Summary of Public Comments
&
Department of Environment, Great Lakes, and Energy (EGLE) Responses
to
Wolverine World Wide's Proposed House Street Property Feasibility Study
Public Comment Period: March 11, 2021– April 17, 2021
Document Date: June 11, 2021

EGLE accepted public comments regarding Wolverine World Wide's Feasibility Study for the former House Street Disposal Site located at 1855 House Street NE, Plainfield Township, Kent County, Michigan. Written comments were accepted between March 11 and April 17, 2021, on a Feasibility Study of potential remedial options for the House Street Disposal Site that Wolverine World Wide (Wolverine) is required to conduct as outlined in the February 19, 2020, Consent Decree between the State of Michigan, Algoma and Plainfield Townships, and Wolverine. Section 7.8 (Response Activities at the House Street Disposal Site) of the Consent Decree lists the objectives and requirements of the Feasibility Study. As stated in Section 7.8 of the Consent Decree, the remedy options evaluated in the Feasibility Study should "(1) manage solid wastes at the House Street Disposal Site and (2) reduce and control potential migration of per- and polyfluoroalkyl substance (PFAS) Compounds from soils and sludges into the groundwater from the House Street Disposal Site". Wolverine's Feasibility Study details and compares the following six options: (1) an approximately 30-acre cap, (2) an approximately 20-acre landfill cell, (3) no further action, (4) excavation and off-site disposal, (5) groundwater pump and treat, and (6) phytoremediation with select area capping. Based on Wolverine's analysis, they are proposing the phytoremediation with select area capping option. On March 31, 2021, EGLE held a virtual public meeting to discuss the House Street Feasibility Study.

A total of 35 written comments were received via email during the comment period. EGLE has reviewed all the comments provided and compiled them into categories below based on their subject. EGLE appreciates all of the citizens who took the time to provide comments or express their concerns.

TECHNICAL COMMENTS

1. **Commenter:** John Collins**,** COO/General Manager, AquaBlok, Ltd**.**

   Comment: AquaBlok, Ltd. is providing comments on the proposed feasibility study and remediation plan for the House Street property (Wolverine Worldwide) which addresses PFAS contamination in underlying soils and PFAS flux to the groundwater. AquaBlok, Ltd. is a manufacturer of materials for environmental remediation with over 20 years of industry and project experience. AquaBlok, located in Northwest Ohio, is an active member of MPART and continues to provide novel and innovative technologies for addressing PFAS contamination in soil and water.
   Comments on the Proposed Plan:
   The remediation plan for the House Street property combines two remediation methods to remove PFAS from the ground and further reduce the impact of PFAS on groundwater. The first method, phytoremediation, is not a widely applied or proven technology based on the ITRC[1] Guidance Document (https://pfas-1.itrcweb.org – Section 12 Treatment Technologies). The second method, strategic capping, involves installing specially engineered membranes over the thickest areas of PFAS with the goal of preventing that PFAS from getting into the groundwater. Our understanding of the objective of the plan is to limit/mitigate the ongoing flux of PFAS to the groundwater and subsequently

to the Rogue River and its receptors, stated as: “eliminate unacceptable risk of exposure to PFAS at the HSP by meeting relevant and applicable cleanup criteria at their exposure points, if any.”
The FS provided the following conclusions regarding the exposure risks at the HSP:
• There is not an unacceptable risk of direct human exposure to PFAS in soil at the HSP.
• There is no longer an unacceptable risk of exposure to PFAS from the HSP in drinking water.
• The GSI pathway is applicable because PFOA+PFOS-containing groundwater migrating from the HSP discharges to the Rogue River. Therefore, the FS effectively focuses its evaluation of remedy options on the potential to mitigate risk of the groundwater exposure pathway from the HSP.

As stated in the FS, the exposure pathways remain ongoing, resulting in transfer and transport of PFAS from surficial soil and waste residuals to the groundwater. Therefore, we believe any remedial plan should include technologies that are demonstrated to address the targeted exposure pathways within a reasonable period of time to reduce ongoing risks. However, in the evaluation of the remedial alternatives, a remedial approach that is considered “commercialized and full-scale” for addressing/mitigating/intercepting PFAS flux from contaminated soils was omitted. The use of an amendment-based in situ soil stabilization approach, combined with beneficial onsite reuse of amended soils can immediately and substantially reduce or eliminate the primary risk driver identified above. Several products have emerged as amendments for PFAS contaminated soils, however, only RemBind is an ITRC recognized fieldimplemented technology with demonstrated effectiveness (>99% reduction in leachable PFAS) at full-scale level. Over 20,000 tons of soils have been successfully remediated at cost effective dose levels, world-wide. More recently, a workplan to stabilize 2,000 tons of soil was accepted by the NYSDEC for a brownfield site[2]. Unfortunately, the FS criticized and dismissed in situ methods, particularly in situ waste stabilization, as not being universally accepted by regulatory agencies, despite its inclusion in the ITRC document, as noted. Of course, this comment may have greater relevance for the selected remedy, phytoremediation of PFAS, as there are few, if any documented applications – and it is clearly not “universally accepted” anywhere. Further, the FS points to the time necessary to perform lab bench scale studies to optimize dose levels for in situ technologies as being prohibitive, however bench scale studies for amendment-based soil stabilization are straightforward and easy as they utilize methods that are well-used and recognized (US EPA methods, such as the SPLP) and can be performed and interpreted in a time frame of days.
In conclusion, we believe the remedial alternative of amendment-based soil stabilization and beneficial onsite reuse was erroneously omitted from the remedial alternatives and would provide a greater level of protection and certainty when performed, perhaps in addition to the proposed plan of phytoremediation, for the following reasons:

- This approach will immediately/quickly address ongoing sources/contributions to groundwater resulting in measurable progress toward achieving the FS objective in time frames of months as opposed to hundreds to thousands of years.
- This approach is recognized and accepted – as evidenced by the ITRC Guidance Document, and it is backed by worldwide project experience.
- This approach has been accepted by regulatory agencies. An amendment-based soil stabilization has been accepted by the NYDEC (Site ID #C905045).
- RemBind has demonstrated reductions in leachable PFAS concentrations >99% to below Michigan’s MCL of 16 ng/L.
- Amendment based stabilization bench scale testing routinely performed in much faster times than necessary to document phytoremediation.
- Soil remediation using RemBind is relatively easy to implement using conventional equipment.
- Safety concerns associated with residual contamination being exposed can be addressed by implementing BMP.

- This approach will not change soil physical properties (as in the case of solidification).
- The need for clean backfill is eliminated by beneficial onsite reuse.
- The need for off-site disposal to either a Subtitle D or C landfill is eliminated by beneficial onsite reuse.

EGLE Response: Thank you for sharing your comments and review regarding the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study. EGLE would consider a proposed solution that includes a combination of remedial actions, but whatever the proposed remedy, it must meet the requirements and objectives of the February 2020 Consent Decree.

2. **Commenter:** Jack Hagedorn

Comment: As I see it, there are three problems created by the House street dump:

1. Contaminate in the soil.
2. Contaminated ground water
3. Leaching and infiltration from rainwater.

Wolverine Worldwide in its proposals addresses individually each of the problems in its bullet points.
1. Contaminate in the soil is referenced in options 4 and 6
2. Contaminated ground water is referenced in option 5
3. Leaching and infiltration from rainwater is referenced in options 2 and 3.

However, none of the proposals is inclusive enough to take care of all three of the problems. I ask the question regarding any of the individual options, what are you going to do about the other two problems. I suggest that EGLE deny the Wolverine proposal and face them with the need to resolve all of the problems in the dump site. It's the least that they can do.

EGLE Response: Thank you for sharing your comments regarding the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study. The objectives and requirements that need to be met by the response activities completed at the House Street Property are outlined in Section 7.8 of the February 2020 Consent Decree. EGLE would consider a proposed solution that includes a combination of remedial actions, but whatever the proposed remedy, it must meet the requirements and objectives of the February 2020 Consent Decree.

3. **Commenter:** Peter DeRitter

Comment: According to the feasibility study submitted by Wolverine, Paragraph 7.8(iii) of the CD provides that this "Feasibility Study shall set forth and evaluate the remedy options under Part 201." Under Part 201, rather than actively addressing the mere presence of contamination in groundwater, the objective of any remedy is to "eliminate unacceptable risks to public health, safety, or welfare, or to the environment from environmental contamination at facilities" MCL 324.20102(c) (emphasis added). In practice, this encourages remediation of property by eliminating unacceptable exposure to contamination rather than actively cleaning up contamination to which no one would be exposed.
I do not believe that Wolverine's remediation option of phytoremediation and strategic capping meets these criteria.
There will only be small areas that are capped so the PFAS will continue to leach into the ground water.

The planting of trees and herbaceous shrubs will only absorb limited amounts of the PFAS on the site since most of the roots will not go deep enough to absorb the contaminants that exist on the HSP. Much of the contaminants that are absorbed will be deposited as detritus on the surface of the property and will eventually contaminate the surface water and the runoff will eventually make its way into the ground water.
My suggestion is to excavate the waste and the soil it is mixed with. As I understand it the quantity of this material is about 83,000 cubic yards. This material should be put in Polyethylene containers. These containers should be stored in a concrete floored building that has an impermeable barrier underneath it. If these containers were stacked to a height of 18 feet, they could be stored in a building of 124,000 square feet. This would eliminate the source of the highest concentration of the contaminants and prevent further degradation of the ground water. These materials could be stored until there is an effective decontamination process exists or in perpetuity if necessary. Also, groundwater recovery wells should be installed on the southern boundary of the HSP adjacent to House Street as outlined in the pump and treat option of the feasibility study. The groundwater generated at each well would be routed to a treatment system that would likely include aeration, sanitation, and treatment using a dual-stage Granular Activated Carbon (GAC) carbon system. This would reduce the amount of PFAS entering the existing ground water plume.
While this solution would be expensive, it is not out of reach for a company with the profitability and executive compensation of Wolverine.

EGLE Response: Thank you for sharing your comments regarding the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study. The objectives and requirements that need to be met by the response activities completed at the House Street Property are outlined in Section 7.8 of the February 2020 Consent Decree. EGLE would consider a proposed solution that includes a combination of remedial actions, but whatever the proposed remedy, it must meet the requirements and objectives of the February 2020 Consent Decree.

4. **Commenter:** Mike Wilczynski and Denise Trabbic-Pointer on behalf of Sierra Club – Michigan Chapter

   Comment: The following are specific comments and major issues determined from our review:

   - Phytoremediation is an unproven technology for PFAS. Aside from mentioning two scientific studies that do not, on their own, support the use of phytoremediation in this case, the FS does not explain, in scientific, provable terms, how they have come to the determination that phytoremediation will work at the House Street disposal area. On the contrary, according to a Battelle Study, *Current Research on Phytoremediation of PFASs (2017)*, "Over 1,300 PFASs-related citations were reviewed. Less than 20 papers were found pertaining to uptake of PFASs into plants. Three papers were identified on tree uptake. Through late 2016, a single paper (a graduate thesis) has been documented on Phytoremediation of PFASs (Gobelius, 2016)."

   - No information is presented regarding the specific types of vegetation that are proposed and/or for what purpose. This is a complex site and, although PFAS is the target compound, there are also metals, VOC and conventional pollutants above criteria that might interfere with the intended target compound (PFAS). Simply stated, the chosen trees and other plants will not differentiate between or ignore other contaminates from PFAS. Phytoremediation is proven with some success with single compounds, like metals and in some cases, mixed metals and volatiles, but we could find no studies that included metals, VOC, conventional pollutants and PFAS. This conclusion was supported in other studies (e.g. Battelle Study). GZA provides no detail regarding why they think phytoremediation will work at House Street or what "Particular trees and herbaceous plants will be

planted to create phytoremediation conditions". We are requesting that the specific plants and trees that are recommended be itemized and the purpose of each provided to the community. If lab studies were performed, please also provide the results from the study(s).

- No information is provided explaining how all of the waste vegetation will be handled and disposed, aside from fallen trees. Foliage dye-back will re-introduced PFAS into the environment. Although Wolverine says they will maintain and remove fallen trees, this does not address leaves, pinecones, branches and/or the stumps remaining after. A lack of good housekeeping could result in the contamination spreading through blowing particulate from degraded vegetation or surface water movement. It could also result in direct people exposure if they pick up or handle the vegetation, especially in this proposed public park setting. And if/when housekeeping is performed, what about the cleanup personnel, how will they be protected? Or the public as Wolverine rakes or blows off pathways? Dermal and air exposure pathways are often ignored and the FS should reflect specific detail on how people will be protected under expected circumstances.

- If old growth trees and other foliage are removed as suggested in the FS, areas that are now somewhat protected will lay bare until new trees and plants are established. Again, this could result in the contamination spreading through blowing particulate or surface water movement and potential infiltration to groundwater where it is currently somewhat protected.

- A phytoremediation system can lose its effectiveness during winter (when plant growth slows or stops). That's nearly 5 months out of every year in this area of Michigan.

- It will take hundreds of years for the Phyto-Cap Option to make measurable progress toward achieving the remedial objective. What assurance does the community have to guarantee the property will be maintained for this length of time?

- Phytoremediation only works at shallow depths where plant/tree roots can reach and the waste contamination at the House Street disposal site is quite deep at from 18 to 20 feet deep in some locations.

- Phytoremediation will increase the amount of water allowed to infiltrate the soil and the water will become contaminated. This will then help the continued spread of contamination from the site that will eventually reach surface water and enter the food chain.

- Infiltration of water caused by the roots (including remaining stumps) will increase the volume of groundwater that gets contaminated and eventually reaches surface water.

- The use of phytoremediation will have no impact on the groundwater. The depth of the groundwater is beyond the root zone, therefore phytoremediation is ineffective. Allowing contaminated groundwater to leave the site will allow the contaminants to enter the surface water system and enter the food chain. The FS simply states that: "Wolverine will continue to address the GSI pathway through ongoing investigation at the surface water receptor." Monitoring at the receptor is too late. The remedy must stop impacted groundwater from discharging to the Rogue River. Wolverine must either add on extraction wells and pump and treat systems to their proposed phytoremediation proposal or simply cap and add extraction wells and pump and treat systems to control GW from entering the Rogue River. The community has expressed their preference as the

latter option to cap the most highly impacted areas and control and treat groundwater. Phytoremediation can be used on less impacted areas.

- Because of the extent and scope of this project, it would be beneficial if Wolverine would be required to test and analyze old growth trees and other vegetation whether they will remain or are removed. The benefit to current and future efforts in other impacted communities is obvious and will add to our collective scientific knowledge around phytoremediation. We are requesting that this requirement be added to the FS or otherwise required by EGLE as part of the final remedy.

- Aquifer properties are not presented in the FS. This makes the evaluation of any remedial options for groundwater suspect. More needs to be done to evaluate the GSI pathway before approving any action at the House Street site.

- The plume of contaminated water leaving the site is not properly defined. Based upon the maps provided, it appears the extent of the contaminated groundwater is an estimate and NOT confirmed by monitoring well data.

- Non aqueous phase liquids (NAPL) may be present based upon the analytical results for the waste and soils. This needs to be addressed. In addition to acting as a source of continued contamination, some of the generic criteria under Part 201 of NREPA do not apply if NAPL is present. NAPL also interferes with the efficacy of phytoremediation. According to EPA document *Phytoremediation of Contaminated Soil and Ground Water at Hazardous Waste Sites*, "The presence of dense non-aqueous phase liquids (DNAPLs) or light non-aqueous phase liquids (LNAPLs) will adversely affect plant growth due to the relatively high contaminant concentrations resulting from the NAPL and the physical impact of the NAPL fluid which interferes with oxygen and water transfer." Again, the FS is mute as to whether these types of consideration have been considered or that lab studies to prove or disprove have been performed.

- There was not much discussion of the vertical groundwater flow directions in the FS. How do the vertical gradients impact the distribution of contaminants? This information and data from vertical aquifer sampling was not available in the FS or in other reports that were reviewed.

- Natural Resource damage needs to be considered. The MI constitution, Article IV sec 52, protects natural resources, so they must also be evaluated.

- Underground injection for discharge of treated groundwater is not an option that should be considered. Where the pump and treat and extraction wells are located is important to capture prior to reaching the River. The FS states that there is no good location near House Street source to discharge treated water. First, no background information is provided on how this was determined or what options were explored. Second, the best option could be to position the pump and treat system nearer to the Rogue River. Either way, it is incumbent on Wolverine to provide technical data and detail on each option.

- **Table 1** of the FS initial screening is incomplete because, even though there is mention of a technology like stabilization, GZA has dismissed it out-of-hand stating that it was "Dismissed from further evaluation based on the significant time and resources necessary to conduct bench and pilot scale testing necessary to evaluate the applicability of the technology to solidify/stabilize PFAS compounds." Stabilization is a well-established technology, including with regards to PFAS wastes.

Given how long this issue has been going on, Wolverine owes the community whatever "time and resources" that are needed in order to find the right technology.

- For the capping/control options (remedies 2, 3 and portions of 6), signage to warn people of the hazards of entry in addition to fencing should be required as part of the remedy.

Conclusions: Except for cost effectiveness and a slight reduction in contaminant levels, there appears to be little advantage to employing phytoremediation at the House Street property. Further, there appears to be significant risk in doing so, primarily due to the length of treatment and the (at least) annual dying off of deciduous trees and other vegetation and release of contaminants back into the soil and surface water. Groundwater transport of PFAS and other contaminates to the Rogue River remains a concern under the proposed remedy and must be addressed.

EGLE Response: Thank you for sharing your concerns regarding the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study. EGLE shares some similar concerns and questions as you have outlined in your comment. The objectives and requirements that need to be met by the response activities completed at the House Street Property are outlined in Section 7.8 of the February 2020 Consent Decree. EGLE would consider a proposed solution that includes a combination of remedial actions, but whatever the proposed remedy, it must meet the requirements and objectives of the February 2020 Consent Decree. Additionally, the Consent Decree addresses the State's potential claims for natural resource damages. However, the Consent Decree provides a mechanism for Wolverine to limit or address any future claims for Natural Resource Damages if Wolverine takes actions to address PFAS impacts to surface waters and habitats. Refer to Section 21 of the February 2020 Consent Decree for more information on Natural Resource Damages as they pertain to the North Kent Study Area.

5. **Commenter:** Richard R. Rediske, Ph.D on behalf of the Wolverine Community Advisory Group

Comment:
The Wolverine Community Advisory Group (WCAG) represents concerned citizens that have been impacted by PFAS contamination from the Wolverine World Wide Tannery and their waste disposal sites in northern Kent County. The contaminated area covers approximately 25 square miles and PFAS compounds have been detected in 800+ residential wells and the Plainfield Township municipal water supply which serves over 40,000 people. We are responding to the House Street Property Feasibility Study (FS) – Remedial Options by Wolverine World Wide (WWW), Inc. The FS was submitted as a requirement of the Consent Decree (CD), effective February 19, 2020, presented for public comment on February 19, 2021. The CD specifically requires "The Feasibility Study shall evaluate the following remedy options to (1) manage solid wastes at the House Street Disposal Site and (2) reduce and control potential migration of PFAS Compounds from soils and sludges into the groundwater from the House Street disposal Site."

The CAG's review of the FS concludes that of alternatives presented by WWW in the FS, the "30-acre surface cap without a bottom liner" complies with Part 201 and meets the applicable substantive requirements of Michigan's Part 115 outlined in the CD. This remedy provides a proven solution to "manage solid wastes at the House Street Disposal Site" (HSDS) and acts to substantially "reduce and control potential migration of PFAS Compounds from soils and sludges into the groundwater" as required in the CD. The 30-acre cap is also the default alternative if there is dispute between WWW and The State of Michigan. In the absence of the CAG's two suggested alternatives, not included in the

FS (see below), it is the option most likely to be selected under the provisions of the CD, which governs the selection of an alternative. However, the CAG has suggested two alternatives not included in the present FS. Initially, the House Street community would prefer an alternative that utilizes multiple methods or approaches to achieve the purposes of the CD. The CAG has also proposed an alternative that would meet the CD requirements at the HSDS, while simultaneously intercepting groundwater from the House Street plume prior to it entering the Rogue River. The CAG respectfully requests that WWW and EGLE consider these approaches, which could be implemented simultaneously.

WWW has proposed a PhytoCap remedy that includes limited capping and phytoremediation of PFAS waste using trees and plants. This proposed remedy lacks sufficient detail to show its effectiveness and how phytoremediation can be successfully implemented to manage PFAS wastes at the HSDS. Phytoremediation of PFAS is an experimental procedure and no examples of its successful use to remediate PFAS waste were provided in the FS. The CAG requested and was promised by WWW, certain backup information that would allow an informed comparison between response alternatives. Specifically, the CAG requested modeling of each alternative, which would allow the public to assess each alternative's effectiveness in limiting the continuing spread of PFAS from the House Street site. Specific time estimates as to when each alternative might reach compliance were also requested. This information has not been received from Wolverine, greatly limiting an effective comparison between alternatives. Nevertheless, the CAG has attempted to compare alternatives, based both on the limited information provided in the FS, and based on other publicly available information. Phytoremediation is the process where contaminants in the groundwater and soil can be removed from the subsurface environment and transferred into plant tissue. Water soluble contaminants can be taken up by plant roots and moved upward into the stems, trunks, and foliage by transpiration. The same process that plants use to transport water soluble nutrients from the soil can be applied to water soluble pollutants. While trees can be used to manage runoff, studies show that trees actually enhance infiltration (Figure 1; Xie et al. 2020).

Increasing inflow to groundwater is contrary to the requirements of the Consent Decree to "reduce and control potential migration of PFAS Compounds from soils and sludges into the groundwater from the House Street Disposal Site". The fact that infiltration will be significantly enhanced by the PhytoCap remedy renders it less desirable than the 30-acre cap, which provides an immediate impermeable barrier upon implementation. Importantly, EPA (1999) has stated that: "general site conditions best suited for use of phytoremediation include large areas of low to moderate surface soil (0 to 3 feet) contamination or large volumes of water with low-level contamination subject to low (stringent) treatment standards. …. disadvantages include the long lengths of time required, depth limitations (3 feet for soil and 10 feet for ground water), and the possibility of contaminant entrance into the food chain through animal consumption of plant material." Cross sections of the waste included in the FS and Summary Report for the Implementation of the Extent of Contamination Study Removal Work Plan (RWP) dated May 29, 2018 show PFAS wastes are buried 3-20 feet deep. WWW also proposes to increase cover over near-surface waste to a minimum of 2 feet throughout the site. This will further bury the wastes, making them even less accessible by phytoremediation. In summary, the HSDS does not meet any of the EPA criteria for phytoremediation as the site has high levels of deep contamination in the soil and groundwater and also provides considerable opportunity for wildlife exposure.

There are 8 significant comments with respect to the Feasibility Study and the selection of the final response action for the HSDS:

1. Remedy Option 1. Maintaining the status quo (the "No Further Action Option"). The no action alternative mentions that "Existing vegetation will continue to uptake at least some amount of

PFAS from beneath the surface, thereby preventing at least some PFAS from migrating to groundwater and ultimately to surface water. Residual concentrations of PFAS at the HSDS will slowly attenuate over hundreds of years." The House Street Disposal Site is located in a forested area with mature trees improving the hydrology and providing some degree of phytoremediation. The PhytoCap alternative assumes it will ultimately provide better results than current site conditions; however, baseline conditions have not been assessed in the FS. In fact, mature trees with developed root systems may be more effective at removing PFAS than replacing them with small specimens as part of the PhytoCap alternative. There would likely be no change in the hydrology beyond what can be expected from the mature forest under the "no action" alternative. In fact, mature trees improve deep infiltration and are frequently used in storm water management (Figure 2; FISRWG 1998). Based on the current plume, phytoremediation by the existing mature tree farm has not been effective in reducing infiltration and removing PFAS. In the FS, WWW failed to explain why their "heavily wooded property" has been ineffective with respect to infiltration management and why the proposed PhytoCap solution will be any better. The failure of the existing forest to remediate PFAS could be a function of bioavailability, root depth, waste depth and concentrations, limited growing season, and/or the natural promotion of water infiltration by trees. But such an analysis as to why there has been no phytoremediation benefit from the existing forest is lacking in the FS. WWW makes four references that phytoremediation will either reduce or control infiltration, yet they ignore the fact that forests promote infiltration. What studies have been done to evaluate the infiltration occurring in the current forested condition and how would the additional tree plantings result in a significantly different increase in infiltration reduction? Again, a mature tree canopy will reduce infiltration more than fresh transplants. In fact, there would be an obvious increase in infiltration due to removal of any of the existing canopy and digging holes to plant thousands of new trees. Was this increase in filtration factored into WWW's estimates? We know that phytoremediation will not alter the hydrology beyond what can be expected for a mature forest, which is 25% deep infiltration.

2. Remedy Option 2 – Cap Option. For the 30-acre Cap Alternative, WWW claims "It will take over 100 years for the Cap Option to make measurable progress toward achieving the remedial objective of this FS." To the contrary, the use of a cap is a proven and widely used technology, which will immediately cut off the infiltration pathway consistent with the CD, requiring the remedy option to "reduce and control potential migration of PFAS Compounds from soils and sludges into the groundwater from the House Street Disposal Site." Plume management is an important part of the GSI evaluation, and it starts by managing the waste on the HSDS and preventing the migration of PFAS into the groundwater by leaching. Caps have been used successfully under Michigan Parts 111, 115, and 201 for closure of landfills and other waste disposal and contaminated sites. Contrary to the concerns noted in the FS, cap construction activities typically include:

- Use of standard construction techniques and equipment;
- Result in no more impact to roadways, truck traffic, vehicle/pedestrian safety, or clear/cutting/grubbing of wooded areas than construction of a typical residential/commercial development or operation of a gravel pit;
- The noted requirement to define the limits of near-surface waste is not unique to the capping option, but should be performed for any chosen remedial action;
- Finally, no information is provided to support 30 months to complete implementation of this project.

3. Phytoremediation Accumulation Limits. WWW makes the following statement “For example, spruce trees growing in soil containing 220,000 µg/kg PFOS and 50 µg/kg PFOA can extract approximately 2,000,000 µg/kg PFOS and 800 µg/kg PFOA. Growing in the same soil, willows can extract approximately 1,100,000 µg/kg PFOS and 1,200 µg/kg PFOA, birch can extract approximately 3,100,000 µg/kg PFOS and 1,800 µg/kg PFOA, and grasses can extract approximately 2,400,000 µg/kg PFOS and 1,300 µg/kg PFOA. Grown in soil containing 10,000 µg/kg PFOS and 10 µg/kg PFOA, spruce can extract approximately 96,000 µg/kg PFOS and 200 µg/kg PFOA, while willow can extract approximately 52,000 µg/kg PFOS and 300 µg/kg PFOA.” No source of peer-reviewed literature for these high levels of accumulation was provided. If true, the effect of wildlife and insects consuming vegetation with 3,100,000 µg/kg PFOS needs to be seriously evaluated. The projected PFAS accumulation rates would result in Spruce tree concentrations exceeding 0.3% PFOS and require special waste management procedures to deal with fallen foliage and dead trees.

4. PhytoCap Fails to Consider Actual Conditions. WWW uses scientific literature to support the following claim “Multiple studies have shown a variety of plants accumulate PFAS in both roots and above-ground tissues, with accumulation depending on plant species, type of PFAS, and PFAS soil and water concentrations. Soil organic carbon content and pH also affect PFAS uptake by plants, by influencing PFAS sorption/desorption from soil surfaces and availability in soil pore water (Huff et al., 2020; Wang et al., 2020).” The study by Huff et al. (2020) was conducted in a greenhouse using sand and PFAS laden irrigation water. It was specifically designed to not include any effects of soil/PFAS interactions or pore water concentrations. This study has limited relevance to the conditions at House Street. The paper by Wang et al (2020) correctly identified that organic carbon and soil conditions can influence the ability of plants to absorbed PFAS. GZA made no effort to quantify the soil/PFAS conditions at the House Street Site with respect to sorption and plant availability. Given the application history of highly organic, PFAS-laden tannery sludges and the significant retention of PFAS in the waste material, the feasibility of phytoremediation cannot be evaluated without this information. Poor site bioavailability may be the reason for uncontrolled migration of PFAS from the House Street Disposal Site and the inability to see reductions from phytoremediation by the existing mature forest.

5. The Absence of Successful PFAS Phytoremediation Examples for Waste Disposal Sites. Contrary to the discussion provided by WWW, the phytoremediation of PFAS is a presumptive approach and only one study using the technique at an actual PFAS site has been reported. Gobelius et al., 2017 evaluated the use of Phytoremediation at the Stockholm Arlanda airport where levels of 26 PFAS compounds in soil were detected in soil at concentrations ranging from 16 to 160 ng/g (16-160 ug/kg) dry weight. House Street Disposal Area soils contain PFOS levels ranging 4-81,000 ug/kg so the study site was significantly less contaminated that the location the results were applied to. Based on the study results, the extraction of PFOS by birches and spruces would need 160,000 years and 48,000 years, respectively, to achieve the target value for sensitive land use (Residential; 3 ug/kg) or 58,000 years and 18,000 years, respectively, for the non-sensitive land use (Industrial; 20 ug/kg). Based on the current status of the plume and the high level of PFAS in the source area, remedial solutions with this timeline are unacceptable and not consistent with the requirements of the CD. While additional modeling may indicate contrary results or shorter time period, the assumptions utilized by WWW in such modeling would need to be carefully reviewed. In summary, WWW has not provided any examples of studies that show the successful use of phytoremediation at a waste disposal site with characteristics in anyway similar to the HSDS.

6. Implementation issues. The FS does not discuss several key issues related to the implementation of the phytoremediation remedy, including: a. Certain PFAS compounds like PFOS may accumulate more in the roots due to the higher partition coefficient. While WWW states they will remove fallen trees, the roots of a fallen tree will decay and recycling PFOS back to the water table. b. Details are lacking about how the annual dropping of needles and leaves will be managed so wildlife and the groundwater will be protected. c. WWW fails to provide details on how the performance of phytoremediation will be measured. How does WWW propose to monitor root depth to see if the waste deposits have coverage? How will WWW monitor and calculate the amount of PFAS being removed on an annual basis? d. Site remediation should be implemented in a timely manner by the responsible party to "reduce and control potential migration of PFAS Compounds from soil and sludges into the groundwater from the House Street Disposal Site." Planting trees and implementing a "wait-and-see" approach spanning 100's of years with no means to measure the success of phytoremediation does not meet site remediation objectives. Details are lacking about how the success of the PhytoCap will be measured. Since we are dealing with an experimental remedy that requires hundreds to thousands of years, there is a significant possibility that bioavailability, depth, and uncontrolled leaching will cause considerable migration of PFAS from the site compared to the 30- acre cap. WWW should have performance milestones for the PhytoCap and be responsible for the cost of damages and restoration if wastes are not managed properly and infiltration and leaching continue to spread the plume without control.

7. Plume Migration Claims Must be Supported. To provide further assurance that plume migration will be addressed with the Phyto-Cap, WWW makes multiple statements that "Wolverine will continue to address the GSI pathway through ongoing investigation at the surface water receptor." We are unaware of any actions Wolverine is willing to undertake to address plume migration in the Phyto-Cap alternative. This statement should be deleted, or the specific actions Wolverine will take to limit plume migration needs to be included. Conducting GSI studies without the commitment to a remedial solution does not address the groundwater plume.

8. Passive Recreation Options for the 30 Acre Cap. There are a number of passive uses for the property with a 30 acre cap that WWW has not included in the FS. While it is necessary to fence the capped areas, the remaining 46 acres can be used for a network of hiking trails. Capped areas also can be used for observation, sledding, and kite flying with openings in the fence containing restricted access bollards to prevent motorized vehicles from damaging the cover material. The cap is vegetated, thus it can be a larger greenspace.

Alternative CAG Proposal 1. Remedy Option 4: Multi-Method Response Action. While WWW and the State of Michigan review "single method" options, the House Street community encourages a final solution which uses multiple methods presented in the FS. More specifically, they prefer a plan which utilizes a combination of proven remediation methods to maximize the effectiveness of this clean-up effort. Such a plan might include utilizing strategic caps where high contamination levels are known, limited excavation and removal of soil with the highest contamination levels, and the installation of a pump/treat solution to intercept a portion of the most contaminated groundwater from leaving the HSDS. To address the complexities of this contamination site, a multi-solution approach seems reasonable and may be most effective in producing measurable results toward meeting both objectives of the CD.

Alternative CAG Proposal 2. Although not currently a proposed FS alternative, the CAG recommends that the FS include a new alternative. More specifically, a multi-method approach to waste management and plume migration requirements of the CD, while simultaneously limiting the existing flow of PFAS contamination from the House Street plume (see Proposal 1 above). With in-home PFAS filters and the provision of Plainfield Township water largely addressing human exposure within the plume area, significant impact to Rogue River surface water is the most immediate and significant human and environmental exposure pathway associated with the House Street plume migration. In fact, state surface water limits for PFAS are exceeded once the Rogue encounters the plume. The Consent Decree grants WWW additional years to assess GSI, presumably quantifying the precise amount of groundwater impacts to surface water. Unless this alternative is implemented, it will be many years before House Street plume impacts on the Rogue and downstream waters are addressed.

The CAG formally requests that both WWW and regulators consider the fact that House Street PFAS is clearly impacting the Rogue, and that WWW should install a groundwater extraction and GAC treatment system (similar to the one currently being installed at the Former WWW Tannery). Since the Rogue is the single largest human/environmental exposure pathway for the House Street plume, it should be considered concurrently as part of the FS. Limiting the PFAS plume's impact on the Rogue goes directly to the CD requirement to "reduce and control potential migration of PFAS Compounds" from the House Street Site. Failure to address impacts to the Rogue as part of the FS will result in years of additional delay in cutting off this exposure pathway.

Conclusion: The Wolverine Community Advisory Group appreciates the opportunity to comment on the House Street FS. It is critical that the PFAS contamination at the HSDS be managed in a manner that greatly reduces the ability of PFAS to migrate into the groundwater and continue to feed the groundwater plume that is continuing to expand, impacting surface water. Of the FS Alternatives presented by WWW, the CAG supports the 30-acre cap, as it meets the CD's objectives. However, the CAG has also suggested FS alternatives which might be more expeditious and beneficial to human health and the environment. The use of a multi-method approach (combining caps of highly impacted areas, limited excavation of the worse source areas, and pump/treat of the most contaminated groundwater currently leaving the HSDS). The CAG has also recommended intercepting the House Street plume prior it entering the Rogue River, thereby addressing the most significant open exposure pathway currently existing for HSDS PFAS contamination. Both CAG-suggested alternatives could be utilized concurrently. Finally, the CAG urges the rejection of the PhytoCap remedy, because it fails to address PFAS waste leaching and lacks verifiable information that it will be an effective remedy.

EGLE Response: Thank you for sharing your comments regarding the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study. EGLE shares some similar concerns and questions as you have outlined in your comment. The objectives and requirements that need to be met by the response activities completed at the House Street Property are outlined in Section 7.8 of the February 2020 Consent Decree. EGLE would consider a proposed solution that includes a combination of remedial actions, but whatever the proposed remedy, it must meet the requirements and objectives of the February 2020 Consent Decree.

6. **Commenter:** Patrick McGovern

Comment: I have reviewed the Report-2021-02-19-Feasibility-Study-Remedial-Options document regarding remedial options for the House Street landfill property. I am interested in the Phyto-Cap

option (section 4.3.6), since it relates to hybrid aspen trees that I grow along US131, North and South of the House Street site.
I have been breeding/growing hybrid aspens since 1985 (see Open4st) and have planted numerous plantings along US131 (e.g. at both Post and 10 mile interchanges). Aspens have been used for phytoremediation of land reclamation sites in the UK and may provide other advantages comparative to other tree species. Aspens don't require replanting since they can regenerate after a fire or harvest from their established root systems. See the famous Pando aspen clone and these photos of a 60+ year local hybrid aspen clone (AGRR1) located South of Rockford.
Section 4.3.6.1 mentions that, 'It will take hundreds of years for the Phyto-Cap Option to make measurable progress toward achieving the remedial objective of this FS'. Also, section 4.3.6.2 cites that "membrane and geocomposite caps have greater than 30-year operational life history".
Below are my questions:

1) Can you supply technical documentation for the tree planting process of the Phyto-Cap Option? I am interested in the species, clone (cultivar) names, tree spacings, establishment site preparation and short/long term weed control and deer/rabbit/vole protection methods and expected life spans of each species before they are removed and replanted.
2) What is the estimated cost to rebuild or restore the geocomposite caps and tree plantings when they require replacement?
3) Will the Phyto-Cap Option include periodic testing of the effectiveness of each tree species or clones to extract contaminants over time?
4) Would it be possible to include hybrid aspen clones to compare their effectiveness with phytoremediation and potential longevity since they may not require replanting after each harvest?
5) Would someone be interested in a tour of the US131/Post Dr Interchange sites to discuss my research and what might be possible for the House Street site?

EGLE Response: Thank you for sharing your comments regarding the proposed House Street remedy. EGLE cannot provide the answers to your specific questions since EGLE did not prepare the draft House Street Feasibility Study and were not provided the information that would address your questions. EGLE has forwarded your questions onto Wolverine for follow up.

Protection of Public Health & Environment Comments

(For comment numbers 7 through 29, one response is provided after comment number 29)

7. **Commenter:** Travis Scott

   Comment: This affects all Michiganders**.** The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS.
   I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide’s remediation plan.

8. **Commenter:** Alison Black

   Comment: This state has to stop with the wrist-slapping when corporate interests trash our environment. The rest of us pay for it with our health.
   The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS. I

urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan.

9. **Commenter:** Charles Dineen

   Comment: The proposed remediation plan for the contaminated "House Street Dump" site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan.

10. **Commenter:** Joni Roach

    Comment: The proposed remediation plan for the contaminated "House Street Dump" site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan.

11. **Commenter:** Amanda Beifuss

    Comment: I have lived in Rockford 22 years. The proposed remediation plan for the contaminated "House Street Dump" site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan.

12. **Commenter:** Pamela Bloink

    Comment: As a retired/disabled teacher I can't imagine going to a park constructed on top of a contaminated dump site. The proposed remediation plan for the contaminated "House Street Dump" site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan.

13. **Commenter:** Merry Ossenheimer

    Comment: The proposed remediation plan for the contaminated "House Street Dump" site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan.

14. Commenter: Susan Popma

Comment: The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS. PLEASE: I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide’s remediation plan.

15. Commenter: Christine Parks

Comment: The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide’s remediation plan.

16. Commenter: Linda Prostko

Comment: The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide’s remediation plan.

17. Commenter: Tobyn McNaughton

Comment: The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide’s remediation plan.

18. Commenter: Anna Kornoelje

Comment: The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide’s remediation plan.

19. Commenter: Samantha Schubert

Comment: The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong

and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan.

20. Commenter: Denise Vaneck

Comment: The proposed remediation plan for the contaminated "House Street Dump" site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan. My family has been forever impacted by this preventable tragedy. While Wolverine has taken steps to help, they have not done enough by far. Please, please. The time to hold them accountable is NOW.

21. Commenter: Robert Kerr

Comment: The proposed remediation plan for the contaminated "House Street Dump" site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. Further, not containing and cleaning up the contamination will only allow the PFAS to contaminate more water wells and eventually contaminate surface waters. I urge you to use your authority to advocate for the health of the community members and demand that stronger measures be included in Wolverine World Wide's remediation plan. Capping and planting trees will not solve this huge contamination problem.

22. Commenter: Bentley Johnson

Comment: The proposed remediation plan for the contaminated "House Street Dump" site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan.

23. Commenter: Beth Wallace

Comment: The proposed remediation plan for the contaminated "House Street Dump" site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community's vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide's remediation plan.

24. Commenter: Janis Bobrin

Comments: The remediation plan proposed by Wolverine World Wide for the contaminated “House Street Dump” does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. A “cosmetic” approach as is proposed will not address off-site migration of contamination and will only prolong our community’s exposure to health dangers caused by PFAS. I urge you to use your authority to protect the health of the community and demand that stronger, adequate measures be included in Wolverine World Wide’s remediation plan.

25. Commenter: Mary Murphy

Comment: The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide’s remediation plan**.**

26. Commenter: Ruby Summers

Comment: The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide’s remediation plan**.**

27. Commenter: Marsha Wheaton

Comment: As a native Michigander who cares so deeply about the environmental health of our state, I'm reaching out for you to take action. The proposed remediation plan for the contaminated “House Street Dump” site by Wolverine World Wide does not properly address the severity of PFAS contamination and lacks strong and effective measures to protect the health of the community. Proceeding with the proposal without effective recommendations will only prolong our community’s vulnerability to health dangers caused by PFAS. I urge you to use your authority to advocate for the health of our community members and demand that stronger measures be included in Wolverine World Wide’s remediation plan.

28. Commenter: Kenneth Scott Harvey

Comment: The most effective way that the PFAS contamination can be properly contained and removed and stopped from continuing to do do harm to the environment at the House Street dump must be mandated by the State of Michigan. The work on this cleanup must start without delay. Extracting the contaminated water and filtering out the PFAS should start as soon as the wells can be drilled and filtering equipment installed. As that is happening the entire footprint of the dumpsite must be capped to prevent further infiltration of all harmful chemicals to ground water. As the Grand Father of 40, many still living in the Belmont contamination area, the corporation that contaminated the surface and ground water must be held accountable for this cleanup. This will only be the beginning as dump

sites and landfills throughout Northern Kent County continue to contaminate the ground and surface water as a result of this industrial waste being dumped, often illegally by Wolverine Worldwide.

29. Commenter: Mark and Michele VanderVelde

Comment: We are not in favor of Wolverines proposal for the House St. Dump - tree extraction method. However, we are in favor of the 30 acre cap with some sort of extraction system to keep the PFA's from getting into the Rogue River. Thank you for all that you do.

EGLE Response to Comments 7 to 29: Thank you for sharing your concerns with the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study.

30. Commenter: P. Butler

Comment: While I certainly appreciate the opportunity to be provided with a forum or contact regarding spending of state funds, this particular situation regarding Wolverine Worldwide seems to be offering plans and projects that offer no real solution or resolution to a very serious problem.
First of all, Wolverine Worldwide should not be involved in this matter. This company has shown complete disregard for health and safety of others in the West Michigan area, putting lives at risk with reckless abandon all at the pursuit of profits. They only began responding once media attention and subsequent government intervention probed into their decades-long actions of toxic dumping. To date, I've seen no real enforcement of any kind that would deter such practices. In fact, involving them in this issue further only offers an olive branch that is not deserved.
Planting trees as a response to poisoning people? How can you think that this at all shows the value of human life as opposed to sheer corporate greed? I'm sick and tired of this company getting a slap on the wrist at every single turn. They knew what they were doing and kept doing it for decades. Now they want to hold hands and commit to healing the area. Give me a break.
They will pay the fines and penalties and laugh all the way to the bank and your organization has the very same blood on your hands if you allow this. Imagine if it were your family member who had multiple surgeries to remove cancerous tumors. Imagine if it were your children drinking tainted water for their entire short lives and now having to wonder what the long-term damages to their health will be. Are trees and shrubs going to make this all better? You had better do some real soul searching to answer these questions and stop playing politics and public relations games with the people whose lives are impacted. In case you have forgotten who they are: THEY ARE TAXPAYERS. THESE ARE THE PEOPLE THAT YOU WORK FOR. NOT WOLVERINE WORLDWIDE.

EGLE Response: EGLE is not spending state funds to conduct the feasibility study. It is the responsibility of the liable party to pay for the response actions. In January 2018, EGLE filed a legal complaint against Wolverine under the federal Resource Conservation and Recovery Act (RCRA) and state law, including Part 201 (Environmental Remediation) in the United States District Court for the Western District of Michigan. On February 19, 2020, EGLE and Plainfield and Algoma townships reached a settlement agreement with Wolverine through a Consent Decree which was approved by U.S. District Court Judge Janet T. Neff of the United States District Court for the Western District of Michigan. The Consent Decree became effective on February 19, 2020 and serves as the framework for all future response activities performed by Wolverine at the House Street property and surrounding area identified as the "North Kent Study Area". This Consent Decree required Wolverine to pay $69.5 million to extend municipal water to approximately 1,000 homes; operate and maintain drinking water filters in the North Kent County Study Area where PFOA + PFOS concentrations exceed 10 ppt or other

applicable criteria; continue residential drinking water well sampling to ensure the protection of public health; conduct groundwater investigations to monitor contamination in the area; investigate and address PFAS contamination entering surface waters; and undertake response activities at the House Street Disposal Site and Wolverine's Tannery to control these source areas. Wolverine will conduct these activities under EGLE oversight, and the Consent Decree includes tools that ensure that the required work is completed.

31. Commenter: Tom and Terry Hula

Comment: My husband and I live next door to the Wolverine House Street Dump and have shared a border with the property for 30 years. We would completely support the use of the House Street Property as a nature preserve and would like to see hiking trails restored to the plan at some point in the future.
After reviewing the options for the Wolverine PFAS Response, we support the Phyto-cap option that would allow for minimal disruption of habitat that is home to foxes, coyotes, deer, many species of birds, and even the occasional black bear. The hope is that this option would pave the way for studies that might prove beneficial in removing PFAS while having less disruption on the ecosystem.
In conclusion, we believe that more will need to be done to stop the spread of PFAS on the site and would support minimal capping where needed along with the Pump and Treat option in combinations with the Phyto-cap option. The goal, we believe should be to effectively stop the spread of PFAS while keeping in mind the importance of environmental sustainability and preserving the natural ecosystem here at the House Street site.

EGLE Response: Thank you for sharing your comments regarding the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study. EGLE would consider a proposed solution that includes a combination of remedial actions, but whatever the proposed remedy, it must meet the requirements and objectives of the February 2020 Consent Decree.

32. Commenter: Brenda and Paul Harris

Comment: First, I want to thank you for everything that you're doing to ensure a proper solution is adopted to address the contamination at 1855 House Street, Belmont, now infamously known as the House Street Disposal Site (HSDS). This property is a mere ½ mile down the road from our home. We are residents at 1601 House and have lived here for over 21 years and raised our family in our home.

In 2017, our once peaceful and lovely neighborhood was changed forever, with the discovery of the contamination on Wolverine's property and its infiltration into our groundwater which services drinking wells throughout the area. The mental strain that this has created for our residents is real. The health impact is undeniable. As you may know, there are many instances of cancer and other serious illnesses in our area. PFAS contamination is believed to be the cause of many.

In his late 40s, my husband was diagnosed and surgically treated for testicular cancer. His doctor said that this type of cancer is extremely unusual for men that age and we were lucky to have caught it early. PFAS has a known link to testicular cancer and Paul's blood confirms his PFAS exposure. The surgical treatment for his cancer left him with one remaining testicle which presents certain challenges for the rest of his life. He also endured an extensive radiation treatment on his abdomen and groin which left him with a painful gastrointestinal and hypersensitive digestion system ever since. The effects will last his entire life. I'm sharing this with you, because it's important for you to understand the impact this PFAS contamination has had on our lives and will continue to have for years to come.

I have read the FS presented by WWW and I'd like to share my thoughts on it. First, I believe in the beginning that WWW had every intention to address the situation and do the right thing for the community. We trusted they would live up to their commitment of being a "good corporate neighbor." That's what they told us. But as the problem continued to get bigger and bigger, they retracted their role of responsibility and began to distance themselves from the community and their commitment to fix what they had damaged. Perhaps that was to be expected, but it was painful to watch this local corporate company who has been a fixture in our small community for a hundred years, choose to protect its own interests over helping the community heal from such a tragic situation they themselves caused. While municipal water was finally delivered on our street late last summer, it was only by force that it happened at all. Wolverine was more concerned about distributing the burden of cost with 3M and Plainfield Township and was willing to withhold any action being taken until an agreement was met, than they were concerned for the residents; who, by the way, were drinking and cooking with bottled water every day, for 3+ years, since this problem surfaced in 2017. Our needs in having clean water were clearly not a concern of WWW.

The remediation options presented in the FS are broad. Many are cumbersome and have a considerable price tag. One does not. The Phyto cap option is the lowest cost solution and it is no surprise why WWW favored this solution and immediately promoted it to the public to purposefully build support for the idea. This solution is clearly experimental with its application on PFAS and we trust that the experts at the State and EPA are aware of this. WWW did not provide any supporting documentation which supports their recommendation for this remedial solution at HSDS, nor does it appears there are any adequate field studies of similar properties to HSDS, demonstrating the efficacy of phytoremediation on PFAS remediation. Clearly, phytoremediation, on its own and overall, is not a solution for HSDS.

The other options presented provide a number of effective, standardized methods in remediating a spectrum of contaminations. Each of them, individually however, do not address the full spectrum of contamination at HSDS. Both soil and water contamination must be considered in this clean-up effort. To address less than both, is to leave to chance the health of our community and our natural environment for perhaps generations to come. We are confident that the Michigan EGLE is not in the business of kicking the can down the road.

What we would like to see is WWW and the State of Michigan use a combination of the methods presented in the FS, such as strategic capping, with some excavation and a pump/treat facility to provide a complete remediation solution for HSDS and the affected aquifers. Such a solution might look like:

- Applying caps only on those areas which are known to have the highest concentration and/or deepest level of contaminant,
- Performing excavation and disposal of shallow soil where concentrations are lower or contamination is near surface. Perhaps it would even be acceptable to consider also using small areas of phytoremediation in these target areas where contamination is low and near surface level where it may respond to this experimental treatment.
- For the aquifers, install a pump/treat filter to intercept the water infiltrating the Rogue River and other natural waterways.

Whatever the final solution is, we urge the State to consider a multi-solution approach which may be the most effective way in producing measurable results toward meeting the objectives of the CD.

Our state is blessed with such beautiful nature, we feel that it is collectively all our responsibility to protect and preserve it for future generations. We trust that the solution you select with WWW will be

focused solely on protecting human health and preserving our state's natural waterways. This decision before you is not just for our current community – it's for generations of communities to come.

EGLE Response: Thank you for sharing your concerns and comments regarding the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study. EGLE would consider a proposed solution that includes a combination of remedial actions, but whatever the proposed remedy, it must meet the requirements and objectives of the February 2020 Consent Decree.

33. Commenter: Sandy Wynn-Stelt

Comment: I am writing as a resident of House Street and someone who lives directly across from the House Street Disposal site. I am opposed to the plan put forth by Wolverine World Wide regarding their plan to address the waste and contamination at the House Street Site.
The consent decree indicated that the feasibility study would accomplish two objectives: first, to manage the solid waste at the site, and second, to reduce and control the migration of PFAS from there into the ground water. Their plan for phytoremediation does not accomplish either of these. In fact, their plan accomplishes nothing more than ignoring this situation, as has been done for the past fifty years. The results of that decision have been painful to our entire community.
I am concerned that we have already seen the effect of this site being left to allow 'nature take its course' and as a result the ground water has been contaminated, and the contaminated plume continues to migrate. While the House Street residents have been provided with municipal water, this plume could continue to affect areas where municipal water is not available. It will also affect our natural resources in the forms of streams, rivers and wetlands in its path.
The effectiveness of phytoremediation in addressing PFAS contamination has been reviewed and discussed by many professionals and is laid out clearly in the response from the Wolverine Community Advisory Group. I will not reiterate those points. But this solution is no solution. Planting trees and building a park will not address the goals outlined in the consent decree
I am asking that EGLE reject their proposal for phytoremediation. I would ask that instead consider a combination of solutions that truly address this issue. This may involve a combination of capping, dig/haul portions and interceptor wells to prevent the contamination from reaching major streams and rivers. Thank you for your work on this issue, and the time that EGLE has taken to work with the community. Please know that it is appreciated.

EGLE Response: Thank you for sharing your comments and concerns regarding the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study. EGLE would consider a proposed solution that includes a combination of remedial actions, but whatever the proposed remedy, it must meet the requirements and objectives of the February 2020 Consent Decree.

34. Commenter: Barbara Brundage, Mary & Vincent Kempinski, and Elizabeth Kempinski

Comment: Our family owns the Clearbottom Lake property that borders on the House Street Dump site to the North/Northwest. Over the last 8 decades, we and other family members have spent extended time living there, hiking the woods, swimming and fishing in the lake, and enjoying its natural beauty. The area surrounding the lake contains numerous native plant species, some of which are rare. The family has worked to preserve the biological diversity and unspoiled character of the property for the

several generations of family members who currently enjoy this unique place, some of whom permanently reside there.
Words cannot express the outrage, anger, and concern we have experienced ever since we learned that our beloved lake property has been contaminated by Wolverine's careless dumping of toxic waste on our border. Those of us who live on or adjacent to the family property, as well as those of us who visit regularly, have been exposed to contamination in our well water. The widespread and ongoing migration of PFAS into the groundwater threatens the health of the spring-fed lake itself as well as the fish and animals that depend on it – and poses an unknowable danger to humans from swimming in the lake and eating those fish over many years.
Several tracts of the family property have been divided from the whole for family members' residential building sites. Other family members have interest in adding residences on the property, and financial necessity may dictate the need to sell some of the peripheral land for development. However, Wolverine's toxic contamination jeopardizes any such plans because of the impossibility of drilling new water wells and the unfeasibility of extending municipal water lines to remote areas of the property.
The proposed "phytoremediation" option (Section 4.3.6 of the FS) is unacceptable and should be rejected by EGLE. The concept of removing toxins by planting trees and other vegetation is speculative at best, and the FS admits it will take "hundreds of years … to make measurable progress toward achieving the remedial objective" of removing PFAS. Wolverine or their consultants have not performed any studies on the actual House Street site to determine whether the existing tree and plant cover, which was extensive before earthmoving/tree removal work began on the site, actually contained PFAS that would suggest a measurable or significant amount of toxins were taken up by those trees and/or plants. Even if some PFAS has been removed by plant uptake already over the 40 years since the dumping ceased, this option would not sufficiently mitigate the high levels of waste and contaminated soil that remain. We are very concerned that this plan does not include any significant capping of the existing waste, which will continue to allow PFAS to leach into the groundwater and surrounding area.
Of particular concern is the need for continual removal of tree and limb debris, fallen leaves, dead grass and vegetation, etc., which must occur if any PFAS that is taken up in this plant material is to be eliminated from the site. If this is not done effectively, then whatever PFAS may have been absorbed will merely return to the soil again as the tree/plant material decomposes. The suggestion that the area could in the future be open to some recreational or nature trail use is a lame attempt to make the "phytoremediation" option more appealing. There is no shortage of recreational opportunities in the area (for example, the White Pine Trail) which do not present the hazard to the public of coming into contact with PFAS-containing soil or plant material.
The best option, in our judgment, is the off-site removal and disposal option (4.3.4), because it would permanently remove the toxins from the House Street site and prevent any further leaching of PFAS from the contaminated material that is taken away. If it turns out that the removal option is not feasible (e.g., no suitable site can be found), then the next best option would be the landfill cell option (4.3.3), which would more fully contain the remaining waste and contaminated soil.
The onsite cap-only option (4.3.2) is much less desirable, as it would not create any barrier below the waste to prevent further leaching of toxins into the groundwater.
The pump-and-treat option (4.3.5) is particularly alarming, because there is no good plan for what to do with the purportedly treated discharge water. The FS proposal to discharging that water in the direction of our family's Clearbottom Lake property is not acceptable. Needless to say, the "status quo" no-action option (4.3.1) is equally unacceptable. Thank you for the opportunity to comment on the FS. We hope these comments will receive thorough and favorable consideration.

EGLE Response: Thank you for sharing your concerns with the proposed House Street remedy. EGLE is taking these comments into consideration as we complete our review of the draft House Street Feasibility Study.