



Windy City

Biosolids/Compost

Spring 2023

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Nearly three decades of beautifying the southside: Harborside International Golf Course

Sometimes the most beautiful places rise from blights on our landscape. Harborside International Golf Course began as a 453-acre landfill and garbage dump 16 miles south of downtown Chicago. It took a lot, including the use of biosolids, to get a trash heap converted into a golf course worthy of a Champions Tour stop. As a matter of fact, over 500,000 dry tons of air-dried biosolids were used to create the top fill layer of the landfill to transform the site. In total, 3 million yards of material were moved to create a playing surface. The two 18-hole courses, opened for play since 1995, were designed by world-class architect, Dick Nugent, who added features that gave the site both beauty and unique character, such as the iconic anchor-shaped bunkers.

The beauty and quality of this course is said to resemble courses in Scotland, where lush green abounds. Harborside International has hosted Georgia-Pacific PGA Pro Am and the SBC Senior Open. Since its opening, it has regularly been rated in Golfweek's *Top 50 Best Municipal Courses You Can Play in the United States*, including a #3 ranking, and in the top 15 in Illinois. With its long-term staying power as one of the most beautiful sites in Chicago, if we rated the top uses for biosolids, Harborside International would certainly be at the top. 🌱

Today, Harborside International Golf Course adds a vibrant green landscape to the surrounding industrial area and feels entirely secluded from city-life. Holes overlook Square Marsh, Lake Calumet, and downtown Chicago as shown in the inset aerial view. ▼

Golfers enjoy vistas with rolling hills and ample bird song. ▼



Metropolitan Water Reclamation District of Greater Chicago

TRY THIS!

Topdressing with EQ Biosolids after aeration

Many parks and golf courses aerate their turf to create much-needed pore space and reduce bulk density in the soil. This practice allows better water penetration and breaks up thatch. Many managers topdress their turf with compost.

Should you topdress with biosolids after aerating?

We often get this question from both park and golf course superintendents. Our answer? **Yes!** We already know the incredible benefits of topdressing with biosolids throughout the season, but we think topdressing after aeration has potential for even more benefits. The biosolids can enter the soil and bring microbial communities and essential chemical combinations right to the rootzone, where plants can thrive from the added interaction with microbes and organic matter. Biosolids also help water infiltration and increase water holding capacity.

Try this the next time you aerate your fields:

- 1.** Schedule a delivery of air-dried biosolids within a week after your next aeration.
- 2.** Aerate as usual.
- 3.** Spread ¼" of EQ Biosolids as a topdressing.
- 4.** Play on the surface as usual and enjoy the improved turf health.



▲ *A soil plug from a core-aeration at a local golf course.*

We want to hear from you!

Have you used biosolids after aeration?
What added benefits did you see in your turf?



Persephone Ma, Ph.D. is a soil scientist and environmental engineer for Brown and Caldwell, doing wastewater treatment planning and design. Her Ph.D. work was studying sewage sludge incinerator ash, biosolids, and struvite as phosphorus fertilizers for corn and soybean in a three-year field study.

Persephone Ma

Soil Scientist and Environmental Engineer

MWRD: What made you interested in studying residuals/biosolids?

Dr. Ma: My first exposure to biosolids was at a tour of Stickney [Water Reclamation Plant] in 2010, while I was still in college. I have a vivid memory of meeting a female soil scientist doing studies with biosolids in a greenhouse and thinking, "Wow, that's kind of awesome." After college, I explored other fields for a while but was always interested in waste reuse/recycling.

MWRD: What did you research for your doctoral work?

Dr. Ma: Some cities incinerate biosolids to produce energy, which is used to heat and/or power the wastewater treatment plant. This process produces a leftover ash that is high in phosphorus, which is a mined resource essential for plant growth (and living things in general). My doctoral work compared this ash to biosolids and struvite (another wastewater treatment byproduct) to see if it could be a safe and effective phosphorus fertilizer to grow corn and soybean over several years. It turns out that the biosolids-ash I was working with do provide phosphorus for crops over several years and doesn't result in any significant metals contamination or soil microbiological impacts.

MWRD: How do you currently work with biosolids?

Dr. Ma: I work at Brown and Caldwell in the Solids and Energy practice. My company works on engineering projects related to water, but I specifically work on helping municipal wastewater treatment plants plan and design what to do with

the solids that come through the wastewater treatment process. While I'm new at the company, I've spent the last six months investigating markets for biosolids products to inform municipalities how to best design their facilities for resource recovery.

MWRD: You have done research on biosolids ash, the result of incineration. EQ biosolids at the MWRD are processed using an air-drying technique. What are the different types of processing for biosolids?

Dr. Ma: The number of processing options are evolving, improving, and expanding, with a few technologies being newly tested on biosolids right now. The biosolids technology at a particular facility is representative of the geography, history, and culture of the area it is applied. For instance, in one area it might make more sense to produce a Class A liquid biosolids product because farmers in that region also value the water content. In another area they might not have much accessible agricultural land and may value innovation more highly so a biosolids pyrolysis unit would make more sense. The fun part about biosolids (and my job) is that there's no one size fits all solution.

MWRD: Where do you see the greatest benefits of land-application? (i.e. farmland, remediation, recreational land, etc.)

Dr. Ma: It depends! Just like different biosolids processing technologies are suited for different areas, the way that biosolids can be re-used is unique to what's around and the values of

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(Sustainable Landscapers' Corner, continued from page 3)

that region. In Chicago, I love the remediation work that MWRD is doing to reclaim parking lots and other spaces, especially given the research about the impact of green spaces on child development and community resiliency.

MWRD: What do you think is the most important thing to know about biosolids beneficial reuse?

Dr. Ma: There are so many good natural resources in biosolids. I think the most important thing to know is that there are a lot of people (e.g., community members, farmers, scientists, engineers, policy-makers, etc.) who are making sure we are smart with those resources while doing it safely and as good environmental stewards. 🌱



EQ Update

EQ Compost and EQ Biosolids are both available for use in projects at park districts and municipalities. Please visit our website to place an order or contact us with any site visit requests.

Our residential program is currently on hold through 2023. Bring-your-own bucket piles and residential delivery will not be available this year.



Spreading EQ air-dried biosolids at a Western Springs athletic field.

For more information on the use of EQ biosolids or to include them in your projects, please visit our website at mwrld.org/biosolids or contact:

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