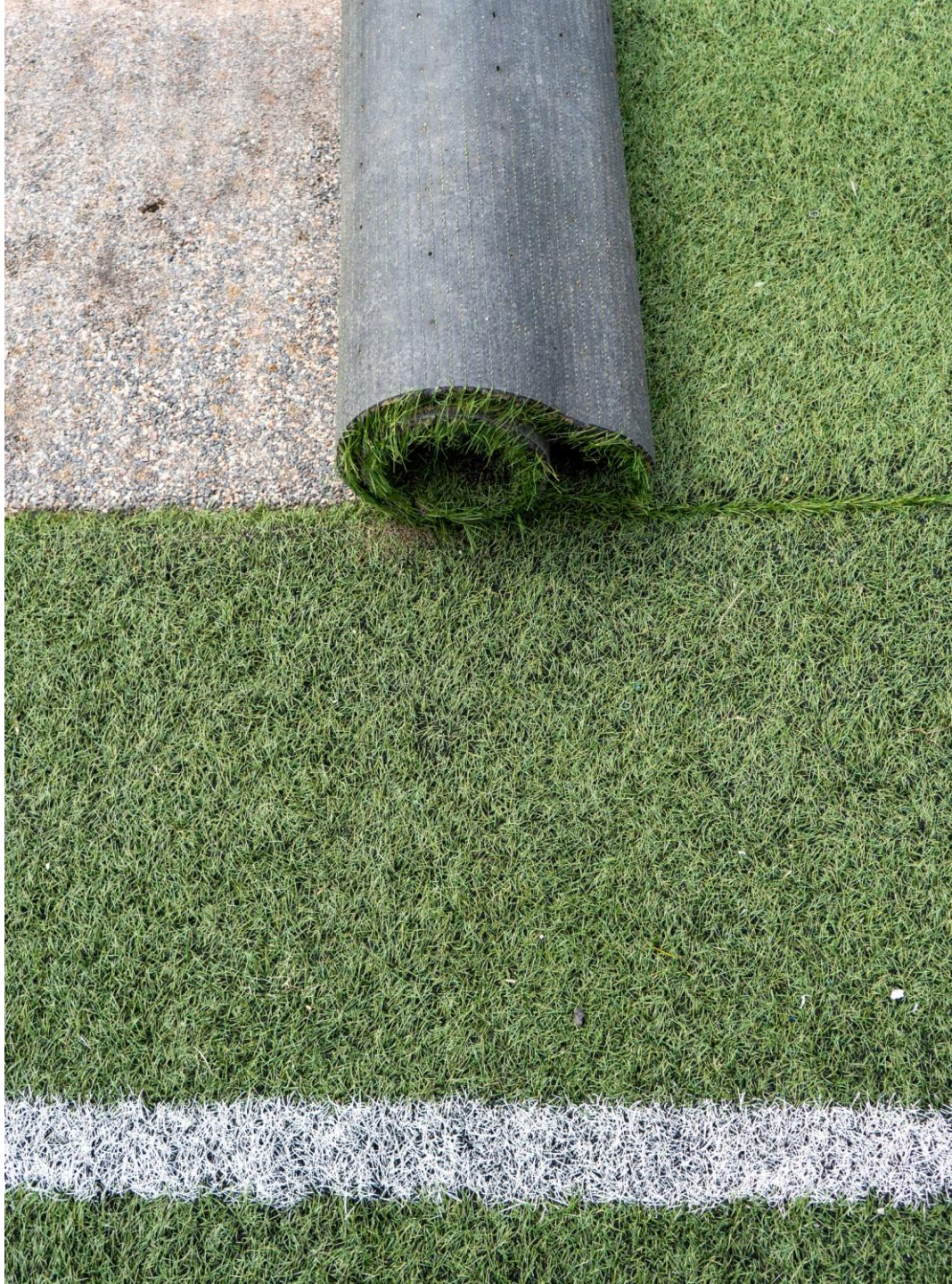

Picture: Veera Laanti

Solution 1:
Artificial Turf Studies

Life Cycle Analysis

64-88 % of the emissions are created in procurement and subbase construction

Turku UAS Project

Repurposing turf for consumer uses is not a valid option, but there are limited use cases in sports and recreation.

Metropolia Project

Estimated 35 fields per year is renewed in Finland.

For companies to offer the best circular solutions, there needs to be more fields to process.

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National Study: Circularity of End-of-Life Turfs

The study is conducted by Ramboll for Helsinki, Espoo, Lahti, Oulu, Tampere & Vantaa

What was the focus of the study?

- **How reusing, recycling and reclaiming turf materials could happen?**
- **How waste reclaiming should be taken into account in public procurement processes?**
- **What are the possible circular futures of artificial turfs?**

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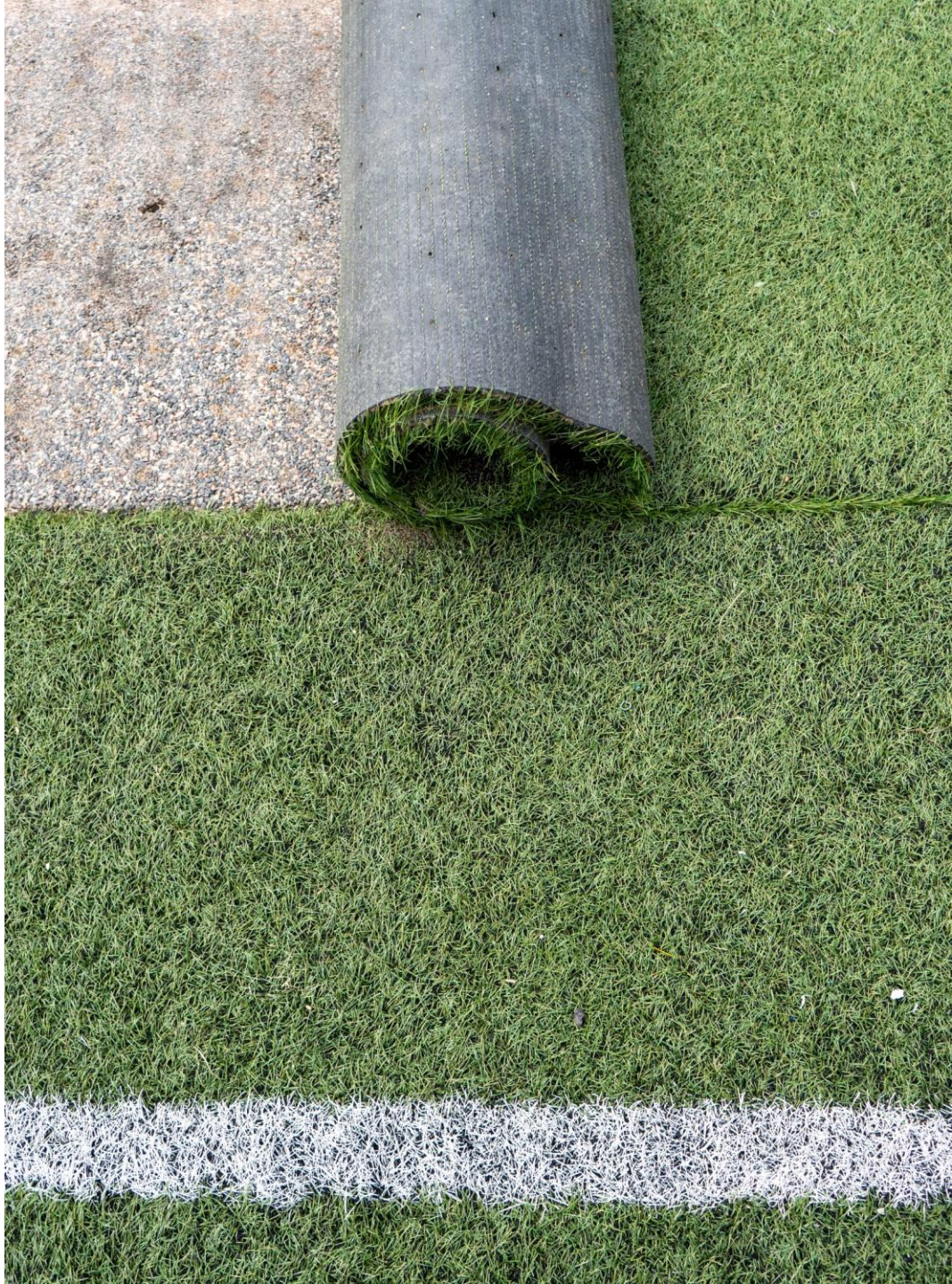

Picture: Veera Laanti

National Study:
Preliminary results

Reinstalling old turfs can be seen as transferring the responsibility of recycling to “someone else”

Currently, the main solution in Finland is to use the turf in energy production

The infill materials can be reused in new fields

It is not impossible to recycle plastic parts of the turf

- Mechanical recycling is the most circular option at the moment
- Pyrolysis needs pure and clean plastic products
  → There are more viable plastics available in the recycling market

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Solution 2:

Procurement Pilot for End-of-Life Turfs

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Solution 2:
Procurement Pilot for End-of-Life Turfs

Piloting a Dynamic Procurement System for five end-of-life turfs

Companies can join the pool anytime
- Low risk & updated info about city's needs

The city can update it's quality criteria for each tendering round
- Allows us to raise the "circular bar" as new solutions come available

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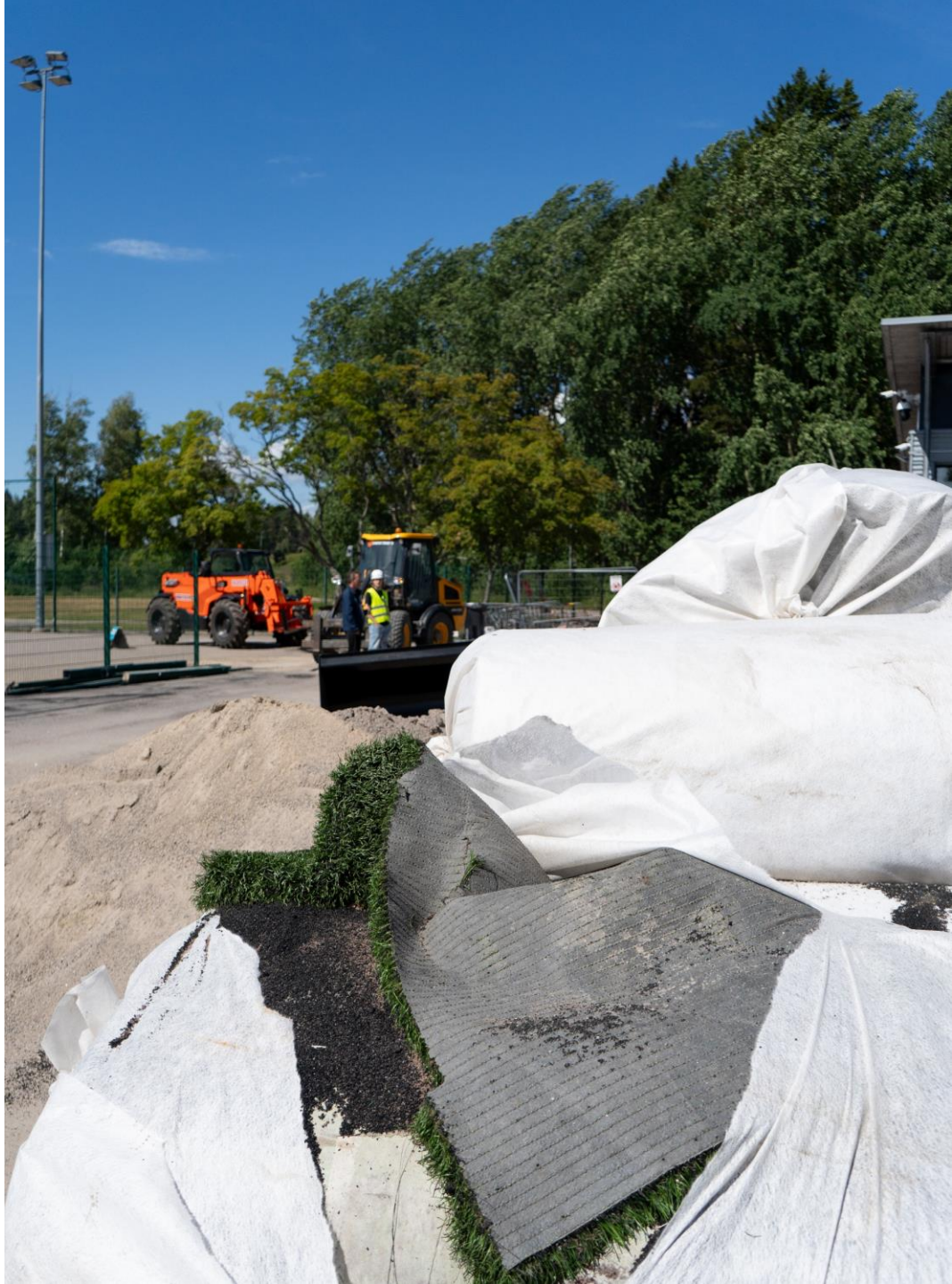

Our Approach: Emphasis on Quality Criteria

Minimum criteria: sand and rubber granules are separated from the artificial grass

Maximum quality points = 80

- The plastics in the turf are processed into recycled oil or recycled plastic raw materials.
- Rubber granulates & sand are reused, e.g., as a filler for artificial turf.

Maximum points from price = 20

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Points	40 points	30 points	20 points	10 points
Artificial turf	All the plastics in the artificial turf are processed into recycled oil using pyrolysis, or the plastics are processed into recycled plastic raw materials.	Yarn (PE Polyethylene) is processed into recycled oil by pyrolysis and plastics in support fabric (PU or latex) and backing fabric (PP, Polypropylene) are used for energy production.	Artificial turf is completely burned for energy, i.e. artificial grass plastics are used for energy production.	The artificial turf is completely utilized in another sustainable manner presented by the tendered. For example, other reuse at secondary sites such as shooting ranges, golf courses, etc.
Rubber granulate	Rubber granulates are reused, for example, as a filler for artificial turf.	Rubber granulates are reused, for example, as a filler for artificial turf.	Rubber granulates are used for energy production.	Rubber granulates are used for energy production.
Sand	Sand is reused, for example, as a filler for artificial turf.	Sand is reused, for example, as a filler for artificial turf.	Sand is treated as waste.	Sand is treated as waste.

One of the four criteria tables used in the procurement.

Current Situation:
What Did We Procure?

Service provider: Danish company Re-Match

Main characters of their solution:

- **The turf is transferred to Denmark**
- **Infillings are separated, cleaned and used in new fields**
- **Part of the plastics can be mechanically recycled and used for new plastic products such as turf yarn**

Final results in February 2025

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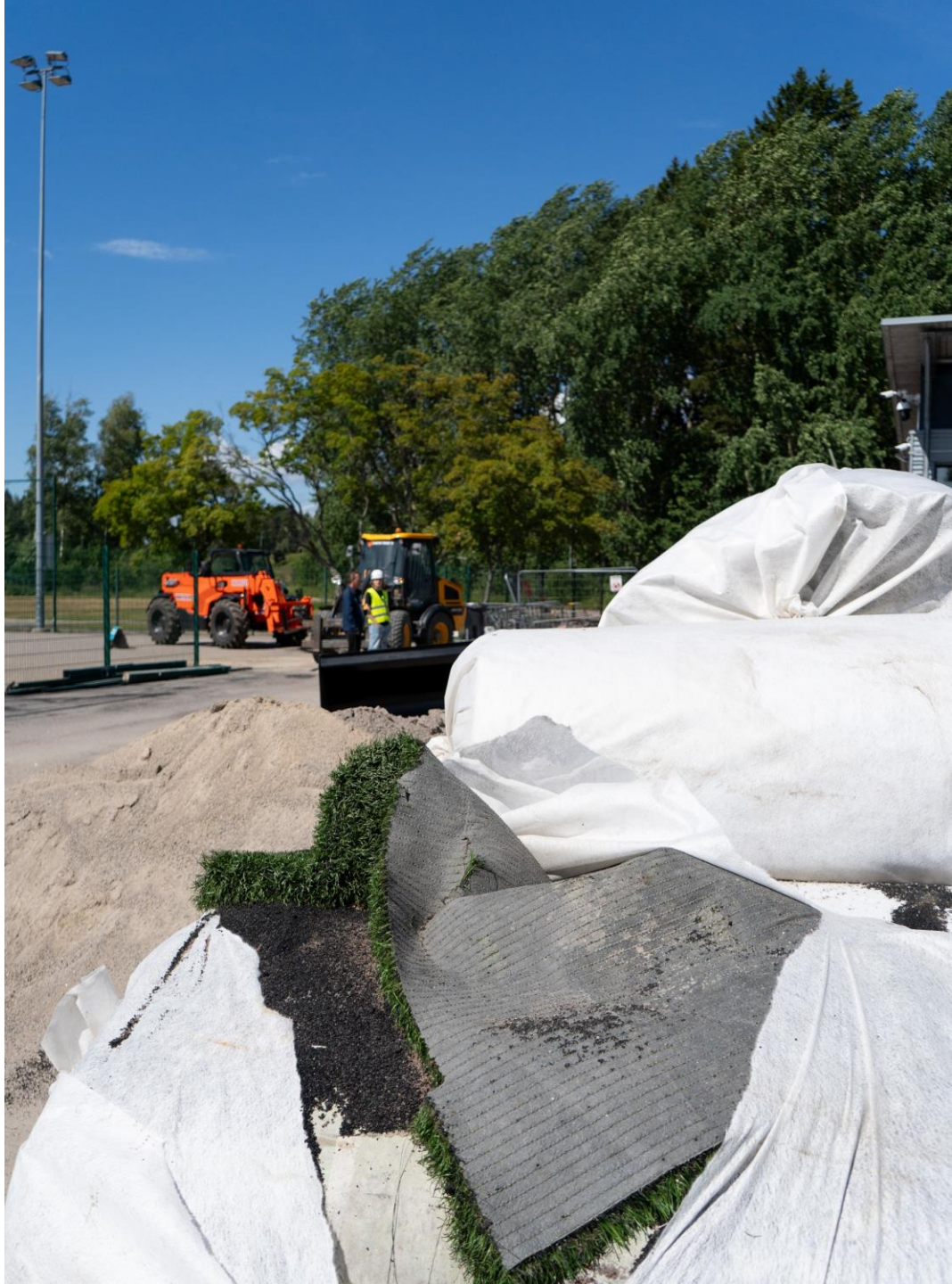

Kuva: Veera Laanti

Solution 3:

New Turf & Infill Materials

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Solution 3:
New Turf & Infill Materials

New fields with alternative infill solutions

- Olive stone
- Corn cob
- No infilling

What we hope happens in the near future?

- Turfs with only one plastic become available
- A certification system for turf and infilling materials is created
- More info about possible POPs in turfs

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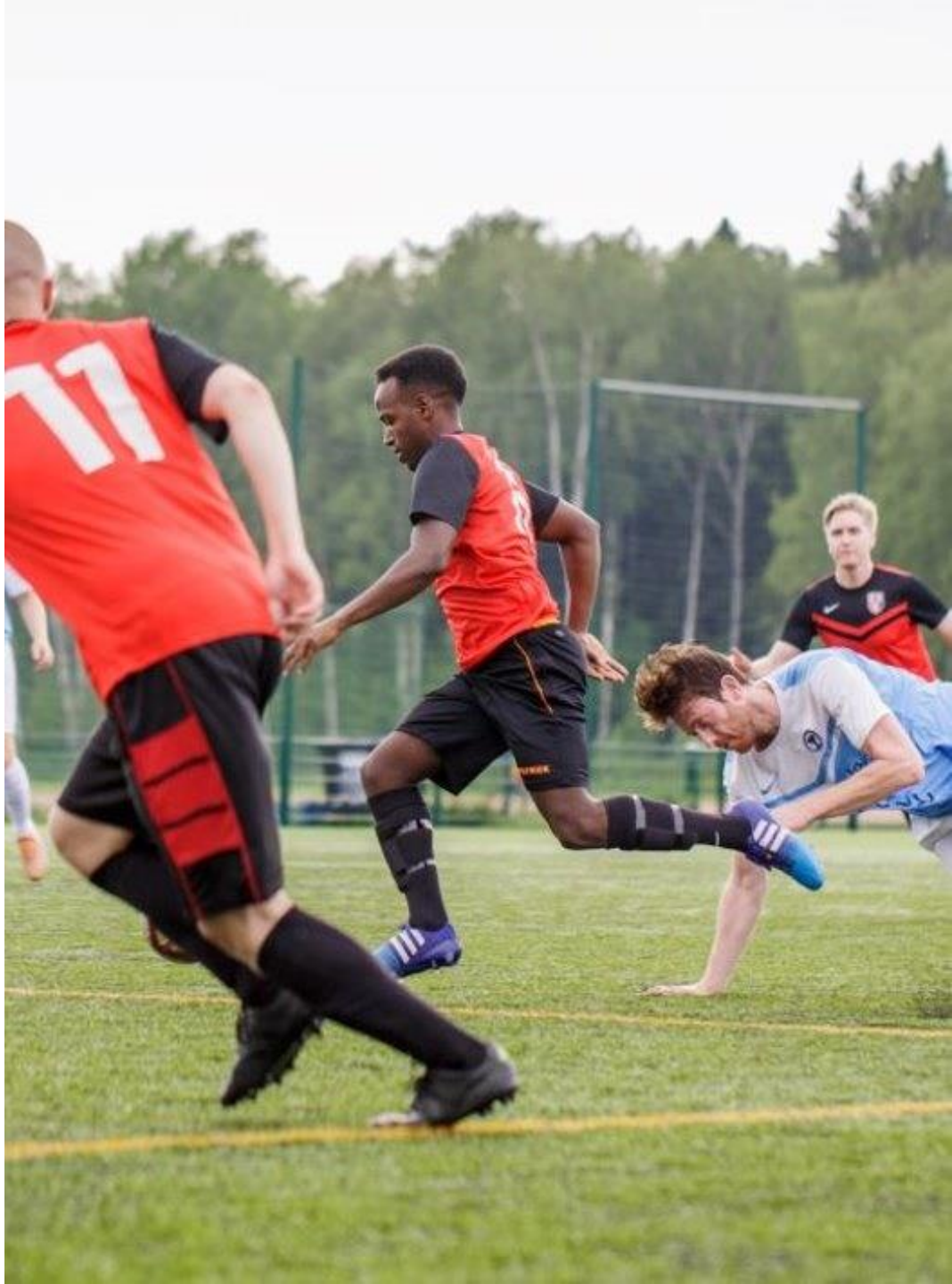

What’s next?
Artificial Turf Webinar & New Network

PlastLIFE Helsinki is hosting a webinar ”Circularity of Artificial Turfs in Helsinki” on 26th of November (*in Finnish*)

In February 2025, we are launching Finnish Artificial Turf Circularity Network together with 5 other cities

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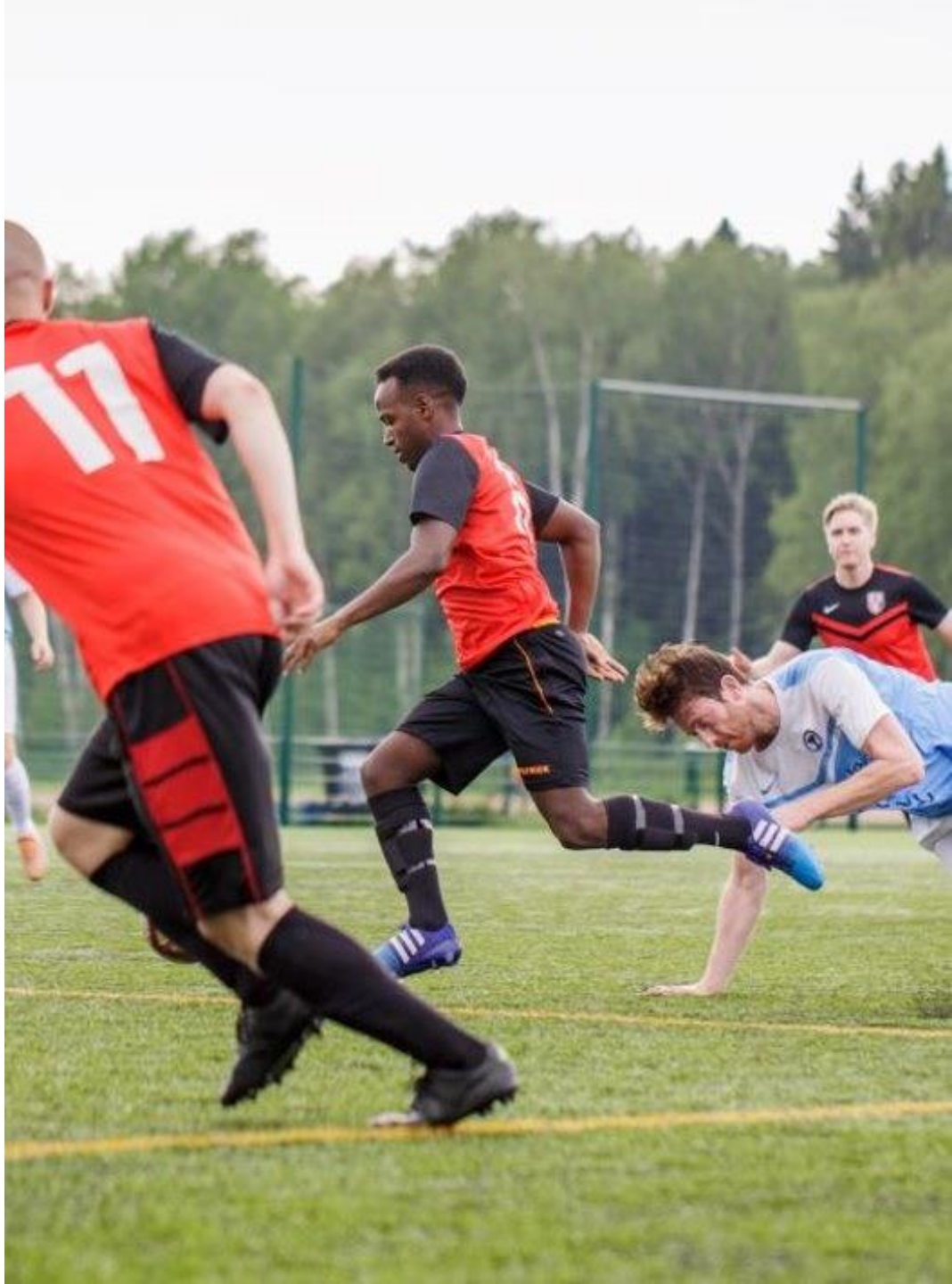

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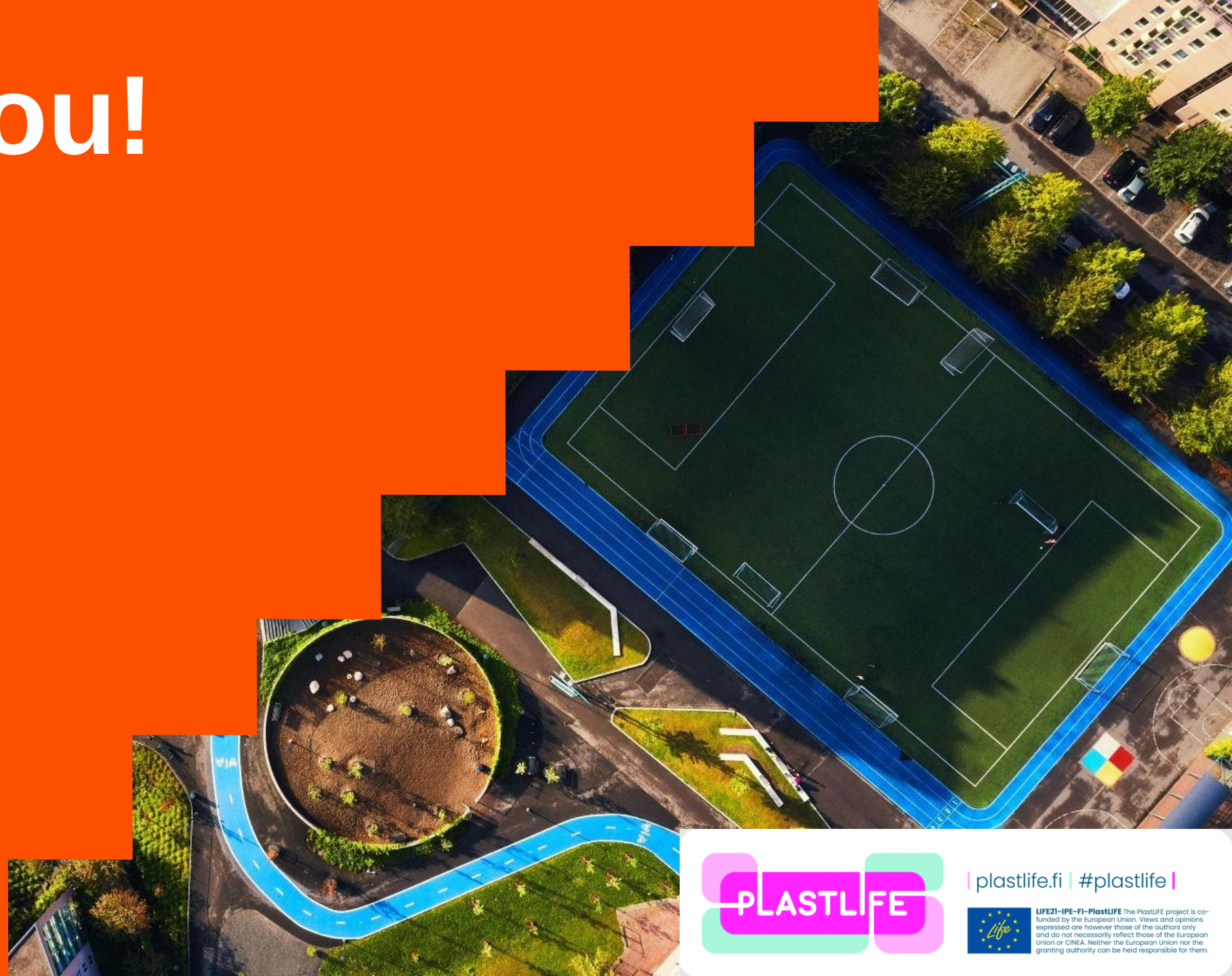

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