



September 15th, 2021

Walled Lake Improvement Board and Property Owners,

It has been a pleasure managing Walled Lake this year. Every year seems to bring a unique set of challenges and we welcome the opportunity to meet these challenges every single year. We hope that you continue to feel that your lake was managed professionally, economically, and effectively.

Please keep in mind that we are a fully integrated lakes management company offering solutions including but not limited to mechanical harvesting, herbicide control, dredging, bio-augmentation, and aeration. Savin Lake Services also offers a complete range of water quality testing, depth contour mapping, individual property solutions, and even aquatic plant density reporting.

Included with this letter you will find a Management Summary, descriptive timeline of services rendered, and all the treatment maps, for the work we completed this year.

We look forward to continuing as the Lakes Management service provider for Walled Lake again next year. We are hopeful for another great year and an even healthier diversity of native plants to outcompete the invasive plant communities. Until then; if you have any questions, comments, or require additional information, feel free to contact us.

Sincerely,

Paul Barber - Operations Manager

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WALLED LAKE 2021 LAKE MANAGEMENT SUMMARY

We saw many changes throughout the lake when compared to the past few years especially when it comes to plant species present and plant growth and behavior. While most of the changes were positive changes adding another step in the right direction Walled Lake's aquatic plant management, there was a few negative changes as well that will need to be address in future management approaches.

Overall, this year was a good year for Walled Lake. After initial treatments the lake require minimal additional touch up treatments and Total area treated was significantly less than previous years. We continue to see increases in native plant diversity. The lake currently has the best species richness we have seen in the lake over the past 10 years, especially in the northern portion of the lake. These plants provide critical fisheries habitat, increase dissolved oxygen levels, absorb nutrients, and play a key role in preventing invasive plants to infest new areas of the lake.

The lake contained a lot of Alga growth in the spring but due to the high energy of the lake it only required minimal management. Water clarity was much better this spring but fluctuated throughout the season, especially after treatments and rainfall which is normal. There were less areas of the lake containing Starry Stonewort and we did not detect it any newly infested areas. Starry Stonewort in the deeper waters seems to be staying contained and low lying. Which resulted in only 1.5 acres of the lake requiring multiple Starry Stonewort treatments.

However, this year Walled Lake had a vast amount of Eurasian/Hybrid Watermilfoil resurgence even larger than last years, and it was the most dominant plant species found throughout the lake during our lake assessments/surveys. We observed Milfoil densities that we haven't seen since treatment efforts begin back in 2012.

With the Vast densities that required treatment coupled with the above average temperatures and minimal rainfall, the dissolved Oxygen levels were rapidly declining and needed to be strongly considered in the treatment plan. To protect the fisheries and other aquatic wildlife, we elected to divide our initial treatment into 3 smaller scaled treatment to ensure dissolved Oxygen levels weren't depleted as the plants were dying. These efforts proved very successful, and the lake maintained adequate O₂ levels and had treatments had no negative impact on the lake's ecology.



Initial efforts for Milfoil management were very effective but we are continuously seeing a decline in how long the treatments control the plants. Initially we were seeing 3 – 5+ years of control within treatment areas now we are seeing less than a single season of control. This is happening because plants can develop herbicide resistance and build up a tolerance to a particular herbicide after being treated with the same herbicide multiple times. Once their receptors detect an herbicides presence, they completely shut down their normal uptake process and stop absorbing the herbicide before enough of the herbicide is translocated to the root of the plant to achieve systemic control. In most cases the shoots of the plant will die but the root structure remains unharmed and will begin to produce new shoots to grow again once the herbicide has dissipated. The response and behavior of the Milfoil treated strongly indicates the need to evaluate the use and rotation of other systemic herbicide to achieve longer term control. We will be providing our recommendations and presenting the different systemic herbicide options available for future treatments to the Walled Lake Improvement Board at the next board meeting for further discussion and evaluation.

Except for a potential herbicide change for Milfoil management, we anticipate a very similar management strategy as we have in the past. We will be monitoring the lake regularly, aggressively managing the invasive plants throughout the entire lake, and manage nuisance natives in near shore developed areas. We will continue to monitor the native plants offshore and implement vegetation harvesting if they reach the nuisance level threshold. We feel this plan is the most effective and efficient way to keep Walled Lake clean and desirable for use by the Walled Lake residents.



Timeline of Services Rendered:

May 13th, 2021

- Spring Visual Survey
 - Calm sunny day
 - Water temp at surface was 63 degrees
 - Visibility was limited and could see the lake bottom up to 6ft depth contour
 - Evaluation of 2020 Fall treatment
 - Very effective and only a few extremely unhealthy looking Milfoil plants found .
 - Spring Alga Blooms were present throughout the lake, but wave energy seemed to be adequately managing them.
 - Invasive/exotic plants detected but were 4-6 ft below water surface in most areas
 - Curly Leaf Pondweed
 - minimal compared to previous years
 - 15 - 20 acres (estimated)
 - Eurasian/Hybrid Milfoil
 - Vast resurgence and in very dense beds
 - 40 - 50 acres (estimated)

May 27th, 2021

- Spring Water quality data collected
 - Water quality monitoring program collects data and monitors 9 different parameters relating to water quality at 3 sites on the lake in both the Spring and Fall each year
 - Parameters monitored are Conductivity, Total Dissolved Solids, Alkalinity, Phosphorus, Chlorophyll A, Secchi Disk, Temperature, Dissolved Oxygen, and pH.

Initial treatments (2 planned treatments because of Dissolved Oxygen depletion concerns)

June 1st, 2021 (treatment 1 of 2)

- 40 acres treated for Eurasian Watermilfoil utilizing systemic herbicide (Navigate)
- 20 acres treated for Curly Leaf Pondweed and small patches of Milfoil intermixed utilizing contact herbicides and low dose chelated copper wash

June 15th, 2021 (treatment 2 of 2)

- 51.50 acres of Milfoil and Curly Leaf Pondweed treatment utilizing contact herbicides and low dose chelated copper wash
- 1.5 acres of Starry Stonewort treatment
- Observations during treatments
 - Water clarity improved significantly
 - Milfoil beds expanded and were found in additional areas of the lake
 - Additional treatment needed to be added to plan for 10 acres of remaining Milfoil
 - Requested approval for new systemic herbicide (ProcellaCOR EC) use in remaining area to use as test pilot for future use option

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June 24th, 2021

- Test Pilot
 - We received approval and returned to lake to treat remaining 10 acres of Milfoil
 - All remaining areas of the lake containing Milfoil and Curly Leaf Pondweed were treated

July 28th, 2021

- Mid-Summer Survey
 - Weather conditions were perfect for surveying
 - Milfoil found in areas that weren't treated in previous treatments
 - Earlier treatments for Eurasian Water Milfoil and Curly Leaf were very effectively
 - Treated areas contained no Curly Leaf Pondweed
 - Native weeds were present to outcompete the Milfoil and prevent regrowth
 - Treated areas contained minimal new growth of Milfoil
 - Increase in Native plants species and diversity
 - Starry Stonewort was present but much less than previous years
- Treatment for Starry Stonewort and Milfoil
 - 1.5 acres was treated for Starry Stonewort
 - 27.5 acres was treated Eurasian Watermilfoil and nuisance natives

August 26th, 2021

- Treatment for Starry Stonewort, Hybrid Watermilfoil, nuisance natives and algae near shore
 - 1.5 acres of Starry Stonewort treated
 - 15 acres of algae, nuisance natives, and Milfoil
 - 5 additional acres treated for just Milfoil

Fall survey and Water quality data currently scheduled for September 23rd, 2021



Treatment Maps:

June 1st, 2021



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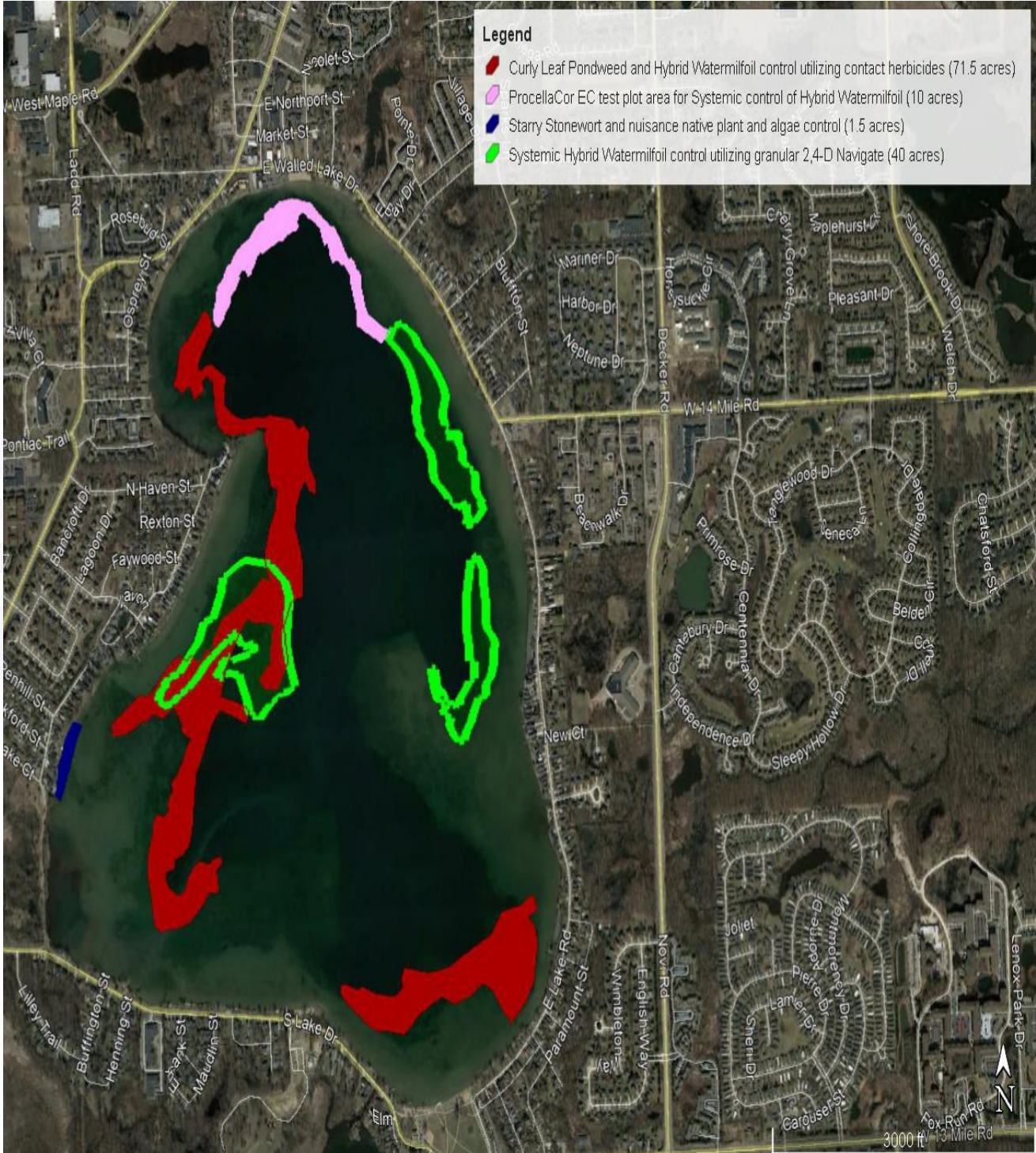
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Combined treatments (June 1st, June 15th, and June 24th)



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July 28th, 2021



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August 26th, 2021





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Walled Lake Treatment Map

June 1st, 2021

Legend



-  Curly Leaf Pond Weed Control utilizing contact herbicides with low dose algacide wash
-  Systemic Hybrid Milfoil Control utilizing Navigate

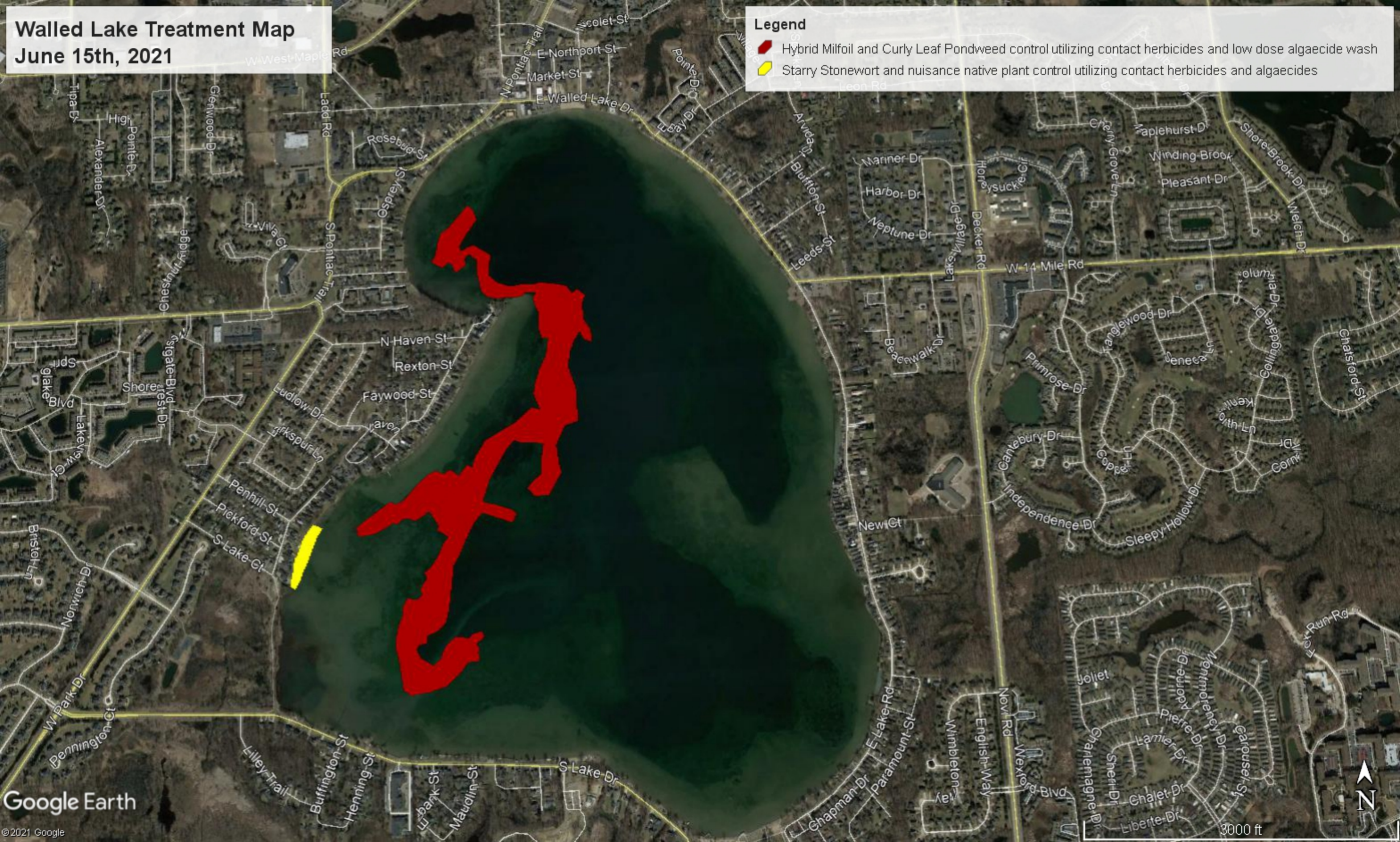


Walled Lake Treatment Map


June 15th, 2021

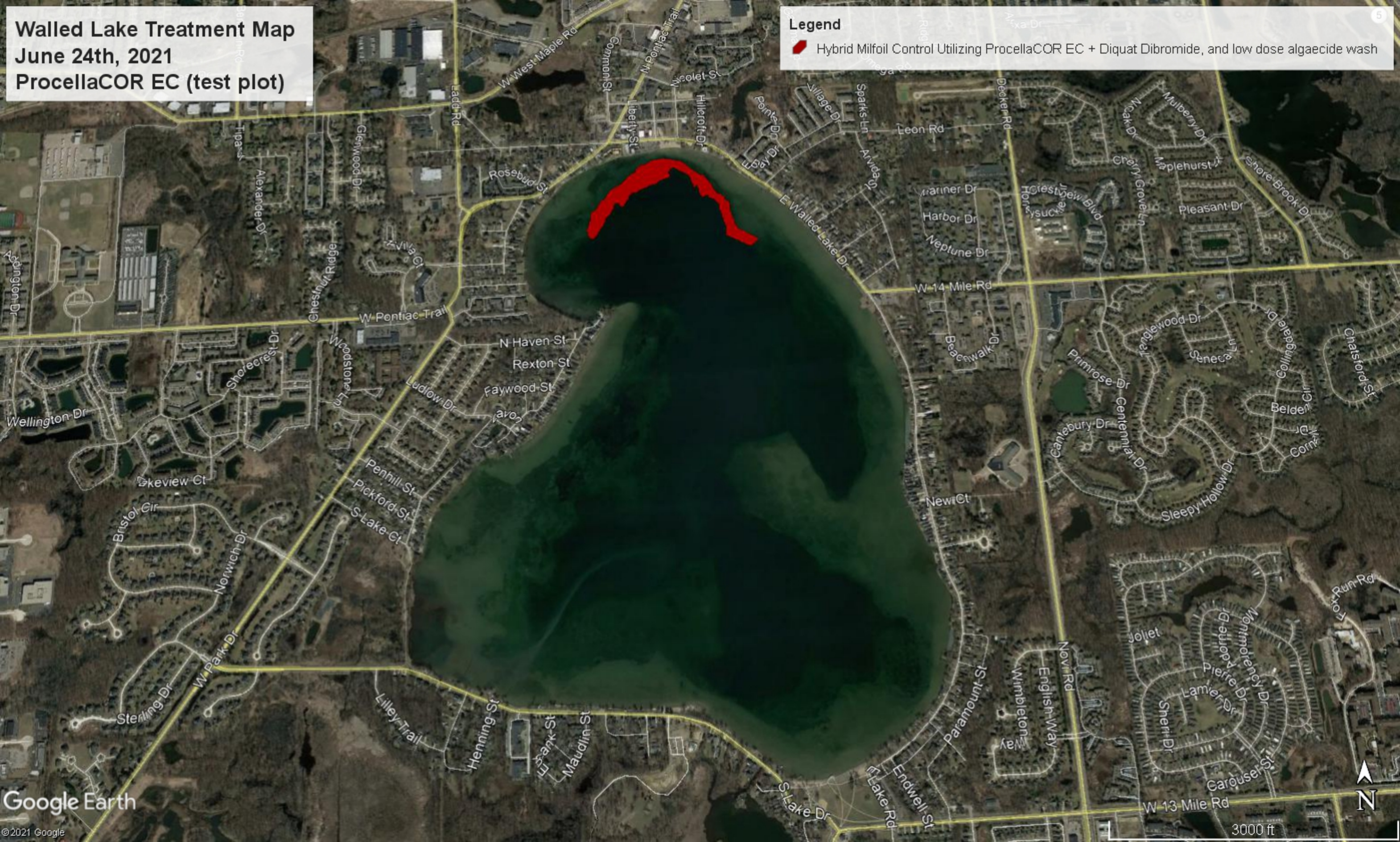
Legend

-  Hybrid Milfoil and Curly Leaf Pondweed control utilizing contact herbicides and low dose algaecide wash
-  Stary Stonewort and nuisance native plant control utilizing contact herbicides and algaecides



Walled Lake Treatment Map
June 24th, 2021
ProcellaCOR EC (test plot)

Legend
 Hybrid Milfoil Control Utilizing ProcellaCOR EC + Diquat Dibromide, and low dose algaecide wash



Walled Lake July 28th, 2021 Treatment Map

Legend
Treatment areas for non native plant communities



Walled Lake August 26th, 2021 treatment map

Legend

- █ Treatment for Hybrid Watermilfoil
- █ Treatment for Hybrid Watermilfoil, Nuisance Natives and Algae
- █ Treatment for Starry Stonewort, Hybrid Watermilfoil, and Nuisance Natives

