





2020 ANNUAL REPORT

POWERFUL SERVICES.
SUSTAINABLE SOLUTIONS.

Charah®
Solutions

2020 ESG AT A GLANCE

12.45 MILLION

TONS OF COAL COMBUSTION RESIDUALS (CCRs)

2.58 MILLION

TONS OF CCRs BENEFICIATED AND RECYCLED

2.24 MILLION

TONS OF CO_2 SAVED FROM ENTERING THE ATMOSPHERE

2.58 MILLION

TONS OF MATERIALS DIVERTED FROM LANDFILL DISPOSAL

34,215 TONS

OF GYPSUM RECYCLED

12 PONDS CLEANED AND CLOSED AND 1 MINE RECLAIMED

SINCE THE EPA 2015 CCR RULE TOOK EFFECT

APPROXIMATELY 300 ACRES

OF LAND RECLAIMED SINCE THE EPA 2015 CCR RULE TOOK EFFECT

42.34 MILLION

GALLONS OF WASTEWATER TREATED

0.36 TOTAL RECORDABLE INCIDENT RATE

(INDUSTRY AVERAGE IS 3.1)

A THREE-YEAR AVERAGE EXPERIENCE MODIFICATION RATE (EMR) OF

LESS THAN 0.7

ZERO LOST TIME

OR RESTRICTED TIME INJURIES

10,400 SAFETY INSPECTIONS

PERFORMED; 524,000 SAFETY OBSERVATIONS PERFORMED; 261 COMPLIANCE AUDITS; 344 FINDINGS

ZERO INCIDENTS

OF NON-COMPLIANCE ASSOCIATED WITH AIR EMISSIONS AND OF NON-COMPLIANCE WITH OTHER ENVIRONMENTAL DISCIPLINES

10%

DIVERSE WORKFORCE

3.8%

MILITARY VETERAN WORKFORCE

49 EMPLOYEES WITH

10 OR MORE YEARS OF SENIORITY

OVER $780,000

IN CHARITABLE DOLLARS DONATED OVER THE LAST 5 YEARS

12

CHARITABLE ORGANIZATIONS SUPPORTED

17 EMPLOYEES PROVIDED GRANTS

THROUGH CHARAH CARES PROGRAM

AMERICAN RED CROSS BLOOD DRIVES

60 DONORS
53 UNITS COLLECTED
159 POTENTIAL LIVES SAVED

---

*CO_2 savings are generated for lifecycle Greenhouse Gas (GHG) calculations using the EPA WARM Model: $MTCO_2e$ = Metric Tonnes of CO_2e GHG; EPA WARM Model evaluates total lifecycle of GHG rather than site-specific GHG calculations. Lifecycle GHG values are typically greater than those of site-specific activities; the EPA WARM model was run using default settings.

Letter from Stephen Tritch | Chairman of the Board of Directors

FELLOW SHAREHOLDERS

The Charah Solutions Board is very pleased with the significant accomplishments achieved in our third year as a public company. Our unmatched industry breadth, safety record and experience, and commitment to environmental sustainability resulted in a record year of new awards and positions us well for continued success.

It has been an honor and a pleasure for me to serve as your Board Chairman for the last three years. Our entire organization from our field employees to our management team, led by President and CEO Scott Sewell and CFO Roger Shannon, performed at the highest levels to overcome a year of significant challenges, which resulted in strategic gains that position the Company for a strong future.

From our company-wide responsiveness to COVID-19 that established a continuous focus on keeping our customers' projects moving and our teams safe, to our relentless efforts that turned opportunity into large-scale projects and record-setting new business awards, we are proud of our performance.

For our investors, 2020 marked a successful year of wins for CHRA stock, which appreciated 76% since the beginning of 2020. 2020 also provided a timely showcase for our commitment to global sustainability and our environmental leadership – commitments that have never been more critically important. This was clearly demonstrated in our first annual Environmental, Social and Governance (ESG) Report. Accordingly, our ESG Report not only presents our policies but demonstrates our actions and our accountability to stakeholders and investors globally.

ESG reporting is increasingly the preferred vehicle for informing investor decisions on the global stage. Significant investment decisions are now being made on a daily basis using ESG reporting data, so it is an important step that we have made this a top priority for both the current and future years. It is simply the right thing to do.

With our first annual ESG Report, we established a benchmark to effectively track our initiatives going forward while leveraging ESG data to inform the global investment community and all of our stakeholders that they can count on our commitment, both environmentally and economically. And that means something to investors who are motivated to invest in corporations who share their vision for a better world and a better world community. As a Company, we want to make sure that our impressive story is told so that our customers, partners, employees, and investors can clearly see the data behind the highly positive environmental and social impact that Charah Solutions and our talented people are having.

During 2020, we also strengthened our foundation for financial and operational performance, and these steps put the Company in a strong position to capitalize on favorable regulatory and market conditions in order to make 2021 a banner year for Charah Solutions. Going forward, Charah Solutions is well-positioned to take advantage of current market conditions as a single-source solution for remediation and compliance services, byproduct sales, fossil services, and Environmental Risk Transfer (ERT) services.

Our Board's wide-ranging experience, combined with our management team's proven operational expertise, and a broad portfolio of environmental services position the Company well to take advantage of these timely opportunities to grow our market share. We are committed to creating exceptional and sustainable value for all of our shareholders.

Stephen Tritch
Chairman of the Board of Directors
Charah Solutions, Inc.

Letter from Scott Sewell | President and CEO

DEAR INVESTORS

2020 represented a challenging but successful year for Charah Solutions as we came together to work through the multi-faceted issues of the COVID-19 pandemic while continuing to grow our business to new highs. The last year saw the Company reach the inflection point we have been describing over the last 18 months – as we delivered another record-setting year for new business awards and continued to see even more opportunities driven by favorable legislation at the federal and state levels for our environmental services. This has combined with the growing demand for beneficiated fly ash in concrete to support increased byproduct sales and expanding opportunities for our Environmental Risk Transfer (ERT) services and fossil services. With the arrival of 2021, we believe that we have entered a new era of significant growth that the Company is well positioned to sustain for many years while driving strong expansions in revenue, earnings and cash flow in 2021 and beyond.

There are many reasons to mark 2020 as a major turning point toward strong growth and increased profitability. 2020 was another record year with $715 million in new business awards, which exceeded 2019, the previous record year, by more than 66%. From the fourth quarter of 2020 through the first quarter of 2021, we have converted just under $1 billion of our pending bids pipeline into new long-term awards, including $433 million of new business awarded in the fourth quarter of 2020. Additionally, having repaid over $100 million of debt since the second quarter of 2019 and increasing our liquidity to over $50 million, we remain committed to strengthening our balance sheet.

With more than 1,000 regulatorily-mandated surface impoundments and ash pond closures in the U.S., over $75 billion in coal ash remediation opportunities, and a new administration kickstarting its tenure by placing climate action at the top of its priority list, we expect to see an increased focus on coal ash remediation providing significant business opportunities, which will positively impact future growth for long-term awards.

The growing market has provided the opportunity to expand our already broad platform of services, which provides efficiencies at the customer level by sourcing multiple services from a single trusted partner, a key Charah Solutions differentiator compared to other service providers. Our long-term relationships with the largest power companies in the U.S. continue to flourish, as we service more than 40 plants for the top utilities and independent power generators in more than 20 states across the country. This results in an overall footprint and density in key markets that are difficult to replicate, given our comprehensive offerings, the embedded nature of our on-site presence, and our track record of successful execution.

We also made great strides in enhancing our liquidity in 2020 through our successful credit agreement amendments and the sale of Allied Holdings, LLC, which has allowed us to increase our financial flexibility and strengthened our balance sheet. This also positions us well to be fully focused on higher growth, higher margin environmental remediation, and byproduct sales opportunities.

In early March 2021, we published our first annual Environmental, Social and Governance (ESG) Report, showcasing our significant milestones in fulfilling our ESG commitments and preserving our natural resources for the betterment of our planet, our employees, our communities, and our customers. We believe reporting on sustainability is critical for our stakeholders' increasing need for information, and we were pleased to begin this vital initiative.

I am proud to lead an incredible team that has risen to the unique challenges of 2020 and continues to deliver for our customers while growing our business and maintaining a healthy and safe work environment during the COVID-19 pandemic. We will always keep Safety First, and I want to recognize every employee for their tireless work and our COVID-19 Response Team for keeping us all safe.

Some of our other notable achievements together include:

- Named to Louisville Business First's 2020 list of the "Best Places to Work in Greater Louisville," which recognizes Louisville-area companies that are creating positive work environments for their employees.
- 2020 Capital Finance International (CFI) Best Sustainable Environmental Management Solutions USA Award, which recognized the Company for its sustainable practices as a leading provider of environmental services.

Remediation and Compliances Services and Byproduct Sales Contract Wins:

- Two long-term ash pond closure contracts totaling 22 million cubic yards by a southeastern utility; 16-year project includes excavation of 16.5 million cubic yards of ponded ash, construction of three on-site lined landfills, and landfill O&M work; 8-year project includes excavation of approximately 5.5 million cubic yards of ponded ash, new on-site lined landfill construction, dam decommissioning, and landfill O&M work.
- Large-scale, 12-year ash marketing contract by Dominion Energy for the beneficial use of 8.1 million tons of reclaimed ponded coal ash from Chesterfield Power Station in Virginia to be recycled and sold for beneficial use in Portland cement.
- Large-scale pond closure contract by a southeastern utility for beneficial use of over 2 million tons of ash from a retired coal-fired power plant which will be beneficially used in the concrete industry, and its ash ponds will be restored as usable property.
- 5-year ash marketing contract by NV Energy in Nevada for beneficial use of production fly ash from North Valmy Generating Station to be sold for beneficial use in the ready mix concrete market.
- Large-scale ash marketing and landfill operations contract by Entergy Utility Companies for plants in Arkansas and Louisiana.

Environmental Risk Transfer (ERT) Services project wins:

- Acquisition of TMPA's Gibbons Creek Steam Electric Station and Reservoir for remediation and redevelopment of the property, including the demolition of the power plant, remediating ash ponds and landfills, and redevelopment of the property.
- Acquisition of Consumers Energy's former B.C. Cobb Generating Facility ash ponds for the closure of the ash ponds and the repurposing of the land to its natural habitat.

Continual Focus On Safety Leadership:

- One-year safety milestone with 1.19 million person-hours of work without an Occupational Safety and Health Administration (OSHA) recordable incident.
- 0.36 Total Recordable Incident Rate (TRIR) in 2020 with no lost time or restricted time injuries.
- Three-year average Experience Modification Rate (EMR) of less than 0.7.
- Winner of AGC Willis Towers Watson Construction Safety Excellence Award for the third consecutive year.

I am honored to lead such a highly capable and accomplished team as President and CEO. Our team's leadership and our strong relationships with our customers were the essential ingredients that enabled us to thrive in 2020. It was a year that helped us discover what we were made of, and what we saw made us proud.

As we have consistently stated, Charah Solutions is well-positioned to leverage this growing demand across the power generation industry as a leading provider of mission-critical environmental services and byproduct sales. Continuing to work together with our Board of Directors, our excellent management group, and our exceptional team, I look forward to the continued acceleration of our success as we capitalize upon the increasing demand for environmental remediation and byproduct sales that is now coming to fruition. I want to thank Steve for his commitment and leadership as Chairman of the Board of Directors for the last three years.

Thank you for your continued support and your investment. We look forward to greater things ahead for Charah Solutions that will benefit our customers, expand our business, and drive greater returns for our shareholders.

Scott Sewell

Scott Sewell
President
Chief Executive Officer
Charah Solutions, Inc.

THE FUTURE OF OUR BUSINESS

As we build our strategic 5-year and 10-year plans for the future of our business, we believe Charah Solutions is well-positioned to continue to thrive under multiple scenarios for the future of coal-fired power plants. While the long-term future of coal-fired power plants remains to be seen, it will likely change with new government administrations and state and local regulations as well as with a better understanding of how extreme weather affects a future "green grid" over the next 10 to 20 years. However, whether coal-fired power plants are rapidly decommissioned or their lifecycles are extended beyond current predictions, Charah Solutions' services will continue to be in high demand and will most likely be needed even more in the future than currently projected, serving our utility partners for many years to come.

Under the scenario where the approximately 241 currently existing coal-fired power plants in the U.S. are decommissioned at a rapid rate over the next 10 to 15 years, the shutdown of these plants and the remediation required at the federal EPA and local and state levels would mean a decrease in our overall routine ash management opportunities but would provide for a significant increase in demand for many of our other services, more than offsetting the decreases in routine services, including:

- Increased demand for our Environmental Risk Transfer (ERT) services where we provide innovative turnkey solutions for these large-scale, complex environmental projects, including the acquisition of the property, shutdown, decommissioning, and demolishing of the coal-fired power plant, remediation of the on-site ash ponds and landfills, and restoration of the land. A typical ERT project is 2 to 5 years in duration.
- Increased demand for remediation of the more than 1,000 regulatorily mandated surface impoundments in the U.S., accelerating our business growth versus current expectations.
- A much-needed influx for the byproducts and fly ash we market to concrete and cement producers around the country today for beneficial use in the production of Portland cement and "Green Concrete," as there is currently a shortage in the market.
- An increase in the amount of reclaimed ponded ash that we could recycle and market to cement kiln feed producers.
- An increase in the amount of gypsum that we could handle and beneficially market to drywall manufacturers.
- An increase in the amount of conditioned ash that would be immediately available for use in large scale structural fill projects where the land is reclaimed and used for community or business use.
- Immediate accelerated demand for our proprietary EnviroSource™ fly ash beneficiation technology, which makes unusable fly ash stored in ponds or landfills immediately marketable. As many state and local regulations are mandating that a percentage of the ash in pond and landfill closure projects has to be beneficially used, this would provide many years of ongoing ash beneficiation projects and would create a 10-to-15-year supply of Class C and Class F fly ash we would sell to concrete producers for "Green Concrete."

Under a scenario where the lives of existing coal-fired power plants in the U.S. remain on track with today's estimates of steady shutdowns over the next 20 to 30 years or these lifecycles are extended beyond current predictions, Charah Solutions is well-positioned for increased business and revenue opportunities with a steady stream of large-scale pond and landfill remediations, ERT, and byproduct sales projects given regulatorily mandated surface impoundment remediation needs as well as the ongoing need for our ash management services. In this scenario, a larger portion of the overall services we provide to our utility partners will be in play for a more extended period, leading to increased business, including:

- An uptick in the need for our ERT services as plants will be decommissioned over this 20-to-30-year period.
- An ongoing stream of additional business in the marketing of byproduct and supplementary cementitious materials (SCMs) sales as plants remain open for the predicted or longer time.
- Increased demand for our proprietary EnviroSource fly ash beneficiation technology as many state and local regulations are mandating that a percentage of the ash in pond and landfill closure projects be recycled.
- Under this scenario, our strategic planning indicates that the needs for our services play out much like we have seen our business unfold in the last 12 to 18 months. Namely, increased demand for our broad platform of services due to the requirement for utilities to meet federal and state environmental regulations across the U.S. drives the needs of electric utilities for larger and more complex remediation solutions with increased size and scope of projects.

It is also important to note that there are over 6,000 coal-fired power plants in operation outside of the U.S., over 350 currently under construction outside of the U.S., and another 1,000+ outside of the U.S. that have been permitted for construction. Charah Solutions' leadership and expertise as a provider of environmental remediation and compliance services and byproduct sales to the power generation industry positions us well to expand our services outside of the U.S. and to take advantage of these markets where coal-fired power plants are expanding.

2021 KEY GROWTH AND PROFIT DRIVERS

The new environmental and economic reality in the U.S. power generation industry is that coal-fired power generation facilities will continue to remediate and close coal ash ponds and landfills as they respond to an increasing need to comply with the growing impact of local, state, and federal regulatory and legislative rulings. Charah Solutions is well positioned to capitalize on this growing need across the industry by virtue of our single-source solution that provides remediation and compliance services, byproduct sales to meet the growing demand for fly ash in concrete, fossil services, and an expanding market for our Environmental Risk Transfer (ERT) services.

Looking ahead, we will continue to build upon our competitive strengths and service advantages to provide superior solutions to customers, expand our footprint, and increase market share by clearly focusing on our strategic priorities.

Remediation Contract Acceleration and Service Advantages

Taking the clear leadership role in providing environmental services for the power generation industry, we will work to convert our pending bids pipeline of over $3.0 billion and position the Company to capitalize on long-term opportunities that are a result of the regulatorily mandated widespread closure of ash ponds and landfills in the U.S. The EPA estimated in 2019 that there were over 1,000 active and inactive ash ponds and landfills that require remediation or closure and will need significant expenditures of capital and specialized environmental expertise to monitor them, remediate and relocate the waste, or completely close them down.

As U.S. coal-fired power generation facilities continue to remediate and close these coal ash ponds and landfills, we clearly have a substantial market opportunity and unique service advantages to fulfill those needs. These sizable projects are triggered as coal power plant operators preemptively manage environmental liabilities, comply with local, state, and federal regulations, and work to meet consumer standards for environmental sustainability. The majority of these older ash ponds were constructed without the design standards or the technology now mandated to protect the environment, so there is no alternative other than future remediation or closure.

Power plant operators are increasingly focused on environmental stewardship due to growing pressure from regulators, advocacy groups, and their communities to manage environmental risks associated with their operations. Due to the potentially considerable consequences related to environmental liabilities, spending on environmental liability management will also increase over time. In addition, the power generation industry is proactively implementing environmental best practices, even when not yet required by law. We believe that the combined forces driving the renewed customer focus on environmental stewardship will result in significant market opportunities across the industry.

The trend among our customers is to gain efficiencies by consolidating service providers, and given the breadth of our service offerings, we are well-positioned to deepen our relationship with current customers. We will also seek to generate business with new utility customers by taking a fleet-wide approach to their power plant footprints. And we see similar opportunities internationally.

As a result, we are laser-focused on capturing a significant share of this $75 billion ash remediation and byproduct sales market, and we expect that additional material awards will continue to increase throughout the year. New awards to date coupled with successful pipeline conversion will have a strong contribution in 2021 and beyond and will position the Company for growth in revenue, earnings, and cash flow.

Byproduct Sales Growth

According to the American Coal Ash Association, approximately 41 million tons of coal ash, or 52% of generated coal ash, was beneficially used in 2019. The leading beneficial use of coal ash is as a more affordable substitute for cement during the production of concrete, as approximately 12.6 million annual tons of coal combustion residuals (CCRs) were used in concrete production in 2019.

With the increasing focus on CO_2 emissions, more states, regulatory authorities, and concrete producers are realizing the environmental benefit of substituting fly ash for Portland cement. Utilizing recycled fly ash as a substitute for Portland cement results in a reduction of CO_2 emissions. Recycled fly ash also results in cost savings versus Portland cement for ready mix producers. As more coal-fired power generation plants go offline, however, the demand for recycled fly ash often exceeds the supply, particularly in the western U.S. That's where our proprietary MultiSource® materials network, combined with our advanced EnviroSource beneficiation technology, gives us a competitive advantage over other suppliers in meeting the expanding needs of this market for quality fly ash and other SCMs. As part of this expansion, we also continue to grow our International Raw Materials Sales and Services business. We completed bauxite shipments from Guyana to Colombia during 2020, and we expect to see increasing global demand ahead for the use of our raw materials and SCMs in quality cement manufacturing materials worldwide.

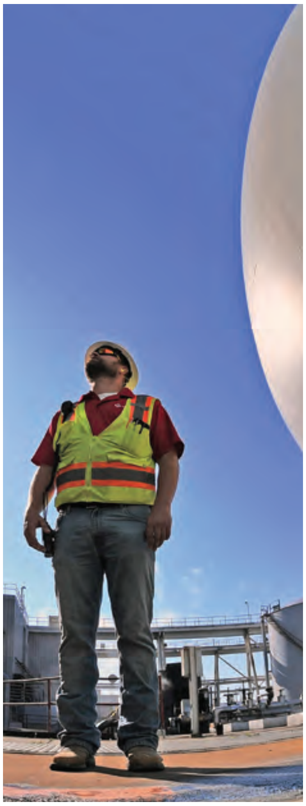
EnviroSource Ash Beneficiation Technology

We believe investments in new technology and processes present opportunities to provide higher-margin offerings while also improving the environment. The embedded nature of our operations gives us a superior understanding of unique customer problems, allowing us to deploy innovative solutions. We believe there are many opportunities for technological innovation in environmental compliance. A great example is our proprietary EnviroSource beneficiation technology (formerly MP618®). This technology converts previously unusable coal ash into consistent, high-quality fly ash that meets industry specifications, increasing marketable fly ash supply to concrete producers nationwide.

EnviroSource technology enables greater amounts of coal ash to be recycled and beneficially used in making cement, which preserves natural resources while reducing the need for landfills. Substituting recycled ash to make “Green Concrete” makes a stronger, lower cost product for use in bridges, highways, and buildings. We continue to make significant progress and receive strong interest in our EnviroSource ash beneficiation technology from utility customers, both domestically and internationally. We expect these innovative technologies will allow us to optimize our traditional fly ash sales and distribution, enter new markets for our products, and provide cleaner, environmentally friendly solutions to our customers. We intend to continue to invest in new technologies and other processes that expand our portfolio of solutions and further establish us as an innovator in our industry.

Expanding Our Service Offerings

Our one-stop shop for services is clearly a competitive differentiator, so continuing to enhance the breadth of services to existing customers represents a key growth opportunity. We are a trusted partner, and our team is embedded with the customer on-site to handle the utility’s most critical operational needs. As a result, we are well-positioned to identify new services we can offer. And our talented teams are trained to turn these opportunities into innovative solutions for our customers that result in expanding opportunities for our ongoing business.



Environmental Risk Transfer (ERT) Services

We also are continuing to see an increase in new opportunities to provide solutions to environmental remediation and compliance through the expansion of our ERT services. Our ERT offerings provide solutions to utilities and attractive growth for Charah Solutions. We won two of these large scale, comprehensive projects in 2020, one in the upper Midwest and one in Texas, and we will continue to make our ERT initiative a strong focus nationwide throughout 2021 and beyond. Increasingly, as the momentum shifts in public policy, the need for a proven turnkey solution with the scale and the comprehensive portfolio of services that can incorporate the decommissioning of fossil fuel power plants, the remediation of ash ponds and landfills, the elimination of risk and the redevelopment of property will continue to gain momentum. And we believe that our unique scale to provide a single-source answer for large-scale, complex environmental solutions will become even more essential over time.

Proven Safety & Environmental Leadership

Keeping our employees safe will always remain our top priority, as it is a core value that we live every day. In our recent first annual Environmental, Social and Governance (ESG) Report, our impressive safety record is a highlight of our Company performance and truly a measure that has lasting significance. But we also know that safety is something that we can never take for granted. Safety is never done. It is something that depends on our daily focus, our priorities, and putting our extensive training into practice every day on the job so that our employees will always be able to leave every one of our job sites the way they arrived.

Safety and environmental sustainability are Charah Solutions core values, and our commitment to each is integral to our culture. We strive to meet the highest safety standards and have implemented safety programs and protocols which continue to exceed our Company goals and make us an industry safety leader.

WHAT WE DO | CHARAH SOLUTIONS AT A GLANCE

We provide the following services through our one business segment: Remediation and Compliance Services, Byproduct Sales, Fossil Services, and Environmental Risk Transfer (ERT) Services.

Our Remediation and Compliance Services offerings primarily include environmental management of landfills for coal-fired power generation facilities and of new and existing ash ponds. These service offerings also cover all aspects of new and existing active pond management, including closure by removal, cap-in-place, and design and construction of new ponds. Additional service offerings include landfill development, construction, and management process. Our remediation and compliance services teams can also provide site evaluation and characterization, preliminary design and cost estimates with life-cycle analysis, hydrogeological assessments, groundwater and containment modeling, permit application and processing for expansions and greenfield sites, design engineering, construction of landfills and cap and cover systems, conversion of impoundments to landfill sites, quality assurance and quality control and documentation, engineered fills (off-site), and other related services.

Our Byproduct Sales offerings include recycling recurring and contracted volumes of coal-fired power generation byproducts, such as bottom ash, fly ash, and gypsum byproducts. These byproducts can be used for various industrial purposes, including in the production of concrete products as a replacement for Portland cement. Our dedicated byproduct sales and marketing team has a national presence, and it works with many of the nation's largest power generators to identify opportunities to improve each customer's long-term position in the market for sales of coal-fired byproducts while providing concrete producers with the consistent fly ash sourcing they need. With various coal sources being utilized across the power generation industry, we evaluate, process, and market the different byproducts to achieve the highest value for a given market area.

With dedicated resources located in the U.S., London, and Singapore, our International Raw Materials Sales and Services provide customers around the globe with the raw materials that are essential to their maintaining a competitive edge in their global business. They recognize

Charah® Solutions

Remediation & Compliance Services

Ash/Gypsum Pond Management

- ENVIRONMENTAL MANAGEMENT
- DESIGN
- CONSTRUCTION
- EXCAVATION
- CLOSURE BY REMOVAL
- CAP IN PLACE
- POND CONVERSIONS
- ENVIRODITCH®

Landfill Construction & Management

- ENVIRONMENTAL MANAGEMENT
- SITE STUDIES
- DESIGN
- PERMITTING
- CONSTRUCTION
- CERTIFICATION
- CLOSURE
- ENGINEERED FILLS (OFFSITE)

Byproduct Sales

SCMs Sales & Marketing

- FLY ASH SALES
- ENVIROSOURCE™ ASH BENEFICIATION
- MULTIPOZZ™ POZZOLAN
- BOTTOM ASH SALES
- GYPSUM SALES
- IGCC SLAG SALES
- TERMINAL OPERATIONS
- KILN FEED PRODUCT SALES
- DELIVERY
- LOGISTICS

International Raw Materials Sales & Services

- INDUSTRIAL RAW MATERIALS
- CEMENT MANUFACTURING MATERIALS
- TRANSPORTATION & LOGISTICS MANAGEMENT
- INVENTORY MANAGEMENT
- MATERIALS HANDLING

Fossil Services

CCR Landfill Operations

- FLY ASH DISPOSAL
- BOTTOM ASH DISPOSAL
- FGD GYPSUM DISPOSAL
- FSS/POZATEC DISPOSAL
- FBC ASH DISPOSAL

Utility Support Services

- LIMESTONE GRINDING
- SILO O&M
- ASH TRANSPORTATION
- FGD AND WWTS O&M
- LEACHATE DISPOSAL
- OTR HAULING
- DBO PROJECTS
- COAL HANDLING

Environmental Risk Transfer

Environmental Risk Transfer

- INSURED RISK TRANSFER
- DECOMMISSION ASSETS
- SITE REMEDIATION
- SCMs SALES & MARKETING
- SITE REDEVELOPMENT

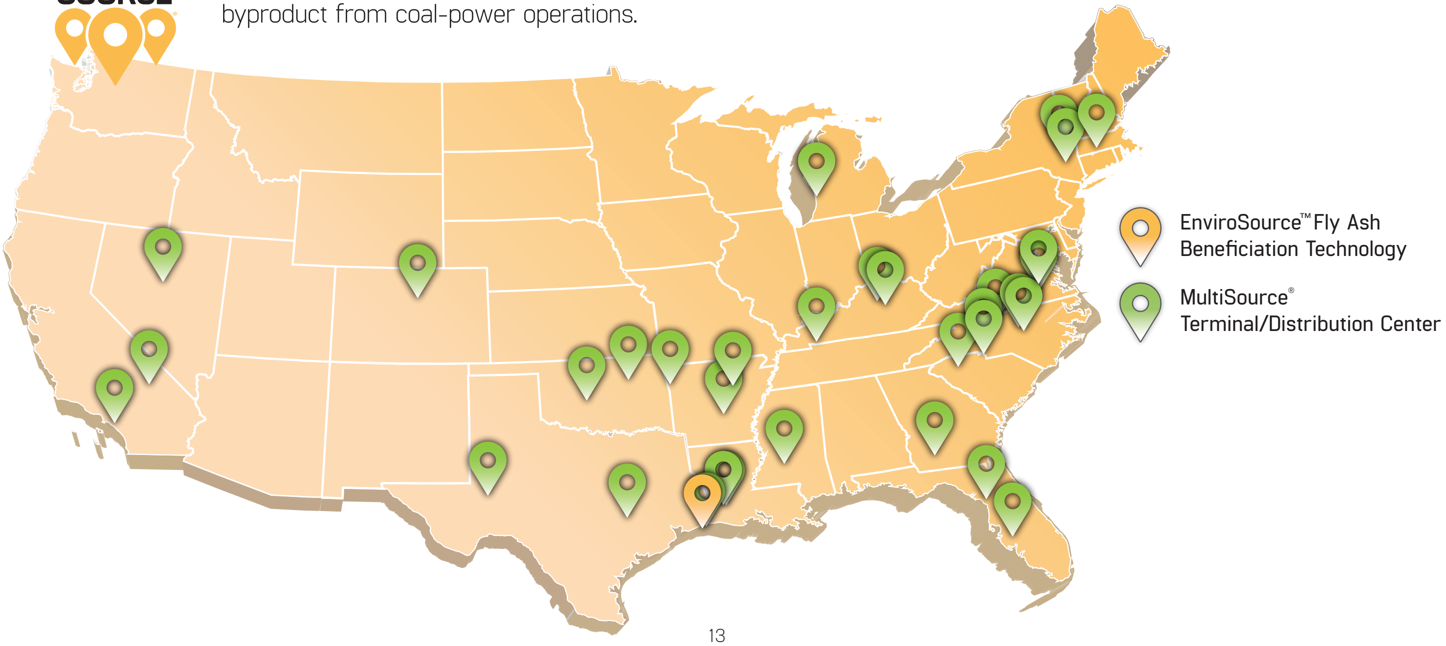
Charah Solutions as the ideal global partner with the sourcing, logistics, and dedicated resources to help them source, move, manage, and better utilize quality industrial raw materials and cement manufacturing raw materials and to facilitate raw materials transactions around the globe.

Fly ash and other byproducts are delivered through our MultiSource® materials network, a unique distribution system of nearly 40 nationwide locations with international sourcing and distribution, serving ready mix concrete producers and other materials customers. The MultiSource network has grown to become an important strategic advantage of Charah Solutions. For utilities, it helps keep their fly ash moving more efficiently for faster sales and marketing, and concrete producers count on it for a consistently reliable supply of high-quality SCMs – all supported by our Charah Solutions sales and service team.

Coal ash management is mission-critical to power plants' daily operations as they generally only have on-site storage capacity for three to four days of CCR accumulation. Our Fossil Services offerings focus on recurring and daily on-site management operations for coal-fired power generation facilities to fulfill our customers' environmental service needs in handling their waste byproducts. These services include silo management, on-site ash transportation and capture, and disposal of ash byproduct from coal-power operations.

Our operations cover the management of a wide variety of combustion byproducts, including bottom ash, flue gas desulfurization (FGD) gypsum disposal, Pozatec/fixated scrubber sludge disposal, and fluidized bed combustion fly ash disposal. We coordinate all aspects of the ash management operation from processing and screening for sales to facilitating economical disposal.

Our ERT services represent an innovative solution designed to meet the evolving and increasingly complex needs of utility customers. These customers need to retire and decommission older or underutilized assets while maximizing the asset's value and improving the environment. Our ERT services manage the sites' environmental remediation requirements, benefiting the communities and lowering utility customers' costs. We provide a custom, environmentally friendly approach to these large-scale projects that removes the liability from the utility through the acquisition of the property. We also provide environmental remediation of the ash ponds and landfills to meet all local, state, and federal regulations. We then redevelop the property upon project completion for public use, which typically includes natural habitat restoration for marine and other wildlife.



COMMITMENT TO ESG

For most companies, sustainability is a byproduct of what they do. At Charah Solutions, sustainability is integral to our business and our operations. Our work, mission, and Company culture are directly aligned with providing powerful services and sustainable solutions to solve the power industry's most complex environmental challenges. Together, Charah Solutions' management and employees are united in our firm commitment to environmental, social, and governance responsibilities, and we demonstrate that commitment daily. Our commitment to sustainable practices is showcased in our inaugural 2020 Environmental, Social and Governance (ESG) Report that was issued in early March.

DOWNLOAD OUR ESG REPORT AT
CHARAH.COM/SUSTAINABILITY

"Our ESG actions and goals are the blueprints for achieving a cleaner environment and a more sustainable future. Dedication to environmental responsibility, investing in our employees, and giving back to the community will always be key value drivers at Charah Solutions."

Scott Sewell
Charah Solutions President and CEO

The Charah Solutions 2020 ESG Report is prepared using internationally recognized Sustainability Accounting Standards Board (SASB) and UN Sustainable Development Goals (SDGs) reporting. As a sustainability leader in utility services for over 30 years, we are dedicated to preserving our natural resources in an environmentally conscious manner through remediation and compliance services, the beneficial use of coal combustion products (CCPs), and Environmental Risk Transfer (ERT) projects for the betterment of the planet, the communities in which we operate, and our customers.

Charah Solutions is truly one of America's best examples of resource conservation and recovery through the beneficial recycling of coal ash, ash impoundment closure services, and the remediation and redevelopment of land for community and commercial use. Our commitment to environmental stewardship, employee wellbeing, corporate diversity, strong governance, and our ESG actions and goals are the blueprints for achieving a cleaner environment and a more sustainable future.

We are committed to taking a leadership stance that investors recognize for value creation, that our partners recognize for aligning with their sustainability goals, and that our employees recognize for creating a great place to work.

Key 2020 ESG achievements include:

- Proven sustainability efforts that conserve virgin resources and water, reduce greenhouse gases, and decrease landfill disposal, all while recycling and providing essential byproducts that contribute to the growth of our national economy.
- Beneficial use of 2.58 million tons of fly ash and other supplementary cementitious materials SCMs in concrete and other products, which eliminates the need to dispose of fly ash in landfills, reduces the overall carbon footprint, and conserves virgin natural resources by substituting materials that would typically be mined.
- Use of recycled ash in structural fill projects in which we return the land to its community for recreational or commercial use allows thousands of acres of land to be reclaimed each year.
- Innovative industry-leading EnviroSource™ (formerly MP618®) beneficiation technology improves fly ash quality so that significantly more tons of fly ash can be recycled and marketed for reuse. This technology significantly reduces the environmental carbon footprint created by Portland cement and provides a superior product at lower costs for ready mix concrete producers.
- 0.36 Total Recordable Incident Rate (TRIR) with no lost time or restricted time injuries.
- Commitment to our employees with a work environment characterized by considerate treatment of others, open and honest communication, personal accountability, trust, and mutual respect to provide superior service and sustainable solutions for our customers.
- Commitment to diversity and inclusion that includes specific diversity initiatives and programs to accelerate this growth for minorities and women at all levels of the Company and with suppliers.
- Concern for the wellbeing of our communities, as demonstrated by the number of community and charitable organizations that our Company and employees support.

Key 2020 ESG results include:

- 2.58 million tons of CCRs beneficiated and recycled for beneficial use
- 2.24 million tons of CO_2 saved from entering the atmosphere
- 2.58 million tons of materials diverted from landfill disposal
- 34,215 tons of gypsum recycled
- Approximately 300 acres of land reclaimed since 2015
- 12 ponds cleaned and closed and 1 mine reclaimed since 2015
- 42.34 million gallons of wastewater treated
- 0 incidents of noncompliance associated with air emissions
- 0.36 Total Recordable Incident Rate (TRIR)
- A three-year average Experience Modification Rate (EMR) of less than 0.7
- 0 Lost Time or Restricted Time Injuries
- 10% diverse workforce
- 3.8% military veteran workforce
- Over $780,000 in charitable dollars donated
- 12 charitable organizations supported
- 17 employees provided grants through the ‘Charah Cares’ program

The Charah Solutions 2020 ESG Report also outlines clearly defined goals to be the best possible employer to employees and vigilant stewards to the environment. Constant improvement is a must, and setting these goals ensures the Company is always innovating, providing our employees with opportunities to grow, and benefiting the environment at every step.

ENVIRONMENTAL SUSTAINABILITY SERVICES

Sustainability is central to everything we do at Charah Solutions. Our core business is centered on coal ash byproduct management, the beneficial recycling of ash products, and environmental remediation and compliance. We develop innovative sustainable solutions to complex environmental issues for the betterment of the planet and the communities in which we operate.

REDUCES GREENHOUSE GAS EMISSIONS

DECREASES LANDFILL DISPOSAL

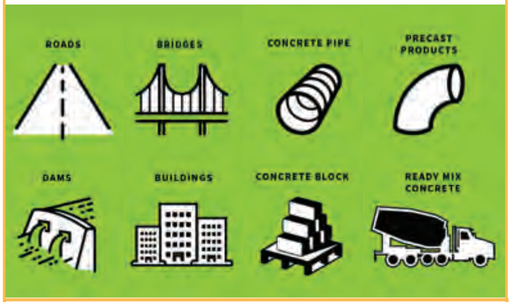
CONSERVES AND PROTECTS WATER

CONSERVES VIRGIN RESOURCES

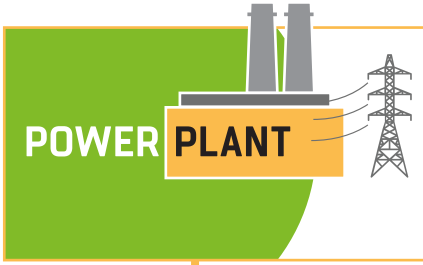
REMEDIATES LAND FOR USE

WE SAVED 2.24 MILLION TONS OF CO_2 FROM ENTERING THE ATMOSPHERE IN 2020

Charah Solutions fly ash improves concrete durability, strength, mixability, and finish. This concrete is used to build infrastructure to keep the economy moving.



FOR EVERY TON OF FLY ASH USED TO REPLACE TRADITIONAL CEMENT, .87 TONS OF CO_2 IS SAVED FROM ENTERING THE ATMOSPHERE



Coal ash is generated by burning coal in the boiler furnace, which creates bottom ash. The ash then goes into the electrostatic precipitator or fabric filter, which creates fly ash, then into the flue gas desulfurization (FGD), creating gypsum - all byproducts are managed by Charah Solutions and can be beneficially used, creating a sustainable process.

BENEFICIAL USE of CCPs

Charah Solutions manages the coal combustion products (CCPs) including fly ash, bottom ash, conditioned ash, ponded ash, and gypsum, which are collected and beneficially used in products for multiple industries. By beneficially using more than 2.58 million tons of ash and supplementary cementitious materials (SCMs) each year, we dramatically reduce greenhouse gas emissions and the amount of waste sent to landfills.

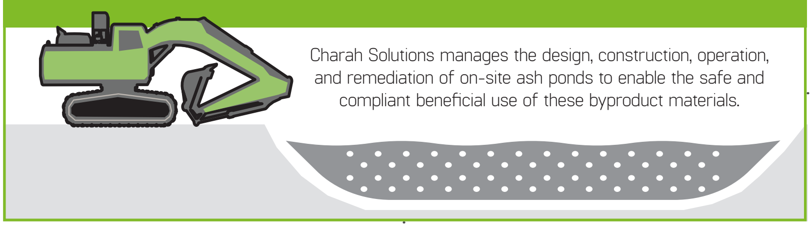
- Fly Ash Ready Mix Concrete
- Fly Ash Structural Fill
- Ponded Ash Kiln Feed
- Bottom Ash Cinder Block
- Conditioned Ash Kiln Feed
- Gypsum Drywall
- Oil Wells
- Gypsum Fertilizer

WE BENEFICIALLY RECYCLED MORE THAN 2.58 MILLION TONS OF CCPs IN 2020

DRY FLY ASH FOR READY MIX CONCRETE	CONDITIONED FLY ASH FOR STRUCTURAL FILL	GYPSUM FOR DRYWALL	GYPSUM FOR AG FERTILIZER
Class C and Class F fly ash is transported via truck, barge, or rail to ready mix concrete producers where it is beneficially used by mixing with other ingredients to produce concrete.	Charah Solutions manages the design, construction, and operation of structural fill projects in which the land is reclaimed and used for community or business use.	Raw gypsum byproduct is sold to drywall manufacturing plants, where it is beneficially used in residential and commercial construction projects.	Raw gypsum byproduct is sold to growers where it is beneficially used as agriculture fertilizer to enhance soil health and improve plant nutrition.

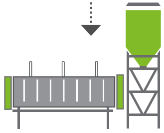
Charah Solutions

ASH POND MANAGEMENT



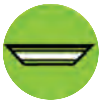
Charah Solutions manages the design, construction, operation, and remediation of on-site ash ponds to enable the safe and compliant beneficial use of these byproduct materials.

BENEFICIATED ASH – ENVIROSOURCE™



Pond ash is beneficiated using Charah Solutions proprietary EnviroSource™ fly ash beneficiation technology, which uses a thermal process to reduce the loss on ignition (LOI) of the ash, making formerly unusable fly ash stored in ponds and landfills immediately marketable to be beneficially used in the production of concrete.

CONDITIONED FLY ASH FOR STRUCTURAL FILL

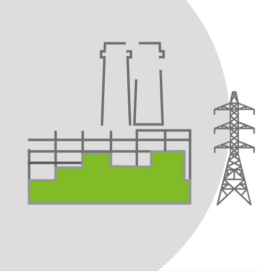


Charah Solutions manages the design, construction, and operation of structural fill projects in which the land is reclaimed and used for community or business use.

REMEDIATED POND LAND REUSE

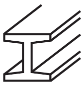
Upon ash pond closure by removal of the ash pond, the land is remediated and redeveloped for community use, renewable energy, agricultural, commercial, or other industrial redevelopment opportunities.

POWER PLANT DECOMMISSIONING AND DEMOLITION



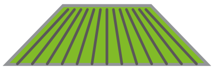
Through our Environmental Risk Transfer (ERT) services, we take full ownership of decommissioned power plants and land from the utility. We demolish the power plant and recycle the steel and other metals.
The land is also fully remediated and redeveloped for use, which includes community use, renewable energy, agricultural, commercial, or other industrial redevelopment opportunities.

RECYCLED STEEL FOR INDUSTRIAL USE



Steel from the demolished plant and other facilities is collected and recycled where it is then beneficially used to produce products for the automotive, construction, furniture, and other industries.

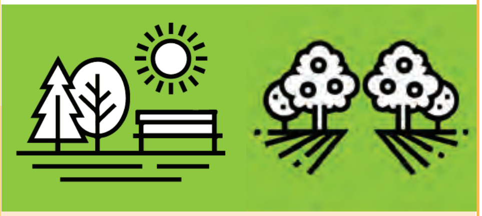
LAND REMEDIATION/ REDEVELOPMENT



Upon demolition of the power plant, the land is remediated and redeveloped for community use, renewable energy, agricultural, commercial, or other industrial redevelopment opportunities.

BUILD PARKS, GREEN SPACES, NATURAL HABITATS, AND COMMERCIAL SPACES.

Since 2015, Charah Solutions has reclaimed approximately 300 acres of land for community use.



IN 2020, CHARAH SOLUTIONS DIVERTED 2.58 MILLION TONS OF MATERIAL FROM LANDFILLS.

BOARD OF DIRECTORS

Stephen Tritch
Chairman of the Board

Scott Sewell
Director, President and
Chief Executive Officer

Timothy J. Poche´
Director

Mignon Clyburn
Director

Robert Flexon
Director

Jack A. Blossman, Jr.
Director

Mark Spender
Director

FORWARD-LOOKING STATEMENTS

Some of the information we provide in this document is forward looking and therefore could change over time to reflect changes in the environment in which Charah Solutions competes. For details on the uncertainties that may cause our actual results to be materially different than those expressed in our forward-looking statements, see https://charah.com/forward-looking-statements. We do not undertake to update our forward-looking statements.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2020

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from ____________ to ____________

Commission file number 001-38523

CHARAH SOLUTIONS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**82-4228671**
State or other jurisdiction of incorporation or organization	I.R.S. Employer Identification No.
12601 Plantside Drive **Louisville, KY 40299** (Address of **principal** executive offices)	40299 (Zip Code)

(Registrant's telephone number, including area code: (502) 245-1353

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	CHRA	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐	Accelerated filer ☐
Non-accelerated filer ☒	Smaller reporting company ☒
	Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

As of June 30, 2020, the aggregate market value of the registrant's voting common stock held by non-affiliates of the registrant was $20,273,431. The registrant has no non-voting stock.

As of March 10, 2021, the registrant had 30,078,957 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement to be filed with the Securities and Exchange Commission in connection with the registrant's 2021 Annual Meeting of Stockholders are incorporated by reference in Part III of this Form 10-K to the extent described herein.

CHARAH SOLUTIONS, INC.

ANNUAL REPORT ON FORM 10-K
For the Fiscal Year Ended December 31, 2020

TABLE OF CONTENTS

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

The information in this Annual Report on Form 10-K (this “Annual Report”) includes “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). All statements, other than statements of historical fact, included in this Annual Report regarding our strategy, future operations, financial position, estimated revenue and losses, projected costs, prospects, plans and objectives of management are forward-looking statements. When used in this Annual Report, the words "may," “will,” “could,” “believe,” “anticipate,” “intend,” “estimate,” “expect,” “project” and similar expressions are intended to identify forward-looking statements. However, not all forward-looking statements contain such identifying words. These forward-looking statements are based on management’s current belief, based on currently available information, as to the outcome and timing of future events.

Forward-looking statements may include statements about:

- the impacts of the COVID-19 pandemic on the Company's business
- our business strategy;
- our operating cash flows, the availability of capital and our liquidity;
- our future revenue, income and operating performance;
- our ability to sustain and improve our utilization, revenue and margins;
- our ability to maintain acceptable pricing for our services;
- our future capital expenditures;
- our ability to finance equipment, working capital and capital expenditures;
- competition and government regulations;
- our ability to obtain permits and governmental approvals;
- our ability to obtain bonding;
- pending legal or environmental matters or liabilities;
- environmental hazards;
- industrial accidents;
- business or asset acquisitions;
- general economic conditions;
- credit markets;
- our ability to successfully develop our research and technology capabilities and to implement technological developments and enhancements;
- uncertainty regarding our future operating results; and
- plans, objectives, expectations and intentions contained in this Annual Report that are not historical.

We caution you that these forward-looking statements are subject to risks and uncertainties, most of which are difficult to predict and many of which are beyond our control. These risks include, but are not limited to, the risks described under “Item 1A. Risk Factors” in this Annual Report. Should one or more of the risks or uncertainties described occur, or underlying assumptions prove incorrect, our actual results and plans could differ materially from those expressed in any forward-looking statements.

All forward-looking statements, expressed or implied, included in this Annual Report are expressly qualified in their entirety by this cautionary statement. This cautionary statement should also be considered in connection with any subsequent forward-looking written or oral statements that we or persons acting on our behalf may issue. Except as otherwise required by applicable law, we disclaim any duty to update any forward-looking statements, all of which are expressly qualified by the statements in this section, to reflect events or circumstances after the date of this Annual Report.

PART I

Item 1. Business

Our Company

Charah Solutions, Inc. (together with its subsidiaries, “Charah Solutions,” the “Company,” “we,” “us,” or “our”) is a leading national service provider of mission-critical environmental services and byproduct sales to the power generation industry. We offer a suite of remediation and compliance services, byproduct sales and marketing, fossil services and environmental risk transfer ("ERT") services. We also design and implement solutions for complex environmental projects (such as coal ash pond closures) and facilitate coal ash recycling through byproduct sales and other beneficial use services. We believe we are a partner-of-choice for the power generation industry due to our quality, safety, domain experience and compliance record, all of which are key criteria for our customers. In 2020, we performed work at more than 40 coal-fired generation sites nationwide.

Charah Solutions, Inc. was incorporated in Delaware in 2018 in connection with our initial public offering in June 2018 and, together with its predecessors, has been in business since 1987. Since our founding, we have continuously worked to anticipate our customers’ evolving environmental needs, increasing the number of services we provide through our embedded presence at their power generation facilities. Our multi-service platform allows customers to efficiently source multiple required offerings from a single, trusted partner compared to service providers with more limited scope.

On November 19, 2020, the Company sold its Allied Power Holdings LLC (“Allied”) subsidiary engaged in maintenance, modification and repair services to the nuclear and fossil power generation industry to an affiliate of Bernhard Capital Partners Management, LP (“BCP”), the Company’s majority shareholder, in an all-cash deal for $40 million (the “Allied Transaction”) subject to customary adjustments for working capital and other adjustments as set forth in the Purchase Agreement. As described in further detail in Part II, Item 8. Financial Statements and Supplementary Data, the Company has presented Allied as held for sale and discontinued operations in the accompanying consolidated financial statements and related notes.

During the fourth quarter of 2020, we realigned our segment reporting into a single operating segment to reflect the suite of end-to-end services we offer our utility partners and how our chief operating decision maker reviews consolidated financial information to evaluate results of operations, assess performance and allocate resources for these services. We provide the following services through our one segment: remediation and compliance services, byproduct sales, fossil services and ERT services. Remediation and compliance services are associated with our customers’ need for multi-year environmental improvement and sustainability initiatives, whether driven by regulatory requirements, power generation customer initiatives or consumer expectations and standards. Byproduct sales support both our power generation customers’ desire to recycle their recurring and legacy volumes of coal combustion residuals (“CCRs”), commonly known as coal ash, and our ultimate end customers’ need for high-quality, cost-effective raw material substitutes. Fossil services consist of recurring and mission-critical coal ash management and operations for coal-fired power generation facilities. ERT services represent an innovative solution designed to meet the evolving and increasingly complex needs of utility customers. These customers need to retire and decommission older or underutilized assets while maximizing the asset's value and improving the environment. Our ERT services manage the sites' environmental remediation requirements, benefiting the communities and lowering the utility customers' cost.

On February 10, 2021, the Company purchased the Texas Municipal Power Agency’s (“TMPA”) Gibbons Creek Steam Electric Station and Reservoir’s related assets in Grimes County, Texas (“the Gibbons Creek Transaction”). The Company acquired the 6,166-acre area, including the closed power station, a 3,500-acre reservoir, dam and spillway and other property. As part of our ERT services, the Company will be responsible for the shutdown and decommissioning of the coal power plant, and as part of the acquisition, the Company will be assuming an asset retirement obligation for the site landfill and ash pond environmental remediation work.

As a result of our comprehensive offerings, the embedded nature of our on-site presence, our domain experience, and our track record of successful execution, we have built long-term relationships with leading U.S. regulated utilities and independent power producers, including Dominion Energy, Inc., Duke Energy Corporation, Dynegy Inc., PPL Corporation, The Southern Company, and Consumers Energy, among others. These relationships have spanned over 20 years in some cases. Our operational footprint's national scale is also a key competitive differentiator, as many competitors are localized, focusing on a single geographic area (sometimes isolated to a single plant). We operate in more than 20 states, resulting in an overall footprint and density in key markets that we believe are difficult to replicate. We believe our national reach enables us to successfully pursue new business within our existing customer base and attract new customers while providing consistent quality, safety, and compliance standards.

Our services platform is led by a senior executive team with deep industry experience and supported by a highly skilled labor force. The nature of our work requires employees to have specialized skills, training, and certifications for them to be allowed on-site at our customers' facilities. Collectively, our focus on human capital management enables us to maintain and develop a labor force of highly qualified, well-trained personnel capable of handling our customers' needs.

Market Opportunity

The U.S. power generation industry is composed of critical infrastructure providing essential electric power to communities nationwide. According to the U.S. Energy Information Administration (the "EIA"), as of 2019, there were approximately 500 large-scale facilities in the United States with generation capabilities of at least 250 megawatts, including over 150 coal-fired power plants. With near-constant demand from consumers and industry, these facilities' continuous operation is critical given potentially high economic and reputational costs of downtime. These complex facilities have specialized and recurring environmental and compliance service needs to maintain continuous operations throughout their lifecycles. These service needs are particularly significant for coal-fired plants due to the increasing demands of environmental regulation, aging nature of the installed base, and the feedstock characteristics required to power such facilities. Due to the breadth and scope of these service needs, power plant operators typically do not possess the necessary capabilities internally and instead outsource these mission-critical and often regulatory-driven requirements to a fragmented set of service providers. Many significant dynamics support the continuing need for these specialized services.

Coal-Fired Power Plants Have Significant and Recurring Environmental Management Needs Associated with Their Waste Byproducts

Coal-fired power plants consistently generate various waste byproducts throughout the power generation process. The primary type of these waste byproducts is CCRs. CCRs come in multiple forms, including fly ash, bottom ash, and boiler slag, and are collected throughout the coal burning process. Although not considered a hazardous waste under the Resource Conservation and Recovery Act, as amended (the "RCRA"), utilities have significant regulatory and reputational risks associated with the handling and disposal of coal ash. According to the American Coal Ash Association, more than 78 million tons of coal ash were generated in 2019, the latest year for which data is available. Coal ash management is mission-critical to coal-fired power plants' daily operations as they generally have on-site storage capacity for only three to four days of CCR waste accumulation. This limited coal ash storage capacity requires continuous daily monitoring, handling, transportation, and disposal to enable ongoing power plant operation. The U.S. Environmental Protection Agency (the "EPA") has estimated that coal-fired utilities spend approximately $2.9 billion per year on coal ash management. Power plant operators typically engage specialized service providers to conduct this critical recurring activity on-site alongside their personnel operating the plant.

Large Installed Base of Legacy Coal Ash Disposal Ponds That Require Remediation

Collected coal ash is disposed of or beneficially used (recycled) in a range of applications. According to the American Coal Ash Association, as of 2019, utilities disposed of approximately 48% of coal ash generated. According to EPA data published, approximately 80% of the coal ash disposed of was placed on-site in ash ponds or landfills, and the balance was transported and disposed of off-site at third-party landfills. For many years, coal-fired power plants relied on ash ponds as the primary disposal locations for CCRs. The vast majority of these older inactive and older existing ash ponds were constructed without the design standards now mandated by regulation to prevent harm to the environment, and those ponds will require remediation or closure in the future. The EPA estimated in 2019 that there were over 1,000 active and inactive on-site ash ponds and landfills requiring remediation or closure. These sites will require significant capital expenditures from their owners and specialized environmental expertise to monitor them on an ongoing basis, remediate and relocate the waste, or completely close.

Power Plant Operators Are Increasingly Focused on Environmental Stewardship and Regulatory Compliance

Power plant operators face increasing pressure from regulators, advocacy groups, and their communities to manage the environmental risks associated with their operations. Therefore, the industry is increasingly focused on environmental stewardship. Due to the potentially considerable consequences of environmental liabilities, spending on environmental liability management has increased over time and is expected to increase in the future.

Additionally, power plants are highly regulated by environmental authorities at the federal, state, and local government levels, which have recently added compliance requirements. A recent example is the Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule (the "CCR Rule"). The EPA enacted the CCR Rule in April 2015 in response to two significant coal ash spills in Kingston, Tennessee and Eden, North Carolina, that caused widespread environmental damage. The CCR Rule regulates the disposal of coal ash as a solid waste. It established new requirements for the closure and remediation of existing coal ash ponds and restrictions on the location of new ash ponds. The CCR Rule will result in significant incremental environmental management costs for many industry participants. Also, the power generation industry is proactively implementing environmental best practices across their assets, even when not yet required by law. Finally, as the result of a settlement in North Carolina in January 2020, it is estimated that 125 million tons of coal ash will need to be excavated and moved to lined landfills in that state.

Recycling Waste Byproducts Is a Critical Component of the Coal Ash Value Chain

Coal ash can be recycled to produce positive environmental, economic, and performance benefits, such as reduced use of other natural resources, lower greenhouse gas ("GHG") emissions, and improved strength and durability of materials. According to the American Coal Ash Association, approximately 41 million tons of coal ash, or 52% of generated coal ash, was beneficially used in 2019. The leading beneficial use of coal ash is as a direct and more economical substitute for cement during the production of concrete (approximately 12.6 million tons of CCRs, annually as of 2019). There are many good reasons to view coal combustion residuals as a resource rather than a waste. Recycling them conserves natural resources and saves energy.

In many cases, products made with CCRs perform better than products made without them. For instance, coal fly ash makes concrete stronger and more durable. It also reduces the need to manufacture Portland cement, resulting in significant reductions in greenhouse gas emissions – about 12 million tons in 2019 alone. An economic analysis by the American Road and Transportation Builders Association found that the use of coal fly ash saves $5.23 billion in the average annual cost of building roads, runways, and bridges in the United States. This includes a $2.5 billion savings in the annual price of materials, an additional $930 million each year in pavement repair work, and $1.8 billion in bridge work due to the longer pavement life of fly ash concrete. Additionally, technologies currently available, including our EnviroSource™ (formerly MP618®) multi-process ash beneficiation technology, improve the characteristics of certain types of coal ash, making them more viable for recycling purposes and ultimately increasing the addressable market of recyclable coal ash.

Coal Power Generation Remains an Important Energy Source

According to the EIA, while renewable sources of energy and natural gas are expected to provide an increasing share of U.S. domestic energy production, coal-fired power generation is expected to remain a key baseload energy source for decades, providing at least 0.9 trillion kilowatt-hours of energy production annually through 2050. During 2020, coal power generation accounted for approximately 20% of domestic U.S. energy generation. Coal power generation is projected to increase to 23% during 2021 and 2022 following a decline during 2020 from lower demand due to the coronavirus ("COVID-19") pandemic and increasing demand for competing fuels used for power generation. Despite short-term improvements, coal-fired capacity will continue to shrink. Based on current plans, the EIA projects the removal of about 2.7 gigawatts ("GW") of coal power generation capacity in 2021, following the loss of about 9.4 GW in 2020. Through 2021-2025, the EIA forecast that about 25.2 GW of coal-fired capacity will be removed. Although other energy generation sources, such as natural gas and renewables, are expected to make moderate gains on a percentage contribution basis, we believe the aggregate demand for coal power generation will remain consistent as the installed base of coal plants are deeply entrenched throughout the U.S. national power grid.

The Power Generation Industry Increasingly Requires Larger Scale Environmental Service Providers

The mounting burden of environmental compliance, the constant need to maintain aging facilities, and the focus on continuous and safe plant operations have the power generation industry, particularly the coal-fired energy producers, increasingly seeking to partner with outsourced service providers having a larger and broader scale that can provide a range of services on their behalf. Most prospective service providers either have narrow service offerings or a highly localized geographic focus (sometimes limited to a single plant). Few service providers can offer broad service capabilities with a track record of quality service, exceptional safety, exacting environmental standards, and a reliable labor force like Charah Solutions.

According to the EIA, between 2011 and the first half of 2020, 95 GW of coal capacity was closed or switched to another fuel source and another 25 GWs of coal-fired capacity is estimated to be closed by 2025. The closures will decrease the capacity of the U.S. coal fleet to less than 200 GW, more than one-third lower than its peak of 314 GW in 2011. After a coal-fired plant is retired, the site will go through a multi-year decommissioning, remediation and closure process. Remediation of CCRs is the main focus of coal plant decommissioning. Depending on the facility, CCRs are disposed of in on-site landfills or coal ash ponds, or are beneficially reused in other products.

Many utilities are experiencing an increased need to retire and decommission older or less economically viable generating assets while minimizing costs and maximizing the asset's value and improving the environment. Our ERT services allow these partners to remove the environmental risk and insurance obligations and place control and oversight with a company specializing in these complex remediation and reclamation projects. We believe our broad set of service capabilities, track record of quality service and safety, exacting environmental standards, and a dependable and experienced labor force is a significant competitive advantage. Our work, mission and culture are directly aligned with meeting environmental, sustainability, and governance ("ESG") standards and providing innovative services to solve our utility customers' most complex environmental challenges. We believe that we are an industry leader in quality, safety, and compliance, and we are committed to reducing greenhouse gas emissions and preserving our environment for a cleaner energy future.

Our Strengths

We believe our company has become a leader in providing mission-critical environmental services to the power generation industry. Our strengths that support our leading position include:

Industry-Leading Quality, Safety, and Compliance

We believe we are a partner-of-choice for our customers due to our reputation as a leader in quality, safety, and compliance. Utilities and independent power producers are generally risk-averse and focus on environmental and safety considerations as crucial factors for awarding on-site service provider contracts. We believe our reputation for and dedication to quality, industry-leading safety record, and adherence to environmental compliance standards provide a distinct competitive advantage and differentiate us from many of our competitors. We believe we have developed trusted relationships and credibility with regulatory agencies supported by our team of in-house compliance experts. We pride ourselves on being a reliable partner to our customers, consistently delivering high-quality, efficient, and on-time service.

These attributes are vital contributors to our leading market share positions. Our leading capabilities position us well for potential new business as customers recognize the value of engaging a proven service partner.

Broad Platform of Mission-Critical Environmental Services

Our broad platform of essential environmental services has enabled us to become a leading service provider to our power generation customers. In our end markets, we are a leading national service provider offering a suite of remediation and compliance services, byproduct sales and marketing, fossil services and ERT services. Our multi-service platform allows customers to gain efficiencies from sourcing multiple required offerings from a single, trusted partner compared to service providers with more limited scope.

The national scale of our operational footprint is also a key differentiator, as many of our competitors are localized, focusing on a single geographic area (sometimes isolated to a single plant). We operate in more than 20 states across the country, resulting in an overall footprint and density in key markets that we believe is difficult to replicate. Our national reach enables us to pursue new business within our existing customer base successfully and to attract new customers while providing consistent quality, safety, and compliance standards.

Long-Term Partnerships with Leading Power Generators

Our customers are some of the largest power generation companies in the United States, including Dominion Energy, Inc., Duke Energy Corporation, Dynegy Inc., PPL Corporation, The Southern Company and Consumers Energy. Given our services' essential nature, our on-site personnel becomes integrated into each facility's daily procedures, seamlessly working with utility employees to provide uninterrupted continuous operations. Our co-location and integration into our customers’ daily operations result in direct relationships with key decision-makers at every level of our customers’ organizations. We believe this embedded partnership deepens customer connectivity and drives longer customer tenure. In some cases, these relationships have spanned over 20 years. As examples, LG&E and KU Energy LLC, which PPL Corporation currently owns, has been a customer for more than 20 years. We have also demonstrated the ability to grow our service offerings with a single customer. We first provided Duke Energy Corporation with byproduct sales in 2001 at two plants, and we now provide all of our coal-related services across nine of their plants. We believe these long-term relationships are critical for renewing existing contracts, winning incremental business from existing customers at new sites, and adding new customers. For example, over the last five years, we have achieved an approximately 90% fossil services renewal rate for eligible contracts.

Innovative Solutions to Our Customers’ Environmental Challenges

Our customers regularly face complex, large-scale environmental challenges that require bespoke, technical solutions. We believe we have a proactive and differentiated approach to solving these challenges. Our internal technical and engineering experts have developed in-depth domain knowledge and capabilities in environmental remediation and beneficial use of coal ash due to our long-term and significant experience in the sector. We believe this credibility, combined with an entrepreneurial mindset, enables us to source market opportunities not readily available to our competitors.

As an example, we demonstrated this innovative approach for a major reclamation project at the Asheville Regional Airport in North Carolina. In the course of remediating an on-site ash pond at a nearby coal power plant, we had the vision to beneficially use that ash as structural fill underneath a newly constructed taxiway at the airport. Our engineers designed a state-of-the-art, highly engineered structural fill system to capture the ash in an environmentally sound way. Asheville Regional Airport saved approximately $12 million by using coal ash instead of traditional materials, and approximately 4 million cubic yards of coal ash from an ash pond were beneficially used. We believe this innovative approach, coupled with new technologies and processes, generates additional value for our customers and stockholders.

Furthermore, our ERT turnkey project for Consumers Energy in Michigan is another example of our creative solutions to a complex problem. Remediating the existing ash ponds at the B.C. Cobb facility was part of the post-closure regulation requirements and sustainability objectives of the site. Additionally, the utility and the community wished to further advance the wetlands along the eastern shore of Lake Michigan. We provided Consumers with a cost-effective proposal to meet these goals and provide remediation of the ponds and repurposing the site to natural wetlands.

Entrepreneurial Management Team Supported by Highly Skilled Labor Force

We are led by an experienced management team with an entrepreneurial mindset and a keen focus on safety and customer service. Our senior executive team consists of industry veterans with deep industry experience, helping us provide high-quality operational execution and solidify long-term customer relationships. In addition to a commitment to developing internal talent, we have made key strategic external hires to deepen our expertise further. Our entrepreneurial mindset drives us to continually search for new ways to maximize relevance to customers and develop innovative solutions.

Our customers have unique certification and training requirements for the service providers they allow on-site. Our ability to hire, develop, and retain a highly-skilled labor force with specialized skills, training, and certifications is a critical differentiator in the sector. We also have a dedicated team of in-house professionals that focus exclusively on training, certification, and mentorship. As part of our commitment to safety and compliance, each of our on-site employees must complete a unique, rigorous training program. We train our managers to lead from the front line and share, involve, and support their teams. Our ability to rapidly staff large-scale projects is also critical. Collectively, our human capital management allows us to maintain and develop a labor force of highly qualified, well-trained personnel capable of handling our customers' needs.

Our Growth Strategy

Expand Market Share by Capitalizing on the Significant Needs of Power Generation Customers

We have a substantial growth opportunity in the near term as U.S. coal-fired power generation facilities continue to remediate and close coal ash ponds and landfills. These projects are triggered as coal power plant operators preemptively manage environmental liabilities, comply with regulatory requirements (at the local, state, and federal level), and work to meet consumer standards for environmental sustainability. We believe there are $75 billion in coal ash remediation opportunities in the U.S., driving a need for creative remediation solutions, including the beneficiation of ash. We estimate there are over 1,000 legacy ash ponds and landfills, substantially all of which remain to be remediated. We expect that customer spending for our core services, including ash pond and landfill remediation, will increase significantly over the next three to five years in response to these remediation requirements. We believe spending on coal ash management will increase due to our customers' increased focus on environmental stewardship.

Continue to Grow On-Site Services Revenue by Expanding Our Offerings

We believe our broad platform of services is a competitive differentiator and, therefore, continuing to enhance the breadth of services offered to our existing customers is a key growth opportunity. We are a trusted partner and our team is embedded with the customer on-site to handle its most critical operational needs. As a result, we are well-positioned to identify relevant, attractive service offerings to add to our portfolio. We believe opportunities exist across our platform in waste byproduct management, recycling and environmental remediation services. We have earned our reputation as the premier one-stop solution to the power generation industry for ash pond remediation and compliance, environmentally friendly ash recycling and daily ash operations. We believe our customers will continue to find value in a full-service platform and source incremental services from us as an existing, on-site, trusted partner.

Leverage New and Existing Customer Relationships to Maximize Fleet-Wide Opportunities

The trend among our customers is to consolidate service providers. Given the breadth of our service offerings and our access to our customers' senior decision-makers, we believe we are well-positioned to deepen our relationship with current customers by providing our services to other coal-fired power plants within their fleets. We see an opportunity to increase this percentage meaningfully. We will also seek to generate business with new utility customers and compete fleet-wide across their power plant footprints. We see similar opportunities in international geographies.

Invest in Innovative Technologies, Processes, and Solutions

We believe investments in new technology and processes present opportunities to provide higher-margin offerings while also improving the environment. Our operations' embedded nature gives us a superior understanding of unique customer problems allowing us to deploy innovative solutions. We believe there are opportunities for technological innovation in environmental compliance and stewardship. For example, our EnviroSource^{TM} ash beneficiation technology provides an innovative new proprietary thermal process for fly ash beneficiation. This technology converts previously unusable coal ash into a consistent, high-quality fly ash that meets industry specifications, increasing marketable fly ash supply to concrete producers nationwide. We expect these innovative technologies will allow us to optimize our traditional fly ash sales and distribution, enter new markets for our products, and provide cleaner, environmentally friendly solutions to our customers. We intend to continue to invest in new technologies and other processes that expand our portfolio of solutions and further establish us as an innovator in our industry.

Our Services

We deliver services and solutions to the power generation industry through one reportable segment. We have over 30 years of experience constructing, operating, and managing structural fill projects for coal-fired utilities and assisting coal-fired utilities in beneficially using waste byproducts. We offer a suite of end-to-end services providing remediation and compliance services, byproduct sales and marketing, fossil services and ERT services. Our remediation and compliance services offerings primarily include environmental management of landfills for coal-fired power generation facilities and of new and existing ash ponds (particularly remediation mandates). These service offerings also cover all aspects of new and existing active pond management, including closure by removal, cap-in-place, and design and construction of new ponds. Additional service offerings include all aspects of the landfill development, construction, and management process. Our remediation and compliance services teams can also provide site evaluation and characterization; preliminary design and cost estimates with life-cycle analysis; hydrogeological assessments; groundwater and containment modeling; permit application and processing for expansions and greenfield sites; design engineering; construction of landfills and cap and cover systems; conversion of impoundments to landfill sites; quality assurance and quality control and documentation; engineered fills (off-site) and other related services.

Our byproduct sales offerings include recycling recurring and contracted volumes of coal-fired power generation waste byproducts, such as bottom ash, fly ash, and gypsum byproducts. These byproducts can be used for various industrial purposes, including producing concrete products as a replacement for Portland cement. Our dedicated waste byproduct sales and marketing team has a national presence and it works with many of the nation’s largest power generators to identify opportunities to improve each customer’s long-term position in the market for sales of coal-fired waste byproducts while providing concrete producers with the consistent fly ash sourcing they need. With various coal sources being utilized across the power generation industry, we evaluate, process, and market the different bottom ash products to achieve the highest value for a given market area.

Coal ash management is mission-critical to the daily operations of power plants as they generally only have on-site storage capacity for three to four days of CCR waste accumulation. Our fossil services offerings focus on recurring and daily onsite management operations for coal-fired power generation facilities to fulfill our customers' environmental service need in handling their waste byproducts. These services include silo management, on-site ash transportation and capture and disposal of ash byproduct from coal power operations. Our operations cover the management of a wide variety of combustion byproducts, including bottom ash, flue gas desulfurization ("FGD") gypsum disposal, Pozatec/fixated scrubber sludge disposal, and fluidized bed combustion fly ash disposal. We coordinate all aspects of the ash management operation, from processing and screening for sales to facilitating economical disposal.

Our ERT services represent an innovative solution designed to meet the evolving and increasingly complex needs of utility customers. These customers need to retire and decommission older or underutilized assets while maximizing the asset's value and improving the environment. Our ERT services manage the sites' environmental remediation requirements benefiting the communities and lowering utility customers' costs. We provide a custom, environmentally-friendly approach to these large-scale projects that removes the liability from the utility through the acquisition of the property. We then provide environmental remediation of the ash ponds and landfills to meet all local, state and federal regulations. We will then redevelop the property upon project completion for public use, which typically includes natural habitat restoration for marine and other wildlife.

Safety Record

Utilities and independent power producers are focused on environmental and safety considerations as crucial factors for awarding on-site service provider contracts. We believe our strong safety record provides a distinct competitive advantage. We believe we have developed trusted relationships and credibility with regulatory agencies and utilities over the past 30 years due to our long-standing safety record supported by an experienced team of in-house safety and regulatory compliance professionals.

Safety is integral to our culture and our results, and it is one of our core values. We believe we operate under the strictest safety standards, and we are committed to maintaining a safe working environment. Our dedicated in-house team of safety professionals develops and trains our employees and subcontractors to perform their jobs safely and proactively contribute to a safe workplace. This expert team includes highly trained professionals who are accredited Occupational Safety and Health Administration trainers, along with full-time transportation specialists in both over-the-road and rail operations.

We recognize the unique safety issues related to working with our utility industry partners. Our Engineering, Environmental, and Quality Group has the expertise and experience to ensure our operations are compliant with local, state, and federal regulations and exceed our industry's customary safety standards.

Sales and Marketing

Our MultiSource® materials network is a unique distribution system of nearly 40 nationwide locations serving the U.S., Mexico, and Canada with sourcing, transportation modes, and distribution options that ensure a steady and reliable supply of supplementary cementitious materials ("SCMs"). The MultiSource® materials network provides SCMs to markets where they are needed and sufficient storage to level out seasonal supply and demand fluctuations. To meet the on-time delivery requirements of customers, logistics support must include an established network of transportation options, including truck, rail, and barge, as well as sufficient storage and supply capabilities. By combining the strengths of our EnviroSource™ ash beneficiation technology, the proven MultiSource® network, and strategic investment in logistics infrastructure, we have the capabilities of meeting demand in regions not previously attainable while maintaining a competitive price and consistent quality and supply for concrete producers.

Our dedicated sales team has built successful and long-term relationships with the nation's largest power generators. We think we can leverage the deep connections and strong operational track record we have built to broaden our on-site presence and deepen client partnerships. We also seek to grow our business with new power generation customers and compete enterprise-wide across their power plant footprints. Through close connections with utility management and personal relationships developed daily by our network of embedded field team of regional managers and site managers, we believe we understand our customers' needs and that we can quickly respond to their project requirements and provide creative solutions. Our team includes professional engineers, experienced site managers, and seasoned estimators who strive to be detailed, accurate, and upfront, enabling us to minimize contract modifications after the work begins. We employ what we refer to as a "zippered" organizational approach to customer service and marketing, leveraging relationships up and down the organization. By structuring our organization around our customers' needs through this unique network of regional field operations managers, we ensure that projects are completed on time and budget. Additionally, we can quickly recognize opportunities to cross-sell and market our services.

Customers

We have developed our long-term, committed relationships to become a preferred provider to many of the largest power generation companies in the United States. In 2020, we performed work at more than 40 plants for more than 20 "blue-chip" entities, including Ameren Corporation, Big Rivers Electric Corporation, Dominion Energy, Inc., Duke Energy Corporation, Dynegy Inc., Hoosier Energy Rural Electric Cooperative, Inc., NRG Energy, Inc., PPL Corporation, The Southern Company and Consumers Energy. The majority of our power generation clients have investment-grade credit ratings. For the years ended December 31, 2020, there were no customers that accounted for more than 10% of our revenue. For the years ended December 31, 2019 and 2018, Duke Energy Corporation accounted for more than 10% of our revenue. No other major customer accounted for more than 10% of our revenue during these periods. If a major customer decided to stop purchasing our services, revenue could decline, and our operating results and financial condition could be adversely affected.

Award Status

In 2020, we won approximately $715 million in contracted new awards, the largest in the history of the Company, compared to $430 million in 2019 and $106 million in 2018. Though the timing of future awards is difficult to determine, we believe we are well-positioned to capture a significant portion of a large and growing addressable market.

Joint Ventures and Contractual Arrangements

A portion of our coal ash sales is provided through the following two joint ventures:

Ash Venture Joint Venture

In December 2013, we formed Ash Venture LLC, a North Carolina limited liability company ("Ash Venture"), which provides ash management and marketing services to the utility industry. Ash Venture is a joint venture between Charah, LLC, a Kentucky limited liability company and our wholly-owned subsidiary ("Charah"), and Titan America, LLC, an unrelated third party. Charah owns 67% of Ash Venture and the third party owns 33%.

Equity Method Investment

In January 2016, we formed CV Ash, a joint venture with VHSC Holdings, LLC, an unrelated third party, which markets and sells fly ash to the ready-mix concrete market. We account for the joint venture under the equity method. Charah and the third party each own 50% of the joint venture. During the first quarter of 2021, the CV Ash joint venture relationship ended.

Competition

The power and environmental services industries are highly fragmented across regional competitors. A limited subset of competitors provides a national presence, few of which offer the same spectrum of services we provide through our one reportable segment. Our competitors consist of a combination of large environmental and waste management businesses that do not specialize in ash management services and hundreds of regional and local companies with limited-service areas, typically servicing only one to three sites each. The highly fragmented and regional nature of our industry has produced a limited number of competitors with a national scope.

We are a leading national service provider offering a suite of coal ash management and recycling services to the power generation industry. While some competitors are significantly engaged in one of the core areas in the power or environmental services value chain, many have limited or no engagement in most of our core areas.

Seasonality

Based on historical trends, we expect our operating results to vary seasonally due to demand within our industry as well as weather conditions. For additional information on the effects of seasonality on our operating results, see “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations—Key Factors Affecting Our Business and Financial Statements—Seasonality of Business.”

Risk Management and Insurance

The nature of our business exposes us to liabilities arising out of our operations, including possible damages to the environment. Such potential liabilities could involve, for example, claims for remediation costs, personal injury, property damage, and damage to the environment, including natural resources, claims of employees, customers, or third parties for personal injury or property damage occurring in the course of our operations, or claims alleging negligence or other wrongdoing in the planning or performance of work. We could also be subject to fines, civil and criminal penalties and other sanctions in connection with alleged violations of regulatory requirements that could be significant. We maintain general liability, contractor’s pollution liability policies (as well as additional pollution and remediation policies as needed), vehicle liability, employment practices liability, fiduciary liability, directors’ and officers’ liability, workers’ compensation, property, and employer’s liability coverages. We also maintain umbrella liability policies to provide excess coverage over the underlying limits contained in these primary policies.

Regulation

Our coal-based generation utility customers are subject to various federal, state, and local environmental laws and regulations. Our operations and services for these utility customers are subject to many of the same environmental laws and regulations that govern the host utility site. These environmental laws and regulations, among other things, impose limits on the discharge of pollutants into the air and water, and they establish requirements for the treatment, storage, and disposal of solid and hazardous materials, remediation of releases of hazardous substances, and reclamation of land. Compliance with applicable environmental laws and regulations adds to the cost of doing business. Moreover, to establish and operate power plants and collect, transport, and manage CCRs, our customers and we have obtained various federal, state, and local environmental permits. We must comply with these permits or processes and procedures approved by regulatory authorities. Any failure to comply with these laws or regulations, permits, or processes and procedures could result in the issuance of substantial fines and penalties or other sanctions and may cause us (or our customers) to incur environmental or reclamation liabilities or subject us (or our customers) to third-party claims.

We generally perform our fossil service operations on-site at the host utility power plant. As such, the utility holds permits for our operational activities performed on-site. We secure any necessary permits at facilities that we own or lease.

Despite the safeguards we follow, our operations entail risks of regulatory noncompliance or releases of hazardous substances that could create an environmental liability.

Regulations Affecting the Company

Our one reportable segment's fossil service offerings are subject to environmental laws and regulations that can increase operating costs and give rise to increased risk of regulatory noncompliance and environmental liabilities.

- *Resource Conservation and Recovery Act.* RCRA Subtitle C regulates handling, transporting, and disposing of hazardous waste. RCRA Subtitle D regulates non-hazardous wastes and delegates authority to states to develop solid waste programs. In 1991, the EPA issued final regulations under RCRA Subtitle D, which set forth minimum federal performance and design criteria for municipal solid waste garbage landfills. In 2015, the EPA published regulations under RCRA Subtitle D for CCRs generated by the electric utility industry. Subtitle D municipal solid waste regulations are implemented by the states, although states can impose more stringent requirements than the Subtitle D standards. The CCR Rule regulates the disposal of CCRs under RCRA Subtitle D as non-hazardous wastes, as discussed below.
- *EPA CCRs Rule.* As a CCR, coal ash had previously mainly been exempted from regulation under the RCRA by the "Bevill amendment" and, therefore, was subject to state-level solid waste regulations. However, after a major spill at a Tennessee Valley Authority site in Tennessee in 2008, the EPA began a rulemaking process to regulate CCRs. That process ended with the publication in April 2015 of the CCR Rule to regulate the disposal of CCRs, including fly ash, bottom ash, and flue gas desulfurization products generated at coal-fired power plants. The CCR Rule, among other things, regulates CCRs as non-hazardous waste and imposes new standards for location, groundwater monitoring, and dam stability on surface impoundments and requires long-term monitoring of existing and new surface impoundments and landfill facilities. The CCR Rule also preserves an exemption for CCRs when used for beneficial purposes. In March 2018, the EPA issued proposed Phase-1 1-Part rules to reconsider certain sections of the CCR Rule. In July 2018, the EPA issued a final Phase-1 1-Part rule to modify the CCR Rule to establish the program to grant states authorization with approved CCR permit programs under the Water Infrastructure Improvements for the Nation Act (the "WIIN Act"). The Phase-1 1-Part rule also allows CCRs to be used during certain closure situations and addresses certain matters remanded to the EPA by the D.C. Circuit Court of Appeals in June 2016. The EPA intends to reconsider and propose additional regulations to address litigation decisions by courts related to CCRs.
- *WIIN Act.* In December 2016, Congress passed the WIIN Act, which, among other things, establishes state primacy for enforcement of the CCR Rule. The WIIN Act directed the EPA to provide guidance to states on issuing state regulations to manage the CCR program. The EPA published the Coal Combustion Residuals State Permit Program Guidance Document (Interim Final) in August 2017. States may now submit their regulatory programs for CCRs and receive EPA approval provided they are equivalent to or more stringent than federal guidelines. As noted above, the rule finalized by the EPA in July 2018 further implements the WINN Act's objectives by allowing states or the EPA to incorporate flexibilities into their coal ash permit programs.

The CCR Rule affirms that beneficial uses of CCRs remain exempt from federal waste regulation under the RCRA's "Bevill amendment." The regulation defines beneficial use as where CCRs provide a functional benefit, substitute for the use of virgin material, meet the product specifications, follow established specifications for use, and are environmentally equivalent to the material that they substitute for or are below all thresholds for safety and environmental impact. In February 2014, the EPA released a report determining that the use of fly ash in concrete constitutes a beneficial use, and the CCR Rule notes explicitly that the incorporation of fly ash in concrete, as a replacement for Portland cement, is one of "the most widely recognized beneficial applications" of CCRs. The CCR Rule indicates that the use of CCRs in applications such as road base generally would qualify as beneficial use, so long as relevant regulations and guidelines are followed.

Both industry and environmental organizations have challenged the CCR Rule. The D.C. Circuit Court of Appeals has ruled on several cases involving CCRs. The D.C. Circuit Court remanded certain provisions of the CCR Rule back to the EPA to address through modification of the rules. The D.C. Circuit decision has indicated that CCR disposal or storage units that have only clay liners are not protective, and the EPA must now address the impacts of this decision on the CCR rules.

In September 2016, the U.S. Commission on Civil Rights (the "Civil Rights Commission") issued a report which determined that CCR disposal facilities can negatively impact environmental justice communities. While the Civil Rights Commission cannot require changes to EPA regulations, environmental organizations may seek to use the Civil Rights Commission's report to spur the EPA to make regulatory changes.

In July 2018, the EPA issued a final rule extending the deadline for the closure of certain impoundments and adopting other substantive changes. In August 2018, the D.C. Circuit Court of Appeals vacated and remanded portions of the CCR Rule. In December 2019, the EPA addressed the deficiencies identified by the court and proposed amendments to change the closure deadline to August 31, 2020, but allow certain extensions. The EPA extended the comment period on this legacy CCR surface impoundment advance notice of proposed rulemaking through February 12, 2021. In March 2021, the EPA reopened the public comment period for an additional 60 days through May 11, 2021.

Regulations Affecting the Coal Industry

The fossil services offerings are dependent upon managing CCRs produced by our customers, typically coal-fired power plants. Coal-fired power plants and the coal industry are generally highly regulated under federal and state law. Regulation affecting this industry is ever-evolving, including the following:

- *Clean Air Act*. The federal Clean Air Act of 1970 and subsequent amendments, particularly the Clean Air Act Amendments of 1990 (as amended, the "CAA"), and corresponding state laws and EPA regulations (discussed below), regulate the emission of air pollutants such as SOx, NOx, particulate matter (“PM”), and ozone. The EPA finalized more stringent ambient air quality standards for fine PM in January 2013 and for ozone in October 2015, and issued a final policy assessment for NOx in April 2017 and a draft policy assessment for SOx in August 2017. The EPA concluded that the current primary NOx standard is adequate, but has not taken additional steps concerning the SOx standards. Utilities have been required to make changes, such as changing fuel sources, installing expensive pollution control equipment, and, in some cases, shutting down plants to meet EPA emissions limits. On January 20, 2021, the current administration issued an executive order directing all federal agencies to review and take action to address any federal regulations, orders, guidance documents, policies and any similar agency actions promulgated during the prior administration that may be inconsistent with the administration’s policies. As a result, the degree to which certain recent regulatory developments may be modified or rescinded is unclear. The executive order also established an Interagency Working Group on the Social Cost of Greenhouse Gases (“Working Group”), which is called on to, among other things, develop methodologies for calculating the “social cost of carbon,” “social cost of nitrous oxide” and “social cost of methane.” The Working Group recommendations are due beginning June 1, 2021 and final recommendations no later than January 2022. Further regulation of air emissions and uncertainty regarding the future course of regulation could eventually reduce the coal demand.
- *National Ambient Air Quality Standards.* The CAA requires the EPA to set National Ambient Air Quality Standards (“NAAQS”) for six pollutants considered harmful to public health and the environment (“criteria pollutants”). Areas that are not in compliance with these standards are considered “non-attainment areas.” In recent years, the EPA has adopted more stringent NAAQS for these criteria pollutants that could directly or indirectly impact coal plants by designing new non-attainment areas. This could prompt local changes to permitting or emissions control requirements, as prescribed by federally mandated state implementation plans that require emission source identification and emission reduction plans. Final rules may require significant investment in emissions control technologies by our customers in the electric power generation industry and could affect coal demand. For example, in 2015, the EPA finalized the NAAQS for ozone pollution and reduced the limit to 70 parts per billion (ppb) from the previous 75 ppb standard. The final rule was challenged in the D.C. Circuit. On April 7, 2017, the EPA advised the D.C. Circuit that it intended to reconsider the final rule, and the Court subsequently stayed the litigation pending further action by the EPA. In August 2018, the EPA ultimately decided not to revisit the rule. As a result, the D.C. Circuit lifted its stay of the 2015 ozone NAAQS rule imposing the 70 ppb ambient air quality standard while the EPA reviews the standards under an expedited review process. On October 31, 2019, the EPA published a draft policy assessment recommending that the 70 ppb ozone NAAQS be retained. In December 2020, the EPA retained without changes these current NAAQS standards. However, as noted above, on January 20, 2021, the current administration issued an executive order directing federal agencies to review and take action to address any federal regulations or similar agency actions promulgated during the prior administration that may be inconsistent with the current administration’s stated priorities. The EPA was explicitly ordered to, among other things, propose a Federal Implementation Plan for ozone standards for California, Connecticut, New York, Pennsylvania and Texas by January 2022.
- *Cross-State Air Pollution Rule*. In July 2011, the EPA adopted the Cross-State Air Pollution Rule (the “CSAPR”), a cap-and-trade type program requiring utilities to make substantial reductions in SO2 and NOx and emissions that contribute to ozone and in fine PM emissions to reduce interstate transport of such pollution. The CSAPR was challenged and vacated by the D.C. Circuit Court of Appeals in August 2012, but the U.S. Supreme Court reversed that decision in April 2014. The D.C. Circuit has since lifted its stay on the CSAPR and ruled in favor of the EPA on the remaining significant issues. In January 2016, the EPA filed a brief with the D.C. Circuit addressing the remaining legal challenges left undecided by the U.S. Supreme Court’s 2014 decision. Conforming with a court-ordered schedule, the EPA implemented the first phase of the CSAPR in 2015 and 2016 and the second phase in 2017. In November 2014 and January 2015, the EPA issued notices of data availability outlining emission allowance allocations for existing generating units that began operating before and after 2010. In September 2016, the EPA finalized a rule updating the CSAPR to maintain 2008 ozone emission limitations in downwind states by addressing summer time (May-September) transport of ozone pollution (the "CSAPR

Update"). The CSAPR Update, which commenced in May 2017, sets stricter NOx ozone season emission budgets in 22 states and could affect up to 886 coal-fired facilities. For both NOx and SO2, these emission control requirements can impact the quantity and quality of CCRs produced at a power plant, add to the costs of operating a power plant, and make coal a less attractive fuel alternative in the planning and building of utility power plants. On December 6, 2018, the EPA issued the CSAPR "Close-Out" Rule, a final determination that the CSAPR achieves concerning the 2008 ground-level ozone NAAQS in 20 states. Accordingly, those states will not be required to impose requirements for further reduction in transported ozone pollution. The covered states do not need to submit state implementation plans to establish additional requirements beyond the existing CSAPR Update. Several states and other entities challenged the CSAPR Close-Out Rule in the D.C. Circuit. In a September 13, 2019 ruling, the D.C. Circuit remanded the CSAPR Update to the EPA, finding that rule is inconsistent with the CAA. In a subsequent October 1, 2019 ruling, the CSAPR Close-Out Rule was vacated. On October 15, 2020, the EPA proposed the Revised CSAPR Update Rule to address 21 states' outstanding interstate pollution transport obligations for the 2008 NAAQS. The proposed rule would require additional emissions reductions of NOx from power plants in 12 states, beginning with the 2021 ozone season. If the CSAPR Update Rule goes into effect as proposed, this may affect the demand for coal.

- *Comprehensive Environmental Response, Compensation and Liability Act*. Certain environmental laws, including the Comprehensive Environmental Response, Compensation and Liability Act (the "CERCLA") and similar state laws, impose strict, joint and several liability on responsible parties for investigation and remediation of regulated materials at contaminated sites, including our sites, customer sites, and sites to which we sent wastes, including CCRs. CCRs may contain materials such as metals that are regulated materials under these laws. Management of CCRs can give rise to liability under the CERCLA and similar laws.

- *Mercury and Air Toxics Standards for Power Plants*. In February 2012, under its Mercury and Air Toxics Standards for Power Plants rule, the EPA promulgated final limits on mercury and other toxic chemicals from new and modified power plants. In June 2015, the U.S. Supreme Court ordered the EPA to undertake cost-benefit analysis when promulgating mercury and air toxics standards. In April 2016, the EPA published a supplemental finding pursuant to the U.S. Supreme Court's directive, currently being challenged in the D.C. Circuit. In April 2017, the D.C. Circuit granted the EPA's motion to stay the litigation while the EPA reconsiders its finding that the rule is "appropriate and necessary" as required under the Clean Air Act. If upheld, requirements to control mercury emissions could result in the implementation of additional technologies at power plants that could negatively affect fly ash quality.

- *GHG Emissions*. Some states and regions have adopted legislation and regulatory programs to reduce GHG emissions, either directly or through mechanisms such as renewable portfolio standards for electric utilities. These programs require electric utilities to increase their use of renewable energy, such as solar and wind power. Federal GHG legislation appears unlikely in the near term. The EPA has initiated a review of rules finalized in August 2015 for GHG emissions from new and existing fossil fuel-fired electric power plants and for carbon emissions from existing sources in the power sector (the latter being known as the "Clean Power Plan"). The Clean Power Plan establishes state-specific, rate-based reduction goals for carbon emissions and calls on the power sector to reduce carbon emissions to 32% below 2005 levels by 2030.

  On June 19, 2019, the EPA finalized the Affordable Clean Energy ("ACE") rule as a replacement for the Clean Power Plan. The ACE rule establishes emission guidelines for states to develop plans to address greenhouse gas emissions from existing coal-fired power plants. The ACE rule has several components: a determination of the best system of emission reduction for greenhouse gas emissions from coal-fired power plants, a list of "candidate technologies" states can use when developing their plans, a new preliminary applicability test for determining whether a physical or operational change made to a power plant may be a "major modification" triggering New Source Review, and new implementing regulations for emission guidelines under Clean Air Act section 111(d). On January 19, 2021, the D.C. Circuit Court of Appeals vacated the ACE rule and its implied repeal of the Clean Power Plan, remanding to EPA for further proceedings. If the matter Supreme Court does not hear the matter, it is unclear whether EPA will reinstate the Clean Power Plan or undertake new rulemaking.

  In December 2015, 195 nations (including United States) signed the Paris Agreement, a long-term, international framework convention designed to address climate change over the next several decades. This agreement entered into force in November 2016 after more than 70 countries, including the United States, ratified or otherwise agreed to be bound by the agreement. The United States was among the countries that submitted its declaration of intended greenhouse gas reductions in early 2015, stating its intention to reduce U.S. greenhouse gas emissions by 26-28% by 2025 compared to 2005 levels. Whether and to what extent the United States meets its stated intention likely depends on several factors, including whether the ACE rule is implemented. In June 2017, the Trump administration announced the United States' intention to withdraw from the Paris Agreement. In November 2019, the Trump administration formally initiated the withdrawal process and formally exited the Agreement on November 4, 2020. In January 2021, the current administration issued an executive order commencing the process to reenter the Paris Agreement, although the emissions pledges connected with that effort have not yet been updated. Regardless of the extent to which the United States ultimately participates in these reductions, participation in the Paris Agreement framework could reduce the overall demand for coal over the long term.

Several U.S. states have enacted legislation establishing greenhouse gas emissions reduction goals or requirements or joined regional greenhouse gas reduction initiatives. Some states have also enacted legislation or regulations requiring electricity suppliers to use renewable energy sources to generate a certain percentage of power or that provide financial incentives to electricity suppliers to use renewable energy sources. For example, eleven northeastern states are current members of the Regional Greenhouse Gas Initiative, a mandatory cap-and-trade program established in 2005 to cap regional carbon dioxide emissions from power plants. Six Midwestern states and one Canadian province entered into the Midwestern Regional Greenhouse Gas Reduction Accord to establish voluntary regional greenhouse gas reduction targets and develop a voluntary multi-sector cap-and-trade system to help meet the targets. However, it has been reported that the members no longer are actively pursuing the group's activities. Lastly, California and Quebec remain members of the Western Climate Initiative, formed in 2008 to establish a voluntary regional greenhouse gas reduction goal and develop market-based strategies to achieve emissions reductions. Those two jurisdictions have adopted their own greenhouse gas cap-and-trade regulations. Several states and provinces that initially were members of these organizations and some current members have joined the new North America 2050 initiative, which seeks to reduce greenhouse gas emissions and create economic opportunities aside from cap-and-trade programs. Any particular state, or any of these or other regional group, may have or adopt future rules or policies that cause some coal users to switch from coal to a lower carbon fuel. There can be no assurance at this time that a carbon dioxide cap-and-trade-program, a carbon tax or other regulatory or policy regime, if implemented by any one or more states or regions in which our customers operate or at the federal level, will not affect the future market for coal in those states or regions and lower the overall demand for coal.

- *EPA Water Quality Regulations*. The EPA is addressing water quality impacts from coal-fired power plants and coal mining operations. To obtain a permit for certain coal mining activities, including the construction of coal refuse areas and slurry impoundments that may result in impacts to waters of the United States, an operator may need to obtain a permit for the discharge of fill material from the Army Corps of Engineers ("ACOE") under Section 404, as well as a corresponding permit from the state regulatory authority under Section 401 of the CWA. All permits associated with the placement of dredged or fill material subject to minimum thresholds require appropriate mitigation. Permit holders must receive explicit authorization from the ACOE before proceeding with mining activities. In September 2015, the EPA finalized new effluent limitations (the "Clean Water Rule") under the Clean Water Act for steam electric power generating facilities. The final rule requires coal plant operators with a generating capacity of over 50 megawatts to store fly ash and bottom ash in dry landfills, rather than containment ponds. Approximately 12% of coal plants will be affected, and some marginal operations may shut down rather than face the expense of complying with the Clean Water Rule. Multiple challenges to the Clean Water Rule were consolidated and are pending before the Court of Appeals for the Fifth Circuit. On February 28, 2017, President Trump issued an executive order prompting the EPA and ACOE to consider replacing the blocked Clean Water Rule. On December 11, 2018, the EPA and the ACOE proposed a new regulation to determine which waterbodies are subject to federal jurisdiction. A final rule repealing the 2015 definition of "Waters of the United States" ("WOTUS") became effective on December 23, 2019.

  In December 2018, the EPA and ACOE also formally proposed a new rule revising the definition of WOTUS. The new rule -- the Navigable Waters Protection Rule -- became effective on June 22, 2020, and substantially reduces the scope of waters that fall within the Clean Water Act's jurisdiction, in part by excluding ephemeral streams, which potentially qualified as "Waters of the United States" under the 2015 WOTUS rule. The repeal of the 2015 WOTUS rule and the implementation of the pre-2015 rule have been challenged in federal courts, as has the Navigable Waters Protection Rule, which is currently subject to a challenge in at least twelve federal district courts. A federal district court issued a preliminary injunction preventing the Navigable Waters Protection Rule from taking effect in Colorado, but the rule is otherwise effective in every other state. In addition, in April 2020, the U.S. Supreme Court issued a decision finding that point source discharges to navigable waters through groundwater are subject to regulation under the Clean Water Act. The U.S. Supreme Court specifically held that the Clean Water Act requires a permit if the addition of the pollutants through groundwater is the "functional equivalent" of a direct discharge from the point source into navigable waters. As a result of such recent developments, substantial uncertainty exists regarding the scope of waters protected under the Clean Water Act

> and the discharges to such waters that are subject to permit requirements. Should the State of Colorado’s challenge to the new definition of “Waters of the United States” be unsuccessful, or should the new Biden administration further modify the definition, operators could incur increased costs or delays with respect to obtaining permits for such activities as dredge and fill operations. These more stringent regulation of coal-fired power plants and coal mining operations could increase the cost for utilities and, thus, indirectly impact the availability and cost of fly ash for our CCR activities.

Increasingly strict requirements, such as those described above, generally will increase the cost of doing business and may make burning coal less attractive for utilities. Faced with the prospect of more stringent regulations, litigation by environmental groups, and the relatively low cost of natural gas, an increasing number of electric utilities are reducing their portfolio of coal-fired power plants. For example, in recent years, multiple companies have closed coal-fired power plant units or plants or dropped plans to open new coal-fired plants, citing the cost of compliance with pending or new environmental regulations and the relatively low cost of natural gas. The potential negative impact on job prospects in the utility and mining industries has prompted considerable concern in Congress, leading to calls to restrict the EPA’s regulatory authority and prompting the EPA to reconsider the same. The outcome of these developments cannot be predicted. If the rate of coal-fired power plant closures increases, our business, financial condition and results of operations may be adversely affected. Nevertheless, we believe that reliance on coal for a substantial amount of power generation in the United States is likely to continue for the foreseeable future.

Motor Carrier Operations

Through the services we provide, we operate as a motor carrier and are subject to regulation by the U.S. Department of Transportation (the “DOT”) and various state agencies. These regulatory authorities exercise broad powers governing activities, such as the authorization to engage in motor carrier operations; regulatory safety; hazardous materials labeling, placarding, and marking; financial reporting; and certain mergers, consolidations, and acquisitions. Additional regulations specifically relate to the trucking industry, including testing and specification of equipment and product handling requirements. The trucking industry is subject to possible regulatory and legislative changes that may affect the industry's economics by requiring changes in operating practices or by changing the demand for common or contract carrier services or the cost of providing truckload services. Some of these possible changes include increasingly stringent environmental regulations, changes in the hours of service regulations which govern the amount of time a driver may drive in any specific period, and requiring onboard black box recorder devices or limits on vehicle weight and size.

Interstate motor carrier operations are subject to safety requirements prescribed by the DOT. Intrastate motor carrier operations are subject to safety requirements that often mirror federal regulations. Such matters as weight and dimension of equipment are also subject to federal and state regulations. DOT regulations also mandate drug testing of drivers. From time to time, various legislative proposals are introduced, including proposals to increase federal, state, or local taxes, including taxes on motor fuels, which may increase our costs or adversely impact the recruitment of drivers. We cannot predict whether, or in what form, any increase in such taxes applicable to us will be enacted.

Human Capital Resources

As of December 31, 2020, we had approximately 573 employees. Approximately 63 of our employees were covered by collective bargaining agreements. We believe we have good relations with our employees. We have 49 employees (over 8.5% of all employees) with ten or more years of seniority working at the Company.

The Company is an Equal Opportunity Employer. We will consider all qualified applicants for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, or protected veteran status and we will not discriminate against any qualified candidate based on disability.

Each eligible employee receives a comprehensive benefits package that includes full healthcare coverage, 100% paid preventive care, dental, vision, life insurance, short- and long-term disability, paid time off, and 401(k) with company contribution. We understand the importance of keeping our employees safe and healthy.

Health and Safety

Safety is one of our core values. We are dedicated to maintaining a safe working environment and training our employees and subcontractors to perform their jobs safely and proactively contribute to a safe workplace.

A vital principle of the Charah Way involves actively caring for those around us and working together as one team. Caring for our coworkers and acting as a team is a crucial part of working safely. It requires us to coach and be coached when unsafe behaviors are identified or observed. Safety is not one person’s responsibility; we believe safety is everyone’s responsibility as well as being there for one another in times of crisis, which was recently evidenced by our company-wide response to the COVID-19 pandemic.

As the COVID-19 pandemic hit in March 2020, Charah Solutions moved quickly to take steps to secure the safety of our employees and operations. Our mission-critical utility operations made it imperative to immediately implement COVID-19-specific safety protocols across our entire organization and in concert with our customers to keep our teams safe and our employees working.

Beyond the guidance received from the Centers for Disease Control and Prevention ("CDC") and other federal and state-level guidance, a dedicated Safety Response Team was established, which implemented company-wide COVID-19 internal reporting procedures for our sites and our Environmental Health and Safety department. We conducted COVID-19 updates company-wide daily. We prohibited all non-essential travel and implemented a work-from-home program and instituted social distancing and increased sanitization practices at every level.

Specialized safety and health procedures communication materials were also created for our employees, which included:

- COVID-19 Pandemic Response Plan
- Charah Solutions COVID-19 Employee Absence Flowchart
- COVID-19 Keeping The Workplace Safe Procedures
- COVID-19 Keeping Your Home Safe Procedures
- Equipment Cleaning Guidelines
- Working Remotely Overview & IT Procedures
- Work From Home Tips During COVID-19 Policies
- Tips to Improve Your Work From Home Routine

We have increased sanitization practices across the Company, provided disposable surgical masks to all job sites and increased hand sanitizing stations. We implemented screening procedures at the sites that include temperature check stations and the stocking of all offices, conference rooms, heavy equipment, and trucks with disinfectant wipes/spray and hand sanitizer. All equipment is wiped down before the morning shift starts and after the shift ends, and then again before the afternoon shift starts and at the end of the day. We have also provided hand sanitizer and masks to anyone who needed them at home.

Charah Solutions recently passed a one-year safety milestone with 1.19 million person-hours of work without an Occupational Safety and Health Administration ("OSHA") recordable incident. This significant achievement is a result of the commitment of all personnel to put safety first.

Our record in safety excellence also includes the following achievements:

- In 2020 we accomplished a 0.36 Recordable Incident Rate with no lost time or restricted time injuries in comparison to the most recent industry Recordable Incident Rate industry average of 3.1;
- An impressive three-year average Experience Modification Rate ("EMR") of less than 0.7;
- A Charah Solutions employee is 8.6 times less likely to suffer a recordable injury versus the industry average.

Our Managers and Safety Specialists team utilize an advanced predictive analytics tool to document, monitor, and track behaviors and conditions. This tool utilizes observations, incidents, and historical event data to provide valuable information that we thoroughly assess. We provide our site, regional, and executive leadership "dashboards" that detail incident and observation data from the previous week, month, and year and identify particular trends in that data. We use this information to customize plans to mitigate hazards and reverse any negative trends aggressively. We also use this data, along with other analytical data at the project level to compare statistical data across regions and job sites. Over the last four years, our team has completed over 30,000 inspections and 1.3 million observations, with more than 12,000 opportunities for improvement identified.

Recent award recognition for our focus on Safety Leadership includes:

- AGC Willis Towers Watson Construction Safety Excellence Award for the third straight year
- Seven Employee Gold-Level Certificates of Safety Achievement from the North Carolina Department of Labor
- Construction Safety Leader Award from Coalition for Construction Safety for our proprietary Basin Excavation Strategies Training ("BEST") program
- Event-Free Safety Award from Duke Energy for the Crystal River Energy Complex in Citrus County, Florida

Training and development

We strive to educate, advance, and promote our talent internally. Career training such as our "Leading from the Frontline" program combines management education and leadership training so that all of our employees understand the importance and impact of leadership in our organization, and we pride ourselves in providing reimbursement for continuing education.

We provide career skills education to support our construction trade employees in mastering current skill areas and future areas of development. These programs include direct sessions with team leaders in safety protocol, specified skills, hands-on training sessions, equipment know-how, heavy equipment training and certification, and sessions on emerging trends impacting and changing the construction skillsets of the future. We offer construction trade professionals an attractive pathway for career advancement, with the potential to work on different projects and locations.

Exchange Act Reports

We make available free of charge through our website, *www.charah.com*, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, proxy statement and all amendments to these reports. These reports are available on the investor relations portion of our website, *ir.charah.com,* as soon as reasonably practicable after such materials are electronically filed with, or furnished to, the Securities and Exchange Commission (the "SEC"). We use the investor relations portion of our website to distribute company information, including as a means of disclosing material, non-public information and for complying with our disclosure obligations under Regulation FD. We routinely post and make accessible financial and other information regarding the Company on our website's investor relations area. Accordingly, investors should monitor the investor relations portion of our website, in addition to following our press releases, SEC filings, public conference calls and webcasts. The information provided on our website is not part of this Annual Report and is not incorporated herein by reference.

The SEC also maintains a website, *www.sec.gov*, which contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Item 1A. Risk Factors

Risks Related to Our Business

A decline in the production of CCRs by our coal-fired utility industry customers due to environmental regulations or otherwise could negatively impact our profitability and hinder our growth.

Many of our services are dependent upon the production of CCRs by our coal-fired utility industry customers. The coal-fired utility industry faces several new and pending initiatives by regulatory authorities seeking to address air and water pollution, GHG emissions, and management and disposal of CCRs. In recent years, federal and state environmental regulations have imposed more stringent requirements regarding the emission of air pollutants and other toxic chemicals, reduction of GHG emissions, and water quality impacts from coal operations. Adoption of more stringent regulations governing coal combustion, water discharges, or air emissions may decrease the amount of CCRs produced by our customers and, as a result, the demand for our services. Faced with the prospect of more stringent regulations, litigation by environmental groups, and the relatively low cost of natural gas, an increasing number of electric utilities are reducing their portfolio of coal-fired power plants. The pace of the reduction may increase due to changes in the U.S. executive administration, Congressional leadership and regulatory agency leadership. This reduction could cause states to substitute electricity generation from higher-emitting coal plants to low-emitting coal and natural gas plants and zero-emitting renewable sources. See "Item 1. Business—Regulation."

Increasingly strict requirements generally will increase the cost of doing business and may make burning coal less attractive for utilities. In recent years, multiple companies have announced plans to close coal-fired power plant units or plants, or dropped plans to open new plants, citing the cost of compliance with pending or new environmental regulations and the relatively low cost of natural gas. A reduction in coal use as fuel would cause a decline in the production and availability of CCRs, which would adversely affect our fossil services and byproduct sales offerings and result in reduced revenue. The outcome of these developments cannot be predicted but could have a material adverse effect on our business, results of operation, financial condition, and cash flows.

The COVID-19 pandemic could materially adversely impact our results of operations.

The global spread of the COVID-19 pandemic has created significant volatility, uncertainty and economic disruption. The extent to which the COVID-19 pandemic impacts our business, operations and financial results will depend on numerous evolving factors that we may not be able to predict accurately, including: the duration and scope of the pandemic; governmental, business and individuals' actions that have been and continue to be taken in response to the pandemic; the impact of the pandemic and actions taken in response on economic activity; the effect on our ability to perform our services offerings to our customers; the effect on demand for our byproduct sales, which is primarily driven by the amount of construction activity; delays in new contract awards, work-from-home programs and customers seeking to mitigate capital-intensive expenditures and conserve cash flow; the ability of our customers to pay for our goods and services; and any closures of our offices and our customers' plants and facilities. Customers may also slow down decision-making on new awards, delay planned work or seek to terminate existing agreements.

Further, the pandemic's effects may also increase our cost of capital or make additional capital, including the refinancing of the Credit Facility, more difficult or available only on terms less favorable to us, if at all. A sustained downturn may also result in the carrying value of our long-lived assets exceeding their fair value, which may require us to recognize an impairment to those assets. The effects of the COVID-19 pandemic, including remote working arrangements for employees, may also impact our financial reporting systems and internal control over financial reporting, including our ability to ensure information required to be disclosed in our reports under the Exchange Act is recorded, processed, summarized and reported within the periods specified in the Securities and Exchange Commission's rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and our Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure.

Any of these events could cause or contribute to the risks and uncertainties enumerated in the Annual Report and could materially adversely affect our business, financial condition, results of operations and/or stock price.

Our business, financial condition and results of operations depend on the award of new contracts and the timing of the performance of these contracts.

We derive our revenue from the performance of customer contracts which itself is dependent on new contract awards. Reductions in the number and amounts of new awards, delays in the timing of the awards, or potential cancellations of such awards resulting from economic conditions, material and equipment pricing, and availability or other factors could adversely impact our business, financial condition and results of operations. It is particularly difficult to predict whether or when we will be awarded large-scale projects as these contracts frequently involve a lengthy and complex bidding and selection process that is affected by market conditions as well as regulatory requirements. We have experienced difficulty in the timely award of new projects and may again in the future. Because we generate our revenue from such projects, our results of operations and cash flows can fluctuate significantly from quarter to quarter depending on the timing of our contract awards and the commencement and progress of work under awarded contracts. Also, many of these contracts are subject to financing contingencies. As a result, we are subject to the risk that the customer will not be able to secure the necessary financing for a project to proceed. If we are unable to secure the awards of new contracts, our business, financial condition and results of operations will be adversely affected.

We may lose existing contracts through competitive bidding or early termination.

Many of our contracts are for a specified term and are subject to competitive rebidding after the term for such contract expires. Although we intend to bid to extend expiring contracts, we may not always be successful. Also, some or all of our customers may terminate their contracts with us before their scheduled expiration dates. If we are not able to replace lost revenue resulting from unsuccessful competitive bidding, early termination, or the renegotiation of existing contracts with other revenue within a reasonable period, our business, financial condition and results of operations could be adversely affected.

We could be precluded from entering into or maintaining permits or certain contracts if we are unable to obtain sufficient third-party financial assurance or adequate insurance coverage.

Our operations sometimes require us to obtain performance or surety bonds, letters of credit, or other means of financial assurance to secure our contractual performance. We currently obtain performance and surety bonds from multiple financial institutions; however, if we are unable to obtain financial assurance in the future in sufficient amounts from appropriately rated sureties or on acceptable terms, we could be precluded from entering into certain additional contracts or from obtaining or retaining landfill management or other contracts or operating permits. Any future difficulty in obtaining insurance could also impair our ability to secure future contracts conditioned upon having adequate insurance coverage.

Unsatisfactory service and safety performance may negatively affect our customer relationships and, to the extent we fail to retain existing customers or attract new customers, adversely impact our revenue.

Our ability to retain existing customers and attract new business is dependent on many factors, including our ability to demonstrate that we can reliably and safely operate our business in a manner that is consistent with our customers' standards of service as well as applicable laws, rules, and permits, which are subject to change. Existing and potential customers consider the safety and service record of their third-party service providers to be of high importance in their decision to engage such providers. The power generation industry generally emphasizes safety and service over cost due to economic and reputational risk associated with operations at their facilities.

We may experience multiple or particularly severe accidents in the future, causing our safety record to deteriorate. This possibility may be more likely as we continue to grow, if we experience high employee turnover or a labor shortage or hire inexperienced personnel to support our staffing needs. If one or more accidents were to occur while we are providing services to our customers, or if we were unable to maintain the level of safety and service our customers require, the affected customer may seek to terminate our services and may be less likely to use our services in the future, which could adversely affect our business, financial condition and results of operations. Furthermore, our ability to attract new customers may be impaired if they view our safety or service record as unacceptable.

Our Environmental Risk Transfer ("ERT") Services will require us to acquire significant real property and assume liabilities that could adversely impact our future results.

As part of our ERT services, we will purchase real and personal property and assume environmental liabilities. We will plan to sell these acquired assets to third parties. However, the timing of these future dispositions is difficult to predict, and we may not be able to realize the gains on sales as anticipated. If we cannot sell these assets, the assets may be written down to their fair value, with the impairment loss recognized as a non-cash charge in the consolidated statement of operations. Furthermore, these services will require us to assume environmental liabilities with long-term monitoring requirements. If actual costs exceed our cost estimates, we may incur future additional liabilities, which could adversely impact our results of operations.

The loss of a large customer may adversely affect our revenue and operating results.

We will likely continue to derive a significant portion of our revenue from a relatively small number of customers in the future. If a major customer fails to pay us promptly or at all, our revenue would be negatively impacted, and our operating results, financial condition and cash flows could be materially adversely affected. Additionally, if we were to lose any material customer, such loss would have a material adverse effect on our business and results of operations.

We and our customers operate in industries subject to significant environmental regulation, and compliance with changes in, or liabilities under, such regulations could add significantly to the costs of conducting business.

Our operations and the operations of our customers are subject to federal, state, and local environmental laws and regulations that, among other matters, impose limitations on the discharge of pollutants into the air and water and establish standards for the treatment, storage, and disposal of solid, hazardous, and radioactive waste materials, the remediation of releases of hazardous substances, and the reclamation of land. We and our customers have obtained various federal, state, and local environmental permits to conduct our operations, and we must comply with these permits and processes and procedures regulatory authorities have approved. Any failure to comply with these environmental requirements could give rise to sanctions, including, but not limited to: i) the cessation of all or part of our operations, ii) substantial fines and penalties, iii) environmental or reclamation liabilities, which liabilities may be strict and joint and several and iv) damages, including natural resource damages in connection with our sites, customer sites, or sites to which we sent wastes, including CCRs, and third-party claims. Moreover, changes in environmental laws and regulations occur frequently, and any changes that result in more stringent or costly environmental requirements could require our customers or us to make significant expenditures to attain and maintain compliance. New regulations, failure to comply with existing regulations, or environmental liabilities arising thereunder could have a material adverse effect on our business, results of operation, financial condition, and cash flows.

Success by environmental groups in convincing the EPA to restrict beneficial uses of CCRs, or to regulate CCRs as hazardous waste, may have an adverse effect on our business.

In April 2015, the EPA published the CCR Rule to regulate the disposal of CCRs, including fly ash and bottom ash generated at coal-fired power plants, as non-hazardous waste under Subtitle D of the RCRA and to distinguish beneficial use of CCRs from disposal, which became effective in October 2015. The CCR Rule establishes national minimum criteria for CCR landfills and impoundments consisting of location restrictions, design and operating criteria, groundwater monitoring and corrective action, closure requirements, post-closure care, recordkeeping and reporting and other requirements, and requires closure of facilities unable to comply with these criteria within five to seven years. The CCR Rule has increased the complexity and cost of managing and disposing of CCRs and remediating existing ash ponds and landfills. Also, Congress passed the WIIN Act in December 2016, which, among other things, authorizes state permit programs to manage CCRs in place of the CCR Rule. The WIIN Act also gives the EPA the authority to regulate coal ash in states that choose not to implement state permitting programs and in states whose permitting programs are determined to be inadequate by the EPA. In July 2018, the EPA issued a final rule that would take further steps under the WIIN Act by granting states with approved CCR permit programs (or the EPA where it is the permitting authority) the ability to set specific alternative performance standards. The rule would also allow CCRs to be used during certain closure situations. Finally, it addresses certain matters remanded to the EPA by the D.C. Circuit Court of Appeals in June 2016, including clarifying corrective action triggers and requirements, adding boron to the list of constituents triggering corrective action, determining the proper height of woody and grassy vegetation for slope protection, and modifying alternative closure procedures. In August 2018, the D.C. Circuit Court of Appeals vacated and remanded portions of the CCR Rule. In December 2019, the EPA addressed the deficiencies identified by the court and proposed amendments to change the closure deadline to August 31, 2020, but to allow certain extensions. The EPA extended the comment period on this legacy CCR surface impoundment advance notice of proposed rulemaking through February 12, 2021. In March 2021, the EPA reopened the public comment period for an additional 60 days through May 11, 2021.

Some environmental groups continue to urge the EPA to restrict certain beneficial uses of CCRs, such as in concrete, road base, and soil stabilization, alleging contaminants may leach into the environment. The CCR Rule created a definition of "beneficial use" that includes uses in concrete and road base, but changes in the definition could reduce the demand for fly ash and other CCRs, which would have an adverse effect on our revenue. Moreover, if the EPA were to regulate CCRs as hazardous waste, we, together with CCR generators, could be subject to environmental cleanup, personal injury, and other possible claims and liabilities that could result in significant additional costs. Any such changes in or new regulations or indemnity obligations could have a material adverse effect on our business, results of operation, financial condition, and cash flows.

We may be adversely affected by uncertainty in the global financial markets and the deterioration of our customers' financial condition. If any of our customers suffer financial difficulties affecting their credit risk, our operating results could be negatively impacted.

Our future results of operations may be affected by the uncertainty caused by an economic downturn, natural disaster, pandemic, volatility or deterioration in the capital markets or credit markets, inflation, deflation, or other adverse economic conditions that may negatively affect us or parties with whom we do business, resulting in a reduction in our customers' spending and their nonpayment or inability to perform obligations owed to us, such as the failure of customers to honor their commitments. Additionally, downturns in U.S. construction could lower the demand for our byproduct sales offerings.

We also provide service to power generators. To the extent these entities suffer significant financial difficulties, they could be unable to pay amounts owed to us or to renew contracts with us on attractive terms. Our customers' inability, particularly larger customers, to pay us promptly or to pay increased rates could negatively affect our business, financial condition and results of operations. In addition, in the course of our business, we hold accounts receivable from our customers. In the event of the customer's financial distress or bankruptcy, we could lose all or a portion of such outstanding accounts receivable associated with that customer. Further, if a customer was to enter bankruptcy, it could result in the cancellation of all or a portion of our service contracts with that customer at significant expense or loss of expected revenue.

Increases in labor costs or our ability to find, employ and deploy technically skilled labor could impact our financial results.

Our continued success will depend on our ability to attract and retain qualified personnel. We compete with other businesses in our markets for qualified employees. From time to time, the labor supply is tight in some of our markets. A shortage of qualified employees would require us to enhance our wage and benefits packages to compete more effectively for employees or hire more expensive temporary employees or contract for services with more expensive third-party vendors. Labor is one of our highest costs, and relatively small increases in labor costs per employee could materially affect our cost structure. Our operating margins could suffer if we fail to attract and retain qualified employees, control our labor costs, or recover any increased labor costs through increased prices we charge for our services or otherwise offset such increases with cost savings in other areas.

Dependence on third-party subcontractors and equipment manufacturers could adversely affect our profits.

We rely on third-party subcontractors and equipment manufacturers to complete many of our projects. We could experience losses to the extent that we cannot engage subcontractors or acquire equipment or materials, or if the amount we are required to pay for these goods or services exceeds the amount we have estimated in bidding for fixed-price contracts in the performance of these contracts. Also, if a subcontractor or a manufacturer is unable to deliver its services, equipment or materials according to the negotiated terms for any reason including, but not limited to, the deterioration of its financial condition, we may be required to purchase the services, equipment or materials from another source at a higher price. This may reduce the expected profit or result in a loss on a project, negatively impacting our business, financial condition and results of operations.

Our employees perform services that involve certain risks, including risks of accident, and a failure to maintain a safe work site could result in significant losses.

Safety is a primary focus of our business and is critical to our reputation. Our services can place our employees and others in challenging environments near large equipment, dangerous processes and highly toxic or caustic materials. Our operations involve risks, such as truck accidents, equipment defects, malfunctions, and failures, and natural disasters, which could potentially result in releases of CCR materials, injury or death of employees and others, or a need to shut down or reduce the operation of our customers’ facilities while we undertake remedial actions. We are responsible for safety on the sites where we work, and these risks expose us to potential liability for pollution and other environmental damages, personal injury, loss of life, business interruption, and property damage or destruction. Unsafe work conditions also can increase employee turnover, increase costs and raise our operating costs. If we fail to implement appropriate safety procedures and/or our procedures fail, our employees or others may suffer injuries.

Although we maintain functional groups whose primary purpose is to implement effective health, safety, and environmental procedures throughout our company, the failure to comply with such procedures, client contracts, or applicable regulations could subject us to losses and liability and the potential loss of customers. If we were to incur substantial liabilities above any applicable insurance, our business, results of operations, and financial condition could be adversely affected.

Our financial results may fluctuate from quarter to quarter due to seasonal weather patterns and other factors, making it difficult to predict our future performance.

Consumption of energy is seasonal, and any variation from normal weather patterns, including due to unseasonably cooler or warmer weather, can have a significant impact on energy demand. Additionally, adverse weather conditions, such as hurricanes, tropical storms, and severe cold weather, may interrupt or curtail our operations or our customers’ operations and result in a loss of revenue and damage to our equipment and facilities, which may or may not be insured. As discussed in Item 7 herein, our results of operation were adversely impacted by two hurricanes that disrupted plant operations.

Our byproduct sales and fossil service offerings are also subject to quarterly fluctuations from time to time. For these reasons, comparing our financial results on a period-to-period basis may not be meaningful, and our past results should not be relied on as an indication of our future performance. Our future quarterly and annual expenses as a percentage of our revenue may be significantly different from those we have recorded in the past or which we expect for the future. Our financial results in some quarters may fall below expectations. Changes in cost estimates relating to our services, which under the cost-to-cost input method of accounting principles could lead to significant fluctuations in revenue or changes in the timing of our recognition of revenue from such services, could cause our stock price to fall.

We operate in a highly competitive industry and may not be able to compete effectively with larger and better-capitalized companies.

While no specific company provides the range of services that we offer, the industries in which we operate are highly competitive and require substantial labor and capital resources. Some of the markets in which we compete or plan to compete are served by one or more large, national companies, and regional and local companies of varying sizes and resources, some of which may have accumulated a substantial reputation in their markets. Some of our competitors may also be better capitalized than we are, have greater name recognition than we do, or provide or be willing to bid their services at a lower price than we may be willing to offer. Our inability to compete effectively could hinder our growth or adversely impact our business, financial condition and results of operations.

We rely on technology in our business, and any technology disruption or delay in implementing new technology could adversely affect our business, financial condition, results of operation and cash flows.

We invest in new technology and processes to provide higher-margin offerings for our customers while limiting and managing our environmental risk. We also depend on digital technologies to process and record financial and operating data, and we rely on sophisticated information technology systems and infrastructure to support our business, including process control technology. The failure of our technology initiatives and systems to perform as we anticipate or a delay in implementing new technology could adversely affect our business, financial condition, results of operations and cash flows. For example, within our byproduct sales offerings, the roll-out of our technology initiatives, including our EnviroSource^{TM} ash beneficiation technology and our grinding technology, has been slower than previously anticipated, resulting in lower than expected contribution to operating results.

Additionally, if competitors implement new technologies before we do, allowing such competitors to provide lower-priced or enhanced services of superior quality compared to those we provide, this could have an adverse effect on our financial condition, results of operations and cash flows.

If we are unable to protect the confidentiality of our trade secrets fully, or if competitors are able to replicate our technology or services, we may suffer a loss in our competitive advantage or market share.

Though we do not have patents or patent applications relating to many of our key processes and technology, if we cannot maintain our trade secrets' confidentiality, or if our competitors replicate our technology or services, our competitive advantage would be diminished. Further, our competitors may develop or employ comparable technologies or processes.

In addition, third parties from time to time may initiate litigation against us by asserting that the conduct of our business infringes, misappropriates, or otherwise violates intellectual property rights. If we are sued for infringement and lose, we could be required to pay substantial damages and/or be enjoined from using or selling the infringing products or technology. Any legal proceeding concerning intellectual property could be protracted and costly regardless of the merits of any claim, is inherently unpredictable, and could have a material adverse effect on our financial condition, irrespective of its outcome.

Additionally, we currently license certain third-party intellectual property in connection with our business, and the loss of any such license could adversely impact our financial condition and results of operations.

We may be unable to make attractive acquisitions, integrate acquired businesses successfully or successfully complete divestitures and any inability to do so may disrupt our business and hinder our growth.

From time to time, we may consider opportunities to acquire or make investments in other businesses and business lines that could enhance our technical capabilities, complement our current services, or expand the breadth of our markets. Any completed acquisition's success will depend on our ability to integrate the acquired business into our existing operations effectively. Furthermore, in November 2020, we completed the sale of our Allied Power Holdings LLC ("Allied") subsidiary engaged in maintenance, modification and repair services to the nuclear and fossil power generation industry to an affiliate of Bernhard Capital Partners Management, LP ("BCP"), the Company's majority shareholder, in an all-cash deal for $40 million (the "Allied Transaction"). Immediately following the Allied Transaction, we used the net proceeds from the sale to pay down debt, which may not improve our results of operations or cash flows. The process of integrating acquired businesses or dispositions may involve unforeseen difficulties or liabilities and may require a disproportionate amount of our managerial and financial resources. Also, possible future acquisitions may be larger and for purchase prices significantly higher than those paid for earlier acquisitions. No assurance can be given that we will be able to identify suitable acquisition opportunities, negotiate acceptable terms, obtain financing for acquisitions on acceptable terms, or successfully acquire identified targets. Our failure to achieve consolidation savings, integrate the acquired businesses and assets into our existing operations successfully or minimize any unforeseen operational difficulties or liabilities could have a material adverse effect on our business, financial condition and results of operations.

We are vulnerable to significant fluctuations in our liquidity or capital requirements that may vary substantially over time.

Our operations could require us to utilize large sums of working capital, sometimes on short notice and sometimes without assurance of recovery of the expenditures. Environmental liabilities could result in significant cash outflows, including those arising from various customer contracts and acquisition agreements, that require us to indemnify for certain environmental liabilities, litigation risks, unexpected costs or losses resulting from acquisitions, contract initiation or completion delays, political conditions, client payment problems and professional liability claims.

Restrictive covenants in our debt agreements may restrict our ability to pursue our business strategies. If we fail to comply with the restrictions and covenants in our debt agreements, there could be an event of default under the terms of such agreements, which could result in an acceleration of the amounts owed under such agreements.

Our debt agreements limit our ability to, among other things:

- incur indebtedness or contingent obligations;
- pay dividends or make distributions to our stockholders;
- repurchase or redeem our capital stock or subordinated indebtedness;
- make investments;
- create liens;
- incur restrictions on the ability of our subsidiaries to pay dividends or to make payments to us;
- enter into transactions with our stockholders and affiliates;
- sell and pledge assets; and
- acquire the assets of, or merge or consolidate with, other companies or transfer all or substantially all of our assets.

These covenants may also impair our ability to engage in favorable business activities, acquire other businesses or business lines and finance future operations or capital needs in furtherance of our business strategies. Moreover, the form or level of our indebtedness may prevent us from raising additional capital on attractive terms or obtaining additional financing if needed. A breach of any of these covenants would result in a default under the applicable agreement after any applicable grace periods. A default could result in acceleration of the indebtedness owed under such agreement, which would have a material adverse effect on our business, financial condition and results of operations. If an acceleration occurs, it would likely accelerate all of our indebtedness under all of the instruments that govern our outstanding indebtedness through cross-default provisions, and we would likely be unable to make all of the required payments to refinance such indebtedness. Even if new financing were available at that time, it might not be on terms that are acceptable to us.

Our borrowing levels and debt service obligations could adversely affect our financial condition and impair our ability to fulfill our obligations under our Revolving Loan and Term Loan (each, as hereinafter defined).

At December 31, 2020, we had total outstanding indebtedness of approximately $159.3 million, $125.2 million of which relates to our Term Loan. At December 31, 2020, we had outstanding borrowings of $12.0 million and letters of credit issued for our account of $11.1 million under our Revolving Loan. We dedicate a portion of our cash flow to debt service. If we do not ultimately have sufficient earnings to service our debt, we would need to refinance all or part of our existing debt, sell assets, borrow more money or issue securities, which we may not be able to do on commercially reasonable terms or at all.

The terms of our Term Loan and Revolving Loan include customary events of default and require us to maintain certain financial ratios and restrict our ability to incur additional indebtedness. A breach of our Term Loan and Revolving Loan, including any inability to comply with the required financial ratios, could result in a default. In the event of any default, the lenders thereunder would be entitled to accelerate the repayment of amounts outstanding, plus accrued and unpaid interest. Moreover, these lenders would have the option to terminate any obligation to make further extensions of credit under our Revolving Loan. In the event of a default under our Term Loan and Revolving Loan, the lenders thereunder could also proceed to foreclose against the assets securing such obligations. In the event of a foreclosure on all or substantially all of our assets, we may not be able to continue to operate as a going concern. Outstanding letters of credit issued under our revolving credit facility would need to be replaced with other forms of collateral. Cross defaults may also occur on other agreements, including surety and lease agreements.

Our indebtedness could have significant consequences, including the following:

- requiring us to dedicate a substantial portion of our cash flows from operations to the repayment of debt, which reduces the cash available for other business purposes;
- limiting our ability to obtain additional financing and creating additional liens on our assets;
- limiting our flexibility in planning for, and reacting to, changes in our business;
- placing us at a competitive disadvantage if we are more leveraged than our competitors;
- limiting our ability to deduct our interest expense;
- making us more vulnerable to adverse economic and industry conditions; and
- restricting us from making additional investments or acquisitions by limiting our aggregate debt obligations.

To the extent that we incur new debt in addition to our current debt levels, the leverage risks described above would increase.

The London Interbank Offered Rate ("LIBOR") calculation method may change, and LIBOR is expected to be phased out after 2021.

On July 27, 2017, the U.K. Financial Conduct Authority (the "FCA") announced that after 2021, it would no longer require banks to submit rates for the calculation of LIBOR. In the meantime, actions by the FCA, other regulators, or law enforcement agencies may change the method by which LIBOR is calculated. Certain of the instruments governing our indebtedness calculate interest with reference to LIBOR. The discontinuation, reform or replacement of LIBOR or any other benchmark rates may have an unpredictable impact on contractual mechanics in the credit markets or disrupt the broader financial markets. Uncertainty as to the nature of such potential discontinuation, reform or replacement may negatively impact our variable rate debt cost.

These reforms may also result in new methods of calculating LIBOR or alternative reference rates to be established. For example, in the U.S., a group convened by the Federal Reserve Board and the Federal Reserve Bank of New York called the Alternative Reference Rate Committee ("ARRC") and composed of a diverse set of private sector entities, has identified the Secured Overnight Financing Rate (or "SOFR") as its preferred alternative rate for the U.S. LIBOR. The Federal Reserve Bank of New York has begun publishing SOFR daily, and central banks in several other jurisdictions have also announced plans for alternative reference rates for other currencies. The potential consequences of these changes cannot be fully predicted and could have an adverse impact on the market value for LIBOR-linked debt agreements held by us and could adversely affect our financial condition and results of operations. Changes in market interest rates may influence our financing costs and could reduce our earnings and cash flows.

We are subject to cyber security risks and interruptions or failures in our information technology systems. A cyber incident could occur and result in information theft, data corruption, operational disruption, and/or financial loss.

We depend on digital technologies to process and record financial and operating data, and we rely on sophisticated information technology systems and infrastructure to support our business, including process control technology. At the same time, cyber incidents, including deliberate attacks, have increased. The U.S. government has issued public warnings that indicate that energy assets might be specific targets of cyber-security threats. Our technologies, systems, and networks and those of our vendors, suppliers and other business partners may become the target of cyber-attacks or information security breaches that could result in the unauthorized release, gathering, monitoring, misuse, loss, or destruction of proprietary and other information, or other disruption of business operations. In addition, certain cyber incidents, such as surveillance, may remain undetected for an extended period. Despite our considerable expenditures and efforts to secure our systems, our systems for protecting against cyber security risks may not be sufficient. As the sophistication of cyber incidents continues to evolve, we will likely be required to expend additional resources to continue modifying or enhancing our protective measures or to investigating and remediating any vulnerability to cyber incidents. Additionally, any of these systems may be susceptible to outages due to fire, floods, power loss, telecommunications failures, usage errors by employees, computer viruses, cyber-attacks, or other security breaches or similar events. The failure of any of our information technology systems may cause disruptions in our operations, which could adversely affect our revenue and profitability.

In the normal course of business, we may be subject to judicial, administrative, or other third-party proceedings that could materially and adversely affect our reputation, business, financial condition, results of operations, and liquidity.

We have in the past been, and may in the future be, named as a defendant in lawsuits, claims, and other legal proceedings during the ordinary course of our business. In the future, individuals, citizen groups, trade associations, community groups, or environmental activists may bring actions against us in connection with our operations that could interrupt or limit the scope of our business. Many of these proceedings could raise difficult and complicated factual and legal issues and are subject to uncertainties and complexities. These proceedings may seek, among other things, compensation for alleged personal injury, workers' compensation, employment discrimination, breach of contract, property damage, punitive damages, civil penalties, or other losses, consequential damages, or injunctive or declaratory relief. Also, under our service agreements, we generally indemnify our customers for claims related to our conduct and the services we provide thereunder.

With respect to all such proceedings, we have and will, when warranted in the future, accrue expenses in accordance with accounting principles generally accepted in the United States ("GAAP"). If such actions or indemnities are ultimately resolved unfavorably at amounts exceeding our accrued expenses or at material amounts, the outcome could materially and adversely affect our reputation, business, financial condition, and results of operations. In addition, payments of significant amounts, even if reserved, could adversely affect our liquidity position.

We recognize revenue from construction contracts using the cost-to-cost input method; therefore, variations of actual results from our assumptions may reduce our profitability.

We recognize revenue from construction contracts using the cost-to-cost input method permitted under GAAP, under which we measure the percentage of revenue to be recognized in a given period by the percentage of costs incurred to date on the contract to the total estimated costs for the contract. The cost-to-cost input method, therefore, relies on estimates of total expected contract costs. Contract revenue and total cost estimates are reviewed and revised on an ongoing basis as the work progresses. Adjustments arising from changes in the estimates of contracts revenue or costs are reflected in the fiscal period in which such estimates are revised. Estimates are based on management's reasonable assumptions, judgment and experience, but are subject to the risks inherent in estimates, including unanticipated delays or technical complications. Variances in actual results from related estimates on a large project, or on several smaller projects, could be material to our results of operations. The full amount of an estimated loss on a contract is recognized in the period such a loss is identified. Such adjustments and accrued losses could reduce profitability, which could negatively impact our financial condition and results of operations.

Our balance sheet includes a significant amount of goodwill and intangible assets which have been subject to impairment. A decline in our reporting unit's estimated fair value or trade name intangible asset could result in additional asset impairment charges, which would be recorded as a non-cash expense in our consolidated statement of operations.

Goodwill, trade names, customer relationships and other identifiable intangible assets must be tested for impairment no less than annually. The fair value of the goodwill assigned to our reporting unit could decline if projected revenue or cash flows were to be lower in the future due to the timing of new awards or other causes. If the carrying value of intangible assets or goodwill exceeded its fair value, the asset would be written down to its fair value, with the impairment loss recognized as a non-cash charge in the consolidated statement of operations.

As of December 31, 2020, we had approximately $62.2 million of goodwill and $61.4 million of trade names, customer relationships and other identifiable intangibles on our balance sheet, which together represent 44% of our total assets. During the year ended December 31, 2020, we recorded a $21.0 million impairment associated with the Charah Solutions trade name and a $1.5 million impairment associated with a technology intangible asset. Changes in our operations' future outlook could result in additional impairment charges, which could have a material adverse effect on our results of operations and financial condition.

Risks Related to Our Common Stock

Our stock's market price may be influenced by many factors, some of which are beyond our control.

These factors include the various risks described in this section as well as the following:

- the failure of securities analysts to continue to cover our common stock or changes in financial estimates or recommendations by analysts;
- announcements by us or our competitors of significant contracts, acquisitions, or capital commitments;
- changes in market valuation or earnings of our competitors;

- variations in quarterly operating results;
- internal control failures;
- changes in management;
- availability of capital;
- general economic conditions;
- terrorist acts;
- natural disasters and pandemics;
- legislation;
- future sales of our common stock; and
- investor perception of us and the power generation industry.

Additional factors that do not specifically relate to our company or the electric utility industry may also materially reduce our common stock market price, regardless of our operating performance.

The concentration of our capital stock will limit other stockholders' ability to influence corporate matters.

Bernhard Capital Partners Management, LP and its affiliates ("BCP") own approximately 54% of the total voting power of our outstanding shares of common stock and all of the outstanding Series A Preferred Stock ("Preferred Stock"), which is convertible at BCP's option at any time following the three-month anniversary of the issuance date into shares of common stock. As a result, BCP can exert substantial influence or actual control over our management and affairs and most matters requiring our stockholders' actions. The interests of BCP may not coincide with the interests of the other holders of our common stock. This concentration of ownership may also affect delaying or preventing a change in control otherwise favored by our other stockholders, which could depress our common stock's market price.

BCP and its respective affiliates are not limited in their ability to compete with us, and the corporate opportunity provisions in our amended and restated certificate of incorporation could enable BCP to benefit from corporate opportunities that might otherwise be available to us.

Our governing documents provide that BCP and its respective affiliates (including portfolio investments of BCP and its affiliates) are not restricted from owning assets or engaging in businesses that compete directly or indirectly with us. In particular, subject to the limitations of applicable law, our amended and restated certificate of incorporation, among other things:

- permits BCP and its respective affiliates to conduct business that competes with us and to make investments in any kind of property in which we may make investments; and
- provides that if BCP or its respective affiliates, or any employee, partner, member, manager, officer or director of BCP or its respective affiliates, which is also one of our directors or officers, becomes aware of a potential business opportunity, transaction, or other matter, they will have no duty to communicate or offer that opportunity to us.

BCP or its respective affiliates may become aware, from time to time, of certain business opportunities (such as acquisition opportunities) and may direct such opportunities to other businesses in which they have invested, in which case we may not become aware of or otherwise have the ability to pursue such opportunity. Furthermore, such businesses may choose to compete with us for these opportunities, possibly causing these opportunities to not be available to us or causing them to be more expensive for us to pursue. In addition, BCP and its respective affiliates may dispose of properties or other assets in the future without any obligation to offer us the opportunity to purchase any of those assets. As a result, our business or prospects may be negatively affected if such parties procure attractive business opportunities for their benefit rather than for ours.

We have engaged in transactions with our affiliates and we may do so in the future. The terms of such transactions and the resolution of any conflicts that may arise may not always be in our or our stockholders' best interests.

We have engaged in transactions with affiliated companies in the past and may do so in the future. The terms of such transactions and the resolution of any conflicts that may arise may not always be as favorable as may be obtained with a third party.

Our amended and restated certificate of incorporation and amended and restated bylaws, as well as Delaware law, contain provisions that could discourage acquisition bids or merger proposals, which may adversely affect the market price of our common stock.

Our amended and restated certificate of incorporation authorizes our board of directors to issue preferred stock without stockholder approval. If our board of directors elects to issue preferred stock, it could be more difficult for a third party to acquire us. Also, some provisions of our amended and restated certificate of incorporation and amended and restated bylaws could make it more difficult for a third party to acquire control of us, even if the change of control would be beneficial to our stockholders, including:

- after BCP and its affiliates no longer collectively hold more than 35% of the voting power of our common stock, providing that all vacancies, including newly created directorships, may, except as otherwise required by law or, if applicable, the rights of holders of a series of preferred stock, only be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum (before such time, vacancies may also be filled by stockholders holding a majority of the outstanding shares entitled to vote);
- after BCP and its affiliates no longer collectively hold more than 35% of the voting power of our common stock, permitting any action by stockholders to be taken only at an annual meeting or special meeting rather than by written consent of the stockholders, subject to the rights of any series of preferred stock concerning such rights;
- after BCP and its affiliates no longer collectively hold more than 35% of the voting power of our common stock, permitting our amended and restated certificate of incorporation and amended and restated bylaws to be amended by the affirmative vote of the holders of at least two-thirds of our then outstanding shares of stock entitled to vote thereon;
- after BCP and its affiliates no longer collectively hold more than 35% of the voting power of our common stock, permitting special meetings of our stockholders to be called only by our board of directors pursuant to a resolution adopted by the affirmative vote of a majority of the total number of authorized directors whether or not there exist any vacancies in previously authorized directorships (before such time, a special meeting may also be called at the request of stockholders holding a majority of the outstanding shares entitled to vote);
- after BCP and its affiliates no longer collectively hold more than 35% of the voting power of our common stock, requiring the affirmative vote of the holders of at least 75% in voting power of all then outstanding common stock entitled to vote generally in the election of directors, voting together as a single class, to remove any or all of the directors from office at any time, and directors will be removable only for "cause";
- dividing our board of directors into three classes of directors, with each class serving staggered three-year terms;
- prohibiting cumulative voting in the election of directors;
- establishing advance notice provisions for stockholder proposals and nominations for elections to the board of directors to be acted upon at meetings of stockholders; and
- providing that the board of directors is expressly authorized to adopt or alter or repeal our amended and restated bylaws.

Our amended and restated certificate of incorporation designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that our stockholders may initiate, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees, or agents.

Our amended and restated certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will, to the fullest extent permitted by applicable law, be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, employees, agents, or stockholders to us or our stockholders, (iii) any action asserting a claim against us or any director, officer, employee, or agent of ours arising under any provision of the Delaware General Corporation Law (the "DGCL"), our amended and restated certificate of incorporation or our amended and restated bylaws, or (iv) any action asserting a claim that is governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of, and consented to, the provisions of our amended and restated certificate of incorporation described in the preceding sentence. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, employees, or agents, which may discourage such lawsuits against us and such persons. Alternatively, if a court were to find these provisions of our amended and restated certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition, or results of operations.

We do not intend to pay cash dividends on shares of our common stock, and our debt agreements place certain restrictions on our ability to do so. Consequently, your only opportunity to achieve a return on your investment is if our common stock price appreciates.

We do not plan to declare cash dividends on shares of our common stock in the foreseeable future. Additionally, our debt agreements place certain restrictions on our ability to pay cash dividends. Consequently, your only opportunity to achieve a return on your investment in us will be if you sell your common stock at a price higher than you paid for it. There is no guarantee that our common stock price will prevail in the market will ever exceed the price you paid for it.

Shares eligible for future sale may cause our common stock's market price to drop significantly, even if our business is doing well.

Our common stock market price could decline due to sales of a large number of shares of our common stock in the market or the perception that these sales could occur. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

On March 16, 2020, we issued $26.0 million in Preferred Stock to BCP, the terms of which could adversely affect the voting power or value of our common stock.

We currently have 26,000 shares of Preferred Stock outstanding, which is convertible at BCP's option at any time following the three-month anniversary of the issuance date into shares of common stock with an initial conversion price of $2.77 per share. Dividends will be payable quarterly at a rate of 13% per annum, provided that we pay dividends in-kind through the issuance of additional shares to BCP. Our Preferred Stock gives BCP a superior right to our assets upon liquidation compared to our common stock and could adversely impact the voting power or value of our common stock. For example, our preferred stock provides BCP the right to nominate one member of the Company's board of directors and the right to veto specified transactions. Similarly, the repurchase or redemption rights or liquidation preferences assigned to BCP could affect the common stock's residual value.

Taking advantage of the reduced disclosure requirements applicable to “emerging growth companies” may make our common stock less attractive to investors.

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act (the “JOBS Act”). An emerging growth company may take advantage of certain reduced reporting and other generally applicable public company requirements. Under these reduced disclosure requirements, emerging growth companies are not required to, among other things, comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, provide certain disclosures regarding executive compensation, hold stockholder advisory votes on executive compensation, or obtain stockholder approval of any golden parachute payments not previously approved. In addition, emerging growth companies have extended phase-in periods to adopt new or revised financial accounting standards.

We intend to take advantage of all of the reduced reporting requirements and exemptions, including the extended phase-in periods for adopting new or revised financial accounting standards under Section 107 of the JOBS Act until we are no longer an emerging growth company. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until those standards apply to private companies. If we were to subsequently elect instead to comply with these public company effective dates, such election would be irrevocable under Section 107 of the JOBS Act.

Our election to use the longer phase-in periods permitted by this election may make it difficult to compare our financial statements to those of non-emerging growth companies and other emerging growth companies that have opted out of the extended phase-in periods under Section 107 of the JOBS Act and who will comply with new or revised financial accounting standards. We cannot predict if investors will find our common stock less attractive because we will rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock, and our common stock price may be more volatile.

If securities or industry analysts do not publish research or reports about our business, if they adversely change their recommendations regarding our common stock, or our operating results do not meet their expectations, our stock price could decline.

Our common stock's trading market is influenced by the research and reports that industry or securities analysts publish about us or our business. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline. Moreover, if one or more of the analysts who cover our company adversely changes their recommendation concerning our common stock or if our operating results do not meet their expectations, our stock price could decline.

While we are currently in compliance with all NYSE listing requirements, we have been out of compliance in the past and may be out of compliance in the future. Failure to remain compliant with all NYSE listing standards could lead to our common stock's delisting, which could have a material, adverse effect on our business, operating results and financial condition.

On May 12, 2020, we disclosed that we were not in compliance with an NYSE continued listing standard because our average global market capitalization over a 30-trading day period was below the NYSE requirement of $50 million and, as of March 31, 2020, our stockholder's equity was below the NYSE's requirement of $50 million (the "Market Capitalization Listing Requirement"). Our average global market capitalization over a 30-trading day period is currently above the $50 million requirement, and we are in compliance with all NYSE continued listing standards.

Our non-compliance with the Market Capitalization Listing Requirement could lead to our common stock being delisted from the NYSE. If our common stock were to be suspended or delisted, it would become more difficult to trade our common stock, reducing our common stock's liquidity and price. Further, delisting may adversely affect our relationships with our business partners and suppliers and customers' and potential customers' decisions to purchase our products and services and could have a material, adverse impact on our business, operating results and financial condition.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

While many of our employees are embedded directly at our customers' power generation facilities, we lease our corporate headquarters in Louisville, Kentucky and own and lease other facilities throughout the United States where we conduct business. Our facilities are utilized for operations in our reportable segment and include offices, equipment yards, mines, storage, and manufacturing facilities. As of December 31, 2020, we owned two of our facilities and leased the remainder. We believe that our existing facilities are sufficient for our current needs.

Item 3. Legal Proceedings

We were party to a lawsuit filed against North Carolina by an environmental advocacy group alleging that the issuance by the state of certain permits associated with our Brickhaven clay mine reclamation site exceeded the state's power. In December 2020, the Company, the environmental advocacy group and the state settled, resolved and dismissed all matters. Before the settlement, all customer related work at the Brickhaven site had been completed. The settlement allows for all completed work to remain unchanged. Per the settlement, the Company will not place any additional material at the site, will place a deed restriction requiring engineering oversight for the future development of the site and will continue its groundwater monitoring at the site. The Company will continue its work with the state to modify its permit to conform to the work as completed and complete site closure operations.

Allied Power Services, LLC and its affiliate, Allied Power Resources, LLC, have been named in a collective action lawsuit filed in the U.S. District Court for the Northern District of Illinois, alleging violations of the Fair Labor Standards Act. The lawsuit includes related class claims alleging violations of the Illinois Minimum Wage Law and the Pennsylvania Minimum Wage Act for failure to pay overtime. This case is one of a series filed against companies in the oil, gas and energy industries in Illinois and Texas. The parties mediated this case in November 2018 and reached a settlement. As part of the Allied Transaction, the Company assumed the remaining settlement liability. On July 15, 2020, the court granted final approval of the settlement and the final settlement payments will occur in 2021.

In addition to the above matters, we are from time to time party to various lawsuits, claims and other legal proceedings that arise in the ordinary course of our business. For all such lawsuits, claims and proceedings, we record reserves when it is probable a liability has been incurred, and the amount of loss can be reasonably estimated. Although it is difficult to predict the ultimate outcome of these lawsuits, claims and proceedings, we do not believe that the ultimate disposition of any of these matters, individually or in the aggregate, would have a material adverse effect on our results of operations, financial position or cash flows. We maintain liability insurance for certain risks that is subject to certain self-insurance limits.

Item 4. Mine Safety Disclosures

Not applicable.

Information About Our Executive Officers

The following information is provided for each of the Company's executive officers as of March 24, 2021.

Name	Age	Positions with Charah Solutions
Scott A. Sewell	41	President, Chief Executive Officer and Director
Roger D. Shannon	56	Chief Financial Officer and Treasurer

Scott A. Sewell—President, Chief Executive Officer and Director. Mr. Sewell has served as President and Chief Executive Officer of Charah Solutions and a member of our board of directors since January 2019. Before that, Mr. Sewell held several other leadership positions with Charah Solutions, including Chief Operating Officer from 2013 to January 2019, Senior Vice President of Operations from 2012 to 2013, Vice President of Operations from 2010 to 2012, and Operations Manager from 2008 to 2010. Before joining Charah Solutions, he worked for Bechtel Corporation from 2002 to 2007. He is a Six Sigma Yellow Belt and holds professional affiliations as a member of the Project Management Institute, the Association of Equipment Management Professionals and the International Erosion Control Association. Mr. Sewell holds a bachelor’s degree in international business from the College of Charleston in South Carolina.

Roger D. Shannon—Chief Financial Officer and Treasurer. Mr. Shannon has served as Chief Financial Officer and Treasurer of Charah Solutions since June 2019. Mr. Shannon previously served in various roles including CFO, Senior Vice President of Finance, Treasurer and Head of Corporate Development at ADTRAN, a publicly-traded provider of next-generation networking solutions. Mr. Shannon also served as CFO and Treasurer for Steel Technologies, plus various senior finance roles at the Brown-Forman Corporation, British American Tobacco, and accounting positions at Vulcan Materials Company, Lexmark International and KPMG. Roger is a CPA and CFA and has a bachelor’s of science degree in accounting from Auburn University and an MBA from the University of Georgia.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Our common stock trade shares on the New York Stock Exchange under the symbol "CHRA."

As of March 10, 2021, there were 2,310 stockholders of record of our common stock. We have not paid dividends on our common stock to date and do not intend to pay dividends in the foreseeable future. Our debt agreements place certain restrictions on our ability to pay cash dividends. We intend to retain earnings to finance the development and expansion of our business. Payment of common and/or stock dividends in the future will depend upon our debt covenants, our ability to generate earnings, our need for capital, our investment opportunities and our overall financial condition, among other things.

Unregistered Sales of Equity Securities and Use of Proceeds

The following table provides information about repurchases of our common stock during the three months ended December 31, 2020:

Period	Total Number of Shares Purchased[1]	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet be Purchased Under the Plans or Programs
October 1, 2020 through October 31, 2020	3,978	$ 3.07	—	—
November 1, 2020 through November 30, 2020	26,708	$ 2.98	—	—
December 1, 2020 through December 31, 2020	—	—	—	—
Total	30,686	$ 2.99		

(1) Represents shares of common stock withheld for income tax purposes connected with the vesting of shares of restricted stock issued to employees.

Item 6. Selected Financial Data

The table below shows selected historical consolidated and combined financial information for the periods and as of the dates indicated. On January 13, 2017, Charah Management LLC, a Delaware limited liability company ("Charah Management"), completed a transaction with BCP, a previously unrelated third party, under which BCP acquired a 76% equity position of Charah Management. Our historical financial and operating information as of and for the periods after January 13, 2017 may not be comparable to the historical financial and operating information as of and for the periods ended on or before January 12, 2017. The successor columns below represent the consolidated financial information of Charah Solutions for the years ended December 31, 2020, 2019, and 2018 and for the period from January 13, 2017 through December 31, 2017, as reflected in our audited financial statements included elsewhere herein. The predecessor columns below represent the financial information of Charah Solutions for the period from January 1, 2017 through January 12, 2017 and for the year ended December 31, 2016 as reflected in our audited financial statements not included elsewhere herein. This selected financial data should be read in conjunction with "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated and combined financial statements and the related notes included elsewhere herein.

	Successor				Predecessor	
	Years Ended December 31,					
	2020 [a] [b]	2019 [a] [b]	2018 [a] [b]	Period from January 13, 2017 through December 31, 2017 [a] [b]	Period from January 1, 2017 through January 12, 2017 [a] [b]	Year Ended December 31, 2016 [a] [b]
	(in thousands, except per share data)					
Statement of Operations:						
Revenue	$ 232,377	$ 244,661	$ 400,887	$ 285,010	$ 9,130	$ 265,068
Cost of sales	209,570	223,386	319,846	207,572	7,301	203,228
Gross profit	22,807	21,275	81,041	77,438	1,829	61,840
General and administrative expenses	34,064	51,085	35,292	29,626	3,170	35,170
Gain on change in contingent payment liability	(9,702)	—	—	—	—	—
Impairment expense	38,014	—	—	—	—	—
Operating (loss) income	(39,569)	(29,810)	45,749	47,812	(1,341)	26,670
Interest expense, net	(13,774)	(14,624)	(30,282)	(11,019)	(4,181)	(6,244)
Loss on extinguishment of debt	(8,603)	—	—	—		
(Loss) income from equity method investment	(2,516)	2,295	2,407	816	48	2,703
(Loss) income from continuing operations before income taxes	(64,462)	(42,139)	17,874	37,609	(5,474)	23,129
Income tax (benefit) expense	(914)	4,190	4,022	—	—	—
(Loss) income from continuing operations, net of tax	(63,548)	(46,329)	13,852	37,609	(5,474)	23,129
Income (loss) from discontinued operations, net of tax	8,883	7,105	(20,268)	(17,103)	—	—
Net (loss) income	(54,665)	(39,224)	(6,416)	20,506	(5,474)	23,129
Less income attributable to non-controlling interest[c]	1,198	2,834	2,486	2,190	54	2,198
Net (loss) income attributable to Charah Solutions, Inc.	$ (55,863)	$ (42,058)	$ (8,902)	$ 18,316	$ (5,528)	$ 20,931
Amounts attributable to Charah Solutions, Inc.						
(Loss) income from continuing operations, net of tax and non-controlling interest	$ (64,746)	$ (49,163)	$ 11,366	$ 35,419	$ (5,528)	$ 20,931
Deemed and imputed dividends on Series A Preferred Stock	(461)	—	—	—	—	—
Series A Preferred Stock dividends	(4,064)	—	—	—	—	—
Net (loss) income from continuing operations attributable to common stockholders	(69,271)	(49,163)	11,366	35,419	(5,528)	20,931
Net income (loss) from discontinued operations	8,883	7,105	(20,268)	(17,103)	—	—
Net (loss) income attributable to common stockholders	$ (60,388)	$ (42,058)	$ (8,902)	$ 18,316	$ (5,528)	$ 20,931
Net (loss) income from continuing operations per common share						
Basic	$ (2.32)	$ (1.67)	$ 0.43	$ 1.49	N/A	N/A
Diluted	$ (2.32)	$ (1.67)	$ 0.41	$ 1.44	N/A	N/A
Net (loss) income attributable to common stockholders per common share						
Basic	$ (2.02)	$ (1.43)	$ (0.33)	$ 0.77	N/A	N/A
Diluted	$ (2.02)	$ (1.43)	$ (0.32)	$ 0.75	N/A	N/A

	Successor				Predecessor	
	Years Ended December 31,					
	2020 (a) (b)	2019 (a) (b)	2018 (a) (b)	Period from January 13, 2017 through December 31, 2017 (a) (b)	Period from January 1, 2017 through January 12, 2017 (a) (b)	Year Ended December 31, 2016 (a) (b)
Statements of Cash Flows Data:			(in thousands, except per share data)			
Cash flows provided by (used in) operating activities	$ 12,522	$ 68,653	$ (13,633)	$ 57,792	$ (4,418)	$ 8,351
Cash flows provided by (used in) investing activities	42,073	(15,759)	(40,368)	(10,628)	—	(15,885)
Cash flows (used in) provided by financing activities	(31,512)	(53,666)	28,637	(19,304)	4,463	7,298
Balance Sheet Data (as of the end of the periods indicated):						
Total assets	$280,960	$355,756	$ 458,901			
Long-term debt	136,972	169,698	230,821			
Total liabilities	233,221	302,483	365,511			
Total mezzanine equity	27,423	—	—			
Total equity	20,316	53,273	93,390			

(a) Revenue and cost of sales amounts were retrospectively adjusted to reflect the Company's realignment of two reportable segments into one reportable segment.

(b) Due to the Allied Transaction, Allied is accounted for as discontinued operations from the date of formation in June 2017 through November 19, 2020.

(c) Relates to one of our joint ventures.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis should be read in conjunction with the historical financial statements and the related notes included in Part II Item 8. Financial Statements and Supplementary Data. The following Management's Discussion and Analysis of Financial Condition and Results of Operations included in this report provides an analysis of our financial condition and results of operations and reasons for material changes therein for the year ended December 31, 2020 as compared to the year ended December 31, 2019 and 2018 ("2019 and 2018"). This discussion contains "forward-looking statements" reflecting our current expectations, estimates, and assumptions concerning events and financial trends that may affect our future operating results or financial position. Actual results and the timing of events may differ materially from those contained in these forward-looking statements due to several factors. Factors that could cause or contribute to such differences include, but are not limited to, capital expenditures, economic and competitive conditions, regulatory changes, and other uncertainties, as well as those factors discussed below and elsewhere herein. Please read Cautionary Note Regarding Forward-Looking Statements. Please read the risk factors and other cautionary statements described under "Item 1A. Risk Factors" included elsewhere herein. Except as required by applicable law, we assume no obligation to update any of these forward-looking statements.

Charah Solutions, Inc.

Charah Solutions, Inc. (together with its subsidiaries, "Charah Solutions," the "Company," "we," "us" or "our") was incorporated in Delaware in 2018 in connection with our initial public offering in June 2018 and, together with its predecessors, has been in business since 1987. Since our founding, we have continuously worked to anticipate our customers' evolving environmental needs, increasing the number of services we provide through our embedded presence at their power generation facilities. Our multi-service platform allows customers to gain efficiencies from sourcing multiple required offerings from a single, trusted partner compared to service providers with more limited scope.

Overview

We are a leading national service provider of mission-critical environmental services and byproduct sales to the power generation industry. We offer a suite of remediation and compliance services, byproduct sales and marketing, fossil services and environmental risk transfer ("ERT") services. We also design and implement solutions for complex environmental projects (such as coal ash pond closures) and facilitate coal ash recycling through byproduct sales and other beneficial use services. We believe we are a partner-of-choice for the power generation industry due to our quality, safety, domain experience, and compliance record, all of which are key criteria for our customers. In 2020, we performed work at more than 40 coal-fired generation sites nationwide.

On November 19, 2020, the Company sold its Allied Power Holdings LLC (“Allied”) subsidiary engaged in maintenance, modification and repair services to the nuclear and fossil power generation industry to an affiliate of Bernhard Capital Partners Management, LP (“BCP”), the Company’s majority shareholder, in an all-cash deal for $40 million (the “Allied Transaction”) subject to customary adjustments for working capital and other adjustments as set forth in the Purchase Agreement. As described in further detail in Part II, Item 8. Financial Statements and Supplementary Data, the company has presented Allied as held for sale and discontinued operations in the accompanying consolidated and combined financial statements and related notes.

During the fourth quarter of 2020, we realigned our segment reporting into a single operating segment to reflect the suite of end-to-end services we offer our utility partners and how our chief operating decision maker reviews consolidated financial information to evaluate results of operations, assess performance and allocate resources for these services. We provide the following services through our one segment: remediation and compliance services, byproduct sales, fossil services and ERT services. Remediation and compliance services are associated with our customers’ need for multi-year environmental improvement and sustainability initiatives, whether driven by regulatory requirements, power generation customer initiatives or consumer expectations and standards. Byproduct sales support both our power generation customers’ desire to recycle their recurring and legacy volumes of coal combustion residuals (“CCRs”), commonly known as coal ash, and our ultimate end customers’ need for high-quality, cost-effective raw material substitutes. Fossil services consist of fossil plant maintenance and daily onsite management of coal ash for coal-fired power generation facilities. ERT services represent an innovative solution designed to meet the evolving and increasingly complex needs of utility customers. These customers need to retire and decommission older or underutilized assets while maximizing their value and improving the environment. Our ERT services manage the sites' remediation requirements benefiting the communities and lowering the utility customers' cost.

On February 10, 2021, the Company purchased the Texas Municipal Power Agency’s (“TMPA”) Gibbons Creek Steam Electric Station and Reservoir’s related assets in Grimes County, Texas (“the Gibbons Creek Transaction”). The Company acquired the 6,166-acre area, including the closed power station, a 3,500-acre reservoir, dam and spillway and other property. As part of our ERT services, the Company will be responsible for the shutdown and decommissioning of the coal power plant, and as part of the acquisition, the Company will be assuming an asset retirement obligation for the site landfill and ash pond environmental remediation work.

COVID-19 Update

The pandemic caused by a novel coronavirus (“COVID-19”) has impacted many aspects of our operations, directly and indirectly, including our employees, the services we provide at our customers’ power generation facilities, our suppliers and the overall market for our products and services. We, along with our utility partners, have implemented the precautionary health and safety measures recommended by the Centers for Disease Control and Prevention (the “CDC”) in response to the COVID-19 pandemic, including, but not limited to: an employee health status questionnaire, taking daily temperatures, enhanced sanitation practices and cleaning surfaces throughout each shift, and increasing the number of hand sanitizing stations. We have also increased social distancing measures, such as staggering shift start and stop times and break times with additional break spaces to support social distancing as well as holding safety meetings outside of the site trailer. Furthermore, we have implemented work-from-home measures for the majority of office employees. Understanding that the COVID-19 challenge is evolving, based on new information and feedback, we continue to monitor the situation and update our proactive measures in coordination with our customers.

We continue to work closely with our utility partners and concrete producer customers to meet their needs and monitor any potential slowdowns of byproduct sales if there is decreased demand for construction materials. We have had no significant contracts canceled at this time. However, projections for power generation demand have been lowered, and there is the potential for decreased demand for our byproduct sales in the construction market as capital budgets are reduced and construction activity slows.

In light of the uncertain and rapidly evolving situation relating to the COVID-19 pandemic, in April 2020, we implemented a series of preemptive cost-cutting and cost savings initiatives across the Company, including reducing employee compensation, cash-based retainers to our Board of Directors, hiring and discretionary spending including travel restrictions. Also, we implemented applicable benefits of the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”). In October 2020, we returned employee compensation and cash-based retainers to our Board of Directors to their pre-COVID-19 pandemic annual base levels.

We may elect or need to take additional measures as the information available to us continues to develop, including measures concerning our employees, relationships with our third-party vendors, and our customers. Subject to our assumptions regarding the duration and severity of the COVID-19 pandemic, our currently anticipated responses to it and our current projections, we believe our cash on hand and cash generated from operations will be sufficient to cover our working capital requirements and debt obligations for the next 12 months from the issuance of this Annual Report.

The COVID-19 pandemic presents potential new risks to the Company's business. A sustained downturn may result in the carrying value of our long-lived assets exceeding their fair value, which may require us to recognize an impairment to those assets. Furthermore, delays in customer payments for our services may impact the collectability of our trade accounts receivable. The COVID-19 pandemic has caused logistical and other challenges to date and may continue to affect demand for our byproduct sales, which are driven by construction activity, and on remediation and compliance services projects, due to delays in new contract awards.

The full extent to which the COVID-19 pandemic will impact our results is unknown and evolving and will depend on future developments, which are highly uncertain and cannot be predicted. These include the severity, duration and spread of COVID-19, the success of actions taken by governments and health organizations to combat the disease and treat its effects, including additional remedial legislation, and the extent to which, and when, general economic and operating conditions recover. Accordingly, we cannot reasonably estimate any resulting financial impact at this time but such amounts may be material.

Purchase Option Liability Reversal

During the year ended December 31, 2020, the purchase option associated with the Company's structural fill assets expired. As a result of the expiration, the Company reduced its purchase option liability by $7.1 million and reduced amortization expense within general and administrative expenses in the Consolidated and Combined Statement of Operations.

Asset Impairment

During the year ended December 31, 2020, the Company evaluated whether events or circumstances changed that would indicate it is more likely than not that any of its indefinite-lived intangible assets, goodwill or property and equipment, were impaired or if there were any other than temporary impairments of our equity investment. Factors considered in this evaluation included, among other things, the annual impairment testing performed as of October 1, 2020, changes in royalty rates, adverse changes in how certain assets were going to be used in the future and whether any factors would impact our ability to recover the carrying amount of our equity investments. Based on the Company's evaluation, the Company concluded that triggering events occurred related to our trade name, structural fill asset, grinding technology equipment and construction in progress assets, technology intangible asset and an equity method investment. As a result of the triggering events, the Company recognized an impairment during the year ended 2020 of $21.0 million for the Charah Solutions trade name, $10.6 million for certain grinding technology equipment and construction in progress assets and intangible asset and $6.4 million for the structural fill asset. Also, the Company recorded a $3.8 million impairment and recorded a loss from equity method investment in the Consolidated and Combined Statement of Operations.

Contingent Payment Liability Change

As part of the Company's evaluation of the recoverability of technology-related assets, the Company also assessed the likelihood of paying the contingent liability based on achieving certain performance sales levels using the grinding technology mentioned above. We concluded that certain sales levels would not be achieved, and we reduced the contingent payment liability by $9.7 million.

Initial Public Offering

On June 18, 2018, we completed the IPO of 7,352,941 shares of the Company's common stock, par value $0.01 per share. The net proceeds of the IPO to us before offering expenses were approximately $59.2 million. We used a portion of the IPO proceeds to pay off approximately $40.0 million of the borrowings outstanding under the Term Loan, and any remaining net proceeds were used to pay offering expenses or for general corporate purposes.

How We Evaluate Our Operations

We use a variety of financial and operational metrics to assess the performance of our operations, including:

- Revenue;
- Gross Profit;
- Operating Income;
- Adjusted EBITDA; and
- Adjusted EBITDA Margin.

Revenue

We analyze our revenue by comparing actual revenue to our internal projections for a given period and to prior periods to assess our performance. We believe that revenue is a meaningful indicator of the demand and pricing for our services.

Gross Profit

We analyze our gross profit, which we define as revenue less cost of sales, to measure our financial performance. We believe gross profit is a meaningful metric because it provides insight into our revenue streams' financial performance without consideration of Company overhead. When analyzing gross profit, we compare actual gross profit to our internal projections for a given period and prior periods to assess our performance.

Operating Income

We analyze our operating income, which we define as revenue less cost of sales, general and administrative expenses, gain on change in contingent payment liability and impairment expense to measure our financial performance. We believe operating income is a meaningful metric because it provides insight into profitability and operating performance based on our assets' cost basis. We also compare operating income to our internal projections for a given period and to prior periods.

Adjusted EBITDA and Adjusted EBITDA Margin

We view Adjusted EBITDA and Adjusted EBITDA Margin, which are non-GAAP financial measures, as an important indicator of performance because they allow for an effective evaluation of our operating performance compared to our peers, without regard to our financing methods or capital structure.

We define Adjusted EBITDA as net earnings attributable to Charah Solutions, Inc. before loss on extinguishment of debt, impairment expense, gain on change in contingent payment liability, interest expense, income taxes, depreciation and amortization, equity-based compensation, non-recurring legal costs and expenses, the Brickhaven contract deemed termination revenue reversal and transaction-related expenses and other items. Adjusted EBITDA margin represents the ratio of Adjusted EBITDA to total revenue. See "—Non-GAAP Financial Measures" below for more information and a reconciliation of Adjusted EBITDA to net loss, the most directly comparable financial measure calculated and presented in accordance with GAAP.

Key Factors Affecting Our Business and Financial Statements

Ability to Capture New Contracts and Opportunities

Our ability to grow revenue and earnings is dependent on maintaining and increasing our market share, renewing existing contracts, and obtaining additional contracts from proactive bidding on contracts with new and existing customers. We proactively work with existing customers ahead of contract end dates to attempt to secure contract renewals. We also leverage the embedded long-term nature of our customer relationships to obtain insight and capture new business opportunities across our platform.

Seasonality of Business

Based on historical trends, we expect our operating results to vary seasonally. Variations in normal weather patterns can also cause changes in energy consumption which may influence the demand and timing of associated services for our fossil services offerings. Inclement weather can impact construction-related activities associated with pond and landfill remediation, which affects the timing of revenue generation for our remediation and compliance services. Our byproduct sales are also negatively affected during winter months when the use of cement and cement products is generally lower.

Project-Based Nature of Environmental Remediation Mandates

We believe there is a significant pipeline of coal ash ponds and landfills that will require remediation and/or closure in the future. Due to their scale and complexity, these environmental remediation projects are typically completed over longer periods. As a result, our revenue from these projects can fluctuate over time. Some of our revenue from projects is recognized over time using the cost-to-cost input method of accounting for GAAP purposes, based primarily on contract costs incurred to date compared to total estimated contract costs. This method is the most accurate measure of our contract performance because it depicts the company's performance in transferring control of goods or services promised to customers according to a reasonable measure of progress toward complete satisfaction of the performance obligation. The timing of revenue recorded for financial reporting purposes may differ from actual billings to customers, sometimes resulting in costs and billing in excess of actual revenue. Because of the risks in estimating gross profit margins for long-term jobs, actual results may differ from these estimates.

Byproduct Recycling Market Dynamics

There is a growing demand for recycled coal ash across various applications driven by market forces and governmental regulations creating the need to dispose of coal ash in an environmentally sensitive manner. Pricing of byproduct sales is driven by supply and demand market dynamics as well as the chemical and physical properties of the ash. As demand increases for the end-products that use CCRs' (i.e., concrete for construction and infrastructure projects), the demand for recycled coal ash also typically rises. These fluctuations affect the relative demand for our byproduct sales. In recessionary periods, construction and infrastructure spending and the corresponding need for concrete may decline. However, this unfavorable effect may be partially offset by an increase in the demand for recycled coal ash during recessionary periods, given that coal ash is more cost-effective than other alternatives.

Power Generation Industry Spend on Environmental Liability Management and Regulatory Requirements

The power generation industry has increased annual spending on environmental liability management. We believe this results from regulatory requirements and consumer pressure, and the industry's increasing focus on environmental stewardship. Continued increases in spending on environmental liability management by our customers should result in increased demand for services across our platform.

Many power generation entities are experiencing an increased need to retire and decommission older or less economically viable generating assets while minimizing costs and maximizing the value of the assets and improving the environment. Our ERT services allow these partners to remove the environmental risk and insurance obligations and place control and oversight with a company specializing in these complex remediation and reclamation projects. We believe our broad set of service capabilities, track record of quality service and safety, exacting environmental standards, and a dependable and experienced labor force is a significant competitive advantage. Our work, mission and culture are directly aligned with meeting environmental, sustainability, and governance ("ESG") standards and providing innovative services to solve our utility customers' most complex environmental challenges. We believe that we are an industry leader in quality, safety, and compliance, and we are committed to reducing greenhouse gas emissions and preserving our environment for a cleaner energy future.

Cost Management and Capital Investment Efficiency

Our principal operating costs consist of labor, material and equipment costs and equipment maintenance. We focus on cost management and efficiency, including monitoring labor costs, both in terms of wage rates and headcount, along with other costs such as materials and equipment. We believe we maintain a disciplined approach to capital expenditure decisions, typically associated with specific contract requirements. Furthermore, we strive to extend our equipment's useful life by applying a well-planned routine maintenance program.

How We Generate Revenue

Our remediation and compliance services primarily consist of designing, constructing, managing, remediating and closing ash ponds and landfills on customer-owned sites. Our byproduct sales offerings include recycling recurring and contracted volumes of coal-fired power generation waste byproducts, such as bottom ash, fly ash and gypsum byproduct, each of which can be used for various industrial purposes. More than 90% of our services work is time and materials based, cost reimbursable or unit price contracts, which significantly reduces the risk of loss on contracts and provides gross margin visibility. Revenue from management contracts is recognized when the ash is hauled to the landfill or the management services are provided. Revenue from the sale of ash is recognized when it is delivered to the customer. Revenue from construction contracts is recognized using the cost-to-cost input method.

Our fossil services offerings focus on recurring and daily onsite management for coal-fired power generation facilities to fulfill our customers' environmental service needs in handling their waste byproducts. Over the last five years, our renewal rate for fossil services contracts has been approximately 90%. Coal ash management is mission-critical to the power plants' daily operations as they generally only have on-site storage capacity for three to four days of CCR waste accumulation. These services include silo management, on-site ash transportation, landfill management, and capture and disposal of ash byproducts from coal power operations. This combination of one-stop related services deepens customer connectivity and drives long-term relationships, which we believe are critical for renewing existing contracts, winning incremental business from existing customers at new sites and adding new customers.

Factors Impacting the Comparability of Results of Operations

Public Company Costs

We have incurred, and expect to continue to incur, incremental recurring and certain non-recurring costs related to our transition to a publicly-traded and taxable corporation, including the costs of the IPO and the costs associated with the initial implementation and testing of our Sarbanes-Oxley Section 404 internal controls. We also have incurred, and expect to incur, additional significant and recurring expenses as a publicly-traded company, including costs associated with the employment of additional personnel, compliance under the Exchange Act, annual and quarterly reports to security holders, registrar and transfer agent fees, national stock exchange fees, audit fees, incremental director and officer liability insurance costs, and director and officer compensation

Income Taxes

Charah Solutions is a “C” corporation under the Internal Revenue Code of 1986, as amended, and, as a result, is subject to U.S. federal, state and local income taxes. In connection with the IPO, Charah Solutions and Allied, which previously were flow-through entities for income tax purposes and were indirect subsidiaries of two partnerships, Charah Management and Allied Power Holdings, respectively, became indirect subsidiaries of Charah Solutions. Before the contribution, Charah Solutions and Allied passed through their taxable income to the owners of the partnerships for U.S. federal and other state and local income tax purposes and, thus, were not subject to U.S. federal income taxes or other state or local income taxes, except for franchise tax at the state level (at less than 1% of modified pre-tax earnings). Accordingly, the financial data attributable to Charah Solutions and Allied before the contribution on June 18, 2018 contains no provision for U.S. federal income taxes or income taxes in any state or locality other than franchise taxes.

Overview of Financial Results

Despite a slight improvement in gross profit during the year ended December 31, 2020, as further discussed below, our results were still driven by the timing of our contract awards and the commencement and progress of work awarded under contract. Also, during the year ended December 31, 2020, our byproduct sales offerings were adversely impacted by the COVID-19 pandemic and two hurricanes that disrupted plant operations. Revenue generated from new awards won before 2019, during 2019 and during the year ended December 31, 2020 was not sufficient to offset the impact of projects completed during 2019 and 2020. Revenue contributions from these new awards will continue to be recognized in 2021 and beyond.

During the year ended December 31, 2020, we sold our Allied subsidiary, issued 26,000 shares of Series A Preferred Stock ("Preferred Stock") for approximately $25.2 million and amended our Credit Facility as discussed below in “—Liquidity and Capital Resources—Our Debt Agreements—Existing Credit Facility.” These transactions strengthened our balance sheet, reduced our leverage and increased our available liquidity. We are also focused on capturing the $75 billion ash environmental remediation and byproduct recycling markets and devoting our resources to these growth opportunities.

In 2020, we won approximately $715 million in contracted new awards compared to $430 million in 2019 and $106 million in 2018. We believe we are well-positioned to capture a significant portion of a large and growing addressable market, although the timing of future awards is difficult to determine. Furthermore, we believe recent regulatory developments in Illinois, Indiana, Kentucky, Missouri, North Carolina, Oklahoma, South Carolina and Virginia will positively impact our business operations as states are becoming more prescriptive in their requirements to remediate ash ponds. Finally, customer interest in our EnviroSource™ (formerly MP618®) ash beneficiation technology continues to be strong, and contracts with utility customers are currently under discussion.

Our primary sources of ongoing liquidity and capital resources are cash on the balance sheet, cash flows generated by operating activities and borrowings under the Credit Facility. In part due to longer sales cycles, driven by the increase in the size, scope and complexity of remediation and compliance projects that we are bidding on, we have experienced contract initiation delays and project completion delays that have adversely affected our revenue and overall liquidity. Our lengthy and complex projects require us to expend large sums of working capital, and delays in payment receipts, project commencement or project completion can adversely affect our financial position and the cash flows that typically fund our expenditures. See “—Liquidity and Capital Resources-Our Debt Agreements—Existing Credit Facility” below for more information about the Credit Facility and the amendments to it.

Year Ended December 31, 2020 Compared to Year Ended December 31, 2019

The table below sets forth our selected operating data for the years ended December 31, 2020 and 2019.

	Year Ended December 31, 2020	Year Ended December 31, 2019	Change $	Change %
	(in thousands)			
Revenue	$ 232,377	$ 244,661	(12,284)	(5.0)%
Cost of sales	209,570	223,386	(13,816)	(6.2)%
Gross profit:	22,807	21,275	1,532	7.2 %
General and administrative expenses	34,064	51,085	(17,021)	(33.3)%
Gain on change in contingent payment liability	(9,702)	—	(9,702)	(100.0)%
Impairment expense	38,014	—	38,014	100.0 %
Operating loss	(39,569)	(29,810)	(9,759)	(32.7)%
Interest expense, net	(13,774)	(14,624)	850	5.8 %
Loss on extinguishment of debt	(8,603)	—	(8,603)	(100.0)%
(Loss) income from equity method investment	(2,516)	2,295	(4,811)	(209.6)%
Loss from continuing operations before income taxes	(64,462)	(42,139)	(22,323)	(53.0)%
Income tax (benefit) expense	(914)	4,190	(5,104)	(121.8)%
Loss from continuing operations, net of tax	(63,548)	(46,329)	(17,219)	(37.2)%
Income from discontinued operations, net of tax	8,883	7,105	1,778	25.0 %
Net loss	(54,665)	(39,224)	(15,441)	(39.4)%
Less income attributable to non-controlling interest	1,198	2,834	(1,636)	(57.7)%
Net loss attributable to Charah Solutions, Inc.	$ (55,863)	$ (42,058)	$ (13,805)	32.8 %
Amounts attributable to Charah Solutions, Inc.				
Loss from continuing operations, net of tax and non-controlling interest	$ (64,746)	$ (49,163)	$ (15,583)	(31.7)%
Deemed and imputed dividends on Series A Preferred Stock	(461)	—	(461)	(100.0)%
Series A Preferred Stock dividends	(4,064)	—	(4,064)	(100.0)%
Net loss from continuing operations attributable to common stockholders	(69,271)	(49,163)	(20,108)	(40.9)%
Net income from discontinued operations	8,883	7,105	1,778	(25.0)%
Net loss attributable to common stockholders	$ (60,388)	$ (42,058)	(18,330)	(43.6)%

***Revenue**.* Revenue decreased $12.3 million, or 5.0%, for the year ended December 31, 2020, to $232.4 million as compared to $244.7 million for the year ended December 31, 2019, driven primarily by a decrease in byproduct sales offerings due to lower plant ash production that we believe was due to lower demand as a result of the COVID-19 pandemic and two hurricanes that disrupted plant operations. This decrease was partially offset by an increase in remediation and compliance revenue as new project work started during the second half of 2020 and the $10.0 million revenue reversal associated with the completion of the Brickhaven deemed termination during 2019 was not repeated.

***Gross Profit**.* Gross profit increased $1.5 million, or 7.2%, for the year ended December 31, 2020 to $22.8 million as compared to $21.3 million for the year ended December 31, 2019. As a percentage of revenue, gross profit was 9.8% and 8.7% for the year ended December 31, 2020 and 2019, respectively. The increase in gross profit was due primarily to the absence in the current year of the $10.0 million revenue reversal associated with the completion of the Brickhaven project resulting from the deemed termination that occurred during the year ended December 31, 2019 and an increase in gross profit from a $1.8 million reduction in our asset retirement obligation resulting from changes in the estimated timing and cash flows associated with our future obligations. These increases were partially offset by an inventory reduction associated with slow-moving stockpiles at two of our locations and a decrease in revenue associated with our byproduct sales offerings.

***General and Administrative Expenses**.* General and administrative expenses decreased $17.0 million, or 33.3%, for the year ended December 31, 2020, to $34.1 million as compared to $51.1 million for the year ended December 31, 2019. The decrease was primarily attributable to a $7.1 million reduction in expense from the expiration of our purchase option liability during the current year, staff reductions, cost-cutting measures implemented in April 2020 in response to the COVID-19 pandemic and other cost-saving initiatives. We also had lower transaction costs during the year ended December 31, 2020 related to the Credit Facility as discussed below, partially offset by $2.9 million in lower non-cash general and administrative expenses during the year ended December 31, 2019 associated with the amortization of the purchase option liability due to the deemed termination of the Brickhaven contract.

Gain on Change in Contingent Payment Liability. A gain on the change in contingent payment liability resulted in a $9.7 million benefit for the year ended December 31, 2020. We reduced the liability as we determined that certain performance sales levels using the grinding technology mentioned below would not be achieved.

Impairment Expense. Impairment expense increased $38.0 million for the year ended December 31, 2020 driven by a $21.0 million Charah Solutions trade name impairment, adverse changes in how certain assets were going to be used in the future that resulted in a $10.6 million non-cash impairments for certain grinding technology equipment and construction in progress assets and intangible asset and expiration of the purchase option liability that resulted in a $6.4 million non-cash impairment related to the associated structural fill site asset.

Interest Expense, Net. Interest expense, net decreased $0.9 million, or 5.8%, for the year ended December 31, 2020, to $13.8 million as compared to $14.6 million for the year ended December 31, 2019. The decrease was primarily attributable to a $2.2 million decrease in the non-cash mark-to-market expense associated with the change in the value of our interest rate swap and lower debt balances partially offset by the paid-in-kind interest related to the amendments to the Credit Facility as discussed below in "-Liquidity and Capital Resources-Our Debt Agreements-Existing Credit Facility."

Loss of Extinguishment of Debt. Loss on extinguishment of debt increased $8.6 million during the year ended December 31, 2020 due to the Company’s Amendment No. 3 to Credit Agreement (the “Third Amendment”) of our existing Credit Facility as discussed below in “—Liquidity and Capital Resources—Our Debt Agreements—Existing Credit Facility.” The Company expensed $5.2 million in amendment fees and wrote off $3.4 million in previously capitalized debt issuance costs.

(Loss) Income from Equity Method Investment. (Loss) income from equity method investment decreased $4.8 million, or 209.6%, for the year ended December 31, 2020, to loss from equity investment of $2.5 million compared to income from equity investment of $2.3 million for the year ended December 31, 2019. The decrease period-over-period was primarily attributable to a $3.8 million impairment of our investment in the joint venture as the fair value of our investment was less than its carrying value at December 31, 2020 due to the joint venture ending in the first quarter of 2021 as well as from a reduction in ash volumes generated by the utility and available for sale by us during the year ended December 31, 2020.

Income Tax (Benefit) Expense. Income tax (benefit) expense increased by $5.1 million for the year ended December 31, 2020, to a $0.9 million benefit as compared to a $4.2 million expense during the year ended December 31, 2019. The increase was primarily driven by a decrease in the valuation allowance recorded during the year ended December 31, 2020 compared to the year ended December 31, 2019 as we were not able to conclude it was more likely than not certain deferred tax assets will be realized. Furthermore, during the year ended December 31, 2020 the income tax benefit was attributed to the increase in our loss from continuing operations before tax, the reductions in goodwill related to the Allied Transaction and the impairment of intangible assets.

Income from Discontinued Operations, Net of Tax. Income from discontinued operations, net of tax increased $1.8 million, or 25.0%, for the year ended December 31, 2020 to $8.9 million as compared to $7.1 million for the year ended December 31, 2019. The increase was primarily due to reduced general and administrative expenses during the year ended December 31, 2020.

Net Loss. Net loss increased $15.4 million for the year ended December 31, 2020, to $54.7 million compared to $39.2 million for the year ended December 31, 2019.

Year Ended December 31, 2019 Compared to Year Ended December 31, 2018

The table below sets forth our selected operating data for the years ended December 31, 2019 and 2018.

	Year Ended December 31,		Change	
	2019	2018	$	%
	(in thousands)			
Revenue	$ 244,661	$ 400,887	(156,226)	(39.0)%
Cost of sales	223,386	319,846	(96,460)	(30.2)%
Gross profit:	21,275	81,041	(59,766)	(73.7)%
General and administrative expenses	51,085	35,292	15,793	44.7 %
Operating (loss) income	(29,810)	45,749	(75,559)	(165.2)%
Interest expense, net	(14,624)	(30,282)	15,658	51.7 %
Income from equity method investment	2,295	2,407	(112)	(4.7)%
(Loss) income from continuing operations before income taxes	(42,139)	17,874	(60,013)	(335.8)%
Income tax expense	4,190	4,022	168	4.2 %
(Loss) income from continuing operations, net of tax	(46,329)	13,852	(60,181)	(434.5)%
Income (loss) from discontinued operations, net of tax	7,105	(20,268)	27,373	135.1 %
Net loss	(39,224)	(6,416)	(32,808)	511.3 %
Less income attributable to non-controlling interest	2,834	2,486	348	14.0 %
Net loss attributable to Charah Solutions, Inc.	$ (42,058)	$ (8,902)	(33,156)	372.5 %

Revenue. Revenue decreased $156.2 million, or 39.0%, for the year ended December 31, 2019, to $244.7 million as compared to $400.9 million for the year ended December 31, 2018, driven primarily by a decrease in remediation and compliance project completions, including the completion of the Brickhaven project resulting from the deemed termination, the $10.0 million revenue reversal associated with the Brickhaven contract payment, and a decrease in the value of projects won in 2018, partially offset by an overall net increase in revenue from our byproduct sales and fossil services offerings.

Gross Profit. Gross profit decreased $59.8 million, or 73.7%, for the year ended December 31, 2019 to $21.3 million as compared to $81.0 million for the year ended December 31, 2018, driven primarily by a decrease in revenue. As a percentage of revenue, gross profit was 8.7% and 20.2% for the year ended December 31, 2019 and 2018, respectively. The decrease in gross profit was primarily driven by remediation and compliance project completions, the $10.0 million revenue reversal associated with the deemed termination of the Brickhaven contract and adverse weather-related impacts and site-specific issues at three remediation sites that resulted in higher than expected costs.

General and Administrative Expenses. General and administrative expenses increased $15.8 million, or 44.7%, for the year ended December 31, 2019, to $51.1 million as compared to $35.3 million for the year ended December 31, 2018. The increase was primarily attributable to increased expenses due to the acquisition of SCB Materials International, Inc. and affiliated entities ("SCB") in March 2018, increased transaction-related expenses during the year ended December 31, 2019 associated with an amendment to the Credit Facility and a decrease in amortization expense during the year ended December 31, 2019 related to our purchase option liability.

Interest Expense, Net. Interest expense, net decreased $15.7 million, or 51.7%, for the year ended December 31, 2019, to $14.6 million as compared to $30.3 million for the year ended December 31, 2018. The decrease was primarily attributable to a favorable comparison as $12.5 million of costs were incurred in conjunction with the refinancing of our debt during the year ended December 31, 2018, consisting of a $10.4 million non-cash write-off of debt issuance costs and a $2.1 million prepayment penalty, and a reduction in the debt balances using cash received from the Brickhaven deemed termination payment received during the year ended December 31, 2019. These decreases were partially offset by an increase in the mark-to-market expense associated with the change in the fair value of our interest rate swap.

Income from Equity Method Investment. Income from equity method investment decreased $0.1 million, or 4.7%, for the year ended December 31, 2019, to $2.3 million as compared to $2.4 million for the year ended December 31, 2018. The slight decrease period-over-period was primarily attributable to a reduction in ash volumes generated by the utility and available for sale.

Income tax expense. Income tax expense increased by $0.2 million for the year ended December 31, 2019, to $4.2 million compared to $4.0 million during the year ended December 31, 2018. Based on the available evidence as of December 31, 2019, we could not conclude it was more likely than not certain deferred tax assets will be realized. Therefore, we recorded a valuation allowance against our deferred tax assets. The valuation allowance was partially offset by an income tax benefit associated with the increase in our loss from continuing operations before taxes.

Income (Loss) from Discontinued Operations, Net of Tax. Income from discontinued operations, net of tax increased $27.4 million, or 135.1%, for the year ended December 31, 2019 to income from discontinued operations, net of tax of $7.1 million as compared to loss from discontinued operations, net of tax of $20.3 million for the year ended December 31, 2018. The increase was primarily due to lower general and administrative expenses during the year ended December 31, 2019.

Net Loss. Net loss increased $32.8 million for the year ended December 31, 2019, to a loss of $39.2 million as compared to $6.4 million for the year ended December 31, 2018.

Consolidated Balance Sheet

The following table is a summary of our overall financial position:

	As of December 31,		Change
	2020	2019	$
	(in thousands)		
Total assets	$ 280,960	$ 355,756	$ (74,796)
Total liabilities	233,221	302,483	(69,262)
Mezzanine equity	27,423	—	27,423
Total equity	20,316	53,273	(32,957)

Assets

Total assets decreased $74.8 million driven primarily by a $34.0 million decrease in property and equipment, net as depreciation expense exceeded new additions, land decreased due to the expiration of the purchase option liability that resulted in an impairment of the associated land asset and decreases in technology-related construction in progress and equipment related assets from asset impairments; a $31.0 million decrease in intangible assets, net due to the impairment of the Charah Solutions trade name, the impairment of our technology asset and amortization; a $14.9 million decrease in current assets of discontinued operations held for sale and a $13.8 million decrease in long-term assets of discontinued operations held for sale due to the Allied Transaction; a $8.9 million decrease in inventory due to the reduction in inventory to net realizable value and improved inventory management and a $4.2 million decrease in equity method investments from an impairment and distributions exceeding equity income. Partially offsetting these decreases was a $19.9 million increase in cash as proceeds associated with our Preferred Stock offering were held as available liquidity to fund working capital requirements and other operations. Furthermore, accounts receivable increased $9.3 million, primarily associated with the timing of collections associated with remediation and compliance projects. Finally, restricted cash increased by $3.4 million related to a specific remediation and compliance project that started operations during the second quarter of 2020.

Liabilities

Total liabilities decreased $69.3 million driven by:

- $45.3 million net decrease in amounts owed under the Credit Facility (as defined below) as proceeds from the Allied Transaction were used to pay down our debt balances,
- $27.7 million decrease in current liabilities of discontinued operations held for sale due to the Allied Transaction,
- $9.9 million decrease in our asset retirement obligation associated with our maintenance and monitoring requirement payments and reduction in liability resulting from changes in the estimated timing and cash flows associated with our future obligations,
- $9.5 million decrease in contingent payments for acquisitions from assessing the likelihood that certain performance metrics payments related to the SCB acquisition would be paid,
- $7.1 million decrease in our purchase option liability due to the expiration of the option, and
- $1.9 million decrease in accounts payable.

These decreases were partially offset by:

- $21.1 million increase in accrued and other long-term liabilities from a $7.0 million estimated working capital liability associated with the Allied Transaction, an increase in accruals associated with new remediation and compliance projects, the deferral of certain employer payroll taxes under the CARES Act and fees associated with the Third Amendment of the Credit Facility as discussed further below in "-Liquidity and Capital Resources-Our Debt Agreements-Existing Credit Facility,"

- $6.7 million increase in capital lease obligations due to a sale-leaseback transaction, and
- $5.7 million increase in contract liabilities was due to billings in excess of costs and earnings associated with a specific remediation and compliance project.

Mezzanine Equity

Total mezzanine equity increased $27.4 million related to the initial liquidation preference of $26.0 million, net of offering costs, Original Issue Discount ("OID"), paid-in-kind dividends and accretion associated with our Preferred Stock offering.

Total Equity

Total equity decreased $33.0 million driven primarily by the $54.7 million net loss, $4.5 million in paid-in-kind and deemed dividends associated with our Preferred Stock, $1.6 million related to distributions to our non-controlling interest and $0.2 million in taxes paid from the net settlement of shares vested. These decreases were partially offset by a $25.5 million increase from the Allied Transaction and $2.5 million in share-based compensation.

Liquidity and Capital Resources

Our primary ongoing sources of liquidity and capital resources are cash on the balance sheet, cash flows generated by operating activities and borrowings under the Credit Facility. Due to longer sales cycles, driven by the increase in the size, scope and complexity of remediation and compliance projects that we are bidding on, we have experienced contract initiation delays and project completion delays that have adversely affected our revenue and overall liquidity. Our long and complex projects require us to expend large sums of working capital, and delays in payment receipts, project commencement or project completion can adversely affect our financial position and the cash flows that typically fund our expenditures.

As of December 31, 2020, we had total liquidity of approximately $51.7 million, comprised of $24.8 million of cash on hand and $26.9 million availability under the Revolving Loan.

Cash Flows

The following table is a summary of our cash flows:

	Year Ended December 31,			'20 vs '19 Change	'19 vs '18 Change
	2020	2019	2018	$	$
			(in thousands)		
Cash flows provided by (used in) operating activities	$ 12,522	$ 68,653	$ (13,633)	$ (56,131)	$ 82,286
Cash flows provided by (used in) investing activities	42,073	(15,759)	(40,368)	57,832	24,609
Cash flows (used in) provided by financing activities	(31,512)	(53,666)	28,637	22,154	(82,303)

Year Ended December 31, 2020 Compared to Year Ended December 31, 2019

Operating Activities

Net cash provided by operating activities decreased $56.1 million for the year ended December 31, 2020, to $12.5 million compared to $68.7 million for the year ended December 31, 2019. The change in cash flows provided by operating activities was primarily attributable to the $80.0 million Brickhaven deemed termination payment received during the year ended December 31, 2019, a $1.3 million increase in cash paid for interest during the year ended December 31, 2020 and a $0.6 million decrease from all other operating activities. These decreases were partially offset by a $24.2 million reduction in net loss, excluding the $40.8 million impairment expense, $8.6 million in loss in extinguishment of debt and $9.7 million in gain on change in contingent payment liability. Also, there was a $1.6 million increase in accrued liabilities associated with the deferral of certain employer payroll taxes under the CARES Act.

Investing Activities

Net cash provided by investing activities increased $57.8 million for the year ended December 31, 2020, to $42.1 million compared to net cash used in investing activities of $15.8 million for the year ended December 31, 2019. The change in cash flows provided by investing activities was primarily attributable to a $37.9 million increase in proceeds from the Allied Transaction, a $13.8 million decrease in capital expenditures and a $6.2 million combined increase in proceeds from the sale-leaseback transaction and other disposal activities during the year ended December 31, 2020 compared to the year ended December 31, 2019.

Financing Activities

Net cash used in financing activities decreased $22.2 million for the year ended December 31, 2020, to $31.5 million of as compared to $53.7 million for the year ended December 31, 2019. The change in cash flows used in financing activities was primarily attributable to the $24.3 million net increase in proceeds received from the Preferred Stock offering during the year ended December 31, 2020 and a $1.3 million decrease in distributions to our non-controlling interest during the current period. These increases were partially offset by a $2.9 million increase in net payments made under our Credit Facility during the year ended December 31, 2020 compared to the year ended December 31, 2019 and a $0.5 million increase from other financing activities.

Year Ended December 31, 2019 Compared to Year Ended December 31, 2018

Operating Activities

Net cash provided by operating activities increased $82.3 million for the year ended December 31, 2019 to $68.7 million as compared to net cash used in operating activities of $13.6 million for the year ended December 31, 2018. The change in cash flows provided by operating activities was primarily attributable to the $80.0 million Brickhaven deemed termination payment received during the year ended December 31, 2019, a $10.8 million decrease in cash paid for interest due to the debt refinancing during the year ended December 31, 2018, a $5.0 million decrease in cash paid for income taxes during the year ended December 31, 2019 and a $16.8 million improvements in working capital items from the year-over-year change in inventory. These decreases were partially offset by a $33.2 million increase in net loss.

Investing Activities

Net cash used in investing activities decreased $24.6 million for the year ended December 31, 2019 to $15.8 million compared to $40.4 million for the year ended December 31, 2018. The change in cash flows used in investing activities was primarily attributable to $20.0 million used for business acquisitions during the year ended December 31, 2018, net of cash received, and a $4.6 million decrease in capital expenditures, net of proceeds.

Financing Activities

Net cash used in financing activities increased $82.3 million for the year ended December 31, 2019 to $54 million compared to net cash provided by financing activities of $28.6 million for the year ended December 31, 2018. The change in cash flows used in financing activities was primarily attributable to the $59.2 million in proceeds received during the year ended December 31, 2018 from the issuance of common stock resulting from our IPO. In addition, there was a $30.5 million net increase in debt-related payments during the year ended December 31, 2019. These decreases were partially offset by a $7.5 million reduction in debt and IPO-related costs as $1.4 million was paid during the year ended December 31, 2019 compared to $8.9 million paid during the year ended December 31, 2018.

Working Capital

Our working capital, which we define as total current assets less total current liabilities, totaled $21.5 million at December 31, 2020 compared to a working capital deficit of $16.1 million as of December 31, 2019. This increase in net working capital for the year ended December 31, 2020 was primarily due to:

- increases in cash associated with proceeds from the Preferred Stock offering,
- increases in accounts receivable associated with the timing of collections associated with remediation and compliance projects,
- increases in restricted cash related to a specific remediation and compliance project,
- a decrease in current liabilities of discontinued operations held for sale due to the Allied Transaction,
- a decrease in notes payable, current maturities as proceeds from the Allied Transaction were used to pay down debt,
- a decrease in our asset retirement obligation associated with our maintenance and monitoring requirement payments and reduction in liability due to the change in our intended use of the related asset, and
- a decrease in our purchase option liability due to the expiration of the option.

These changes were partially offset by:

- a decrease in current assets of discontinued operations held for sale due to the Allied Transaction,
- decreases in inventory due to the recording of an obsolescence reserve and improved inventory management,

- an increase in accrued liabilities from the estimated working capital liability associated with the Allied Transaction,
- an increase in accruals associated with new remediation and compliance project and the deferral of certain employer payroll taxes under the CARES Act, and
- increases in contract liabilities due to billings in excess of costs and earnings associated with a specific remediation and compliance project.

Our Debt Agreements

Existing Credit Facility

On September 21, 2018, we entered into a credit agreement (the “Credit Facility”) by and among us, the lenders party thereto from time to time, and Bank of America, N.A., as administrative agent (the “Administrative Agent”). The Credit Facility includes:

- A revolving loan not to exceed $50.0 million (the “Revolving Loan”);
- A term loan of $205.0 million (the “Closing Date Term Loan”); and
- A commitment to loan up to a further $25.0 million, which expires in March 2020 (the “Delayed Draw Commitment” and the term loans funded under such Delayed Draw Commitment, the “Delayed Draw Term Loan,” together with the Closing Date Term Loan, the “Term Loan”).

After the Fourth Amendment, all amounts associated with the Revolving Loan and the Term Loan under the Credit Facility will mature in July 2022, as discussed more fully below. The interest rates per annum applicable to the loans under the Credit Facility are based on a fluctuating rate of interest measured by reference to, at our election, either (i) the Eurodollar rate, currently LIBOR, or (ii) an alternative base rate. Various margins are added to the interest rate based upon our consolidated net leverage ratio (as defined in the Credit Facility). Customary fees are payable regarding the Credit Facility and include (i) commitment fees for the unused portions of the Credit Facility and (ii) fees on outstanding letters of credit. Amounts borrowed under the Credit Facility are secured by substantially all of the assets of the Company.

The Credit Facility contains various customary representations and warranties and restrictive covenants that, among other things and subject to specified exceptions, restrict the ability of us and our restricted subsidiaries to grant liens, incur indebtedness (including guarantees), make investments, engage in mergers and acquisitions, make dispositions of assets, make restricted payments or change the nature of our or our subsidiaries' business. The Credit Facility contains financial covenants related to the consolidated net leverage ratio and the fixed charge coverage ratio (as defined in the Credit Facility) that have been modified as described below.

The Credit Facility also contains certain affirmative covenants, including reporting requirements, such as delivering financial statements, certificates and notices of certain events, maintaining insurance and providing additional guarantees and collateral in certain circumstances.

The Credit Facility includes customary events of default, including non-payment of principal, interest or fees as they come due, violation of covenants, inaccuracy of representations or warranties, cross-default to certain other material indebtedness, bankruptcy and insolvency events, invalidity or impairment of guarantees or security interests, material judgments and change of control.

The Revolving Loan provides a principal amount of up to $50.0 million, reduced by outstanding letters of credit. As of December 31, 2020, $12.0 million was outstanding on the Revolving Loan and $11.1 million in letters of credit were outstanding.

But for Amendment No. 2 to Credit Agreement and Waiver (the “Second Amendment”), as of June 30, 2019, we would not have complied with the requirement to maintain a consolidated net leverage ratio of 3.75 to 1.00 under the Credit Facility. On August 13, 2019, we entered into the Second Amendment, under which, among other things, the required lenders agreed to waive such non-compliance.

Also, according to the terms of the Second Amendment, the Credit Facility was amended to revise the required financial covenant ratios, which have been modified as described below. As consideration for these accommodations, we agreed that amounts borrowed under the Delayed Draw Commitment would not exceed $15.0 million at any one time outstanding (without reducing the overall Delayed Draw Commitment amount). Further, the margin of interest charged on all outstanding loans was increased to 4.00% for loans based on LIBOR and 3.00% for loans based on the alternative base rate. The Second Amendment revised the amount of (i) the commitment fees to 0.35% at all times for the unused portions of the Credit Facility and (ii) fees on outstanding letters of credit to 3.35% at all times. The Second Amendment also added a requirement to make 2 additional scheduled prepayments of outstanding loans under the Credit Facility, including a payment of $50.0 million on or before September 13, 2019 and an additional payment of $40.0 million on or before March 31, 2020. The $50.0 million payment was made before September 13, 2019, using proceeds of the Brickhaven deemed termination payment. The Second Amendment required us to pay the Administrative Agent an amendment fee in an amount equal to 1.00% of the total credit exposure under the Credit Facility immediately before the effectiveness of the Second Amendment and this fee was paid on August 16, 2020.

The Second Amendment also included revisions to the restrictive covenants, including removing certain exceptions to the restrictions on our ability to make acquisitions, make investments and make dividends or other distributions. After giving effect to the Second Amendment, we will not be permitted to make any distributions or dividends to our stockholders without the required lenders' consent.

In March 2020, the Company entered into Amendment No. 3 to Credit Agreement (the “Third Amendment”).

Under the terms of the Third Amendment, the Credit Facility was amended to waive the mandatory $40.0 million prepayment due on or before March 31, 2020, and to revise the required financial covenant ratios such that, after giving effect to the Third Amendment, we were not required to comply with any financial covenants through December 30, 2020. After December 30, 2020, we were required to comply with a maximum consolidated net leverage ratio of 6.50 to 1.00 from December 31, 2020 through June 29, 2021, decreasing to 6.00 to 1.00 from June 30, 2021 through December 30, 2021, and to 3.50 to 1.00 as of December 31, 2021 and thereafter. After giving effect to the Third Amendment, we were also required to comply with a minimum fixed charge coverage ratio of 1.00 to 1.00 as of December 31, 2020, increasing to 1.20 to 1.00 as of March 31, 2021 and thereafter.

The Third Amendment increased the maximum amount available to be borrowed under the Delayed Draw Commitment from $15.0 million to $25.0 million, subject to certain quarterly amortization payments. The Third Amendment also included revisions to the restrictive covenants, including increasing the amount of indebtedness that the Company may incur regarding certain capitalized leases from $50.0 million to $75.0 million.

Under the Third Amendment, the Company has agreed to make monthly amortization payments in respect of term loans beginning in April 2020, and move the maturity date for all loans under the Credit Agreement to July 31, 2022 (the “Maturity Date”). Also, if at any time after August 13, 2019, the outstanding principal amount of the Delayed Draw Term Loans exceeds $10.0 million, we will incur additional interest at a rate equal to 10.0% per annum on all daily average amounts exceeding $10.0 million which was paid on March 31, 2020 and will also be payable at the Maturity Date. Further, the Third Amendment requires mandatory prepayments of revolving loans with any cash held by the Company over $10.0 million, which excludes the amount of proceeds received in respect of the Preferred Stock Offering (as defined below) to the extent such funds are used for liquidity and general corporate purposes. The Company has also agreed to an increase of four percent (4%) to the interest rate applicable to the Closing Date Term Loan compounded monthly and paid in kind by adding such portion to the outstanding principal amount.

As a condition to entering into the Second Amendment, we were required to pay the Administrative Agent an amendment fee (the “Second Amendment Fee”) in an amount equal to 1.50% of the total credit exposure under the Credit Agreement, immediately before the effectiveness of the Second Amendment. Of the Second Amendment Fee, 0.50% was due and paid on October 15, 2019, and 1.00% of such Second Amendment was paid on August 16, 2020. We were also required to pay the Administrative Agent an amendment fee associated with the Third Amendment (the “Third Amendment Fee”) in an amount equal to 0.20% of the total credit exposure under the Credit Agreement, immediately before the effectiveness of the Third Amendment, with such Third Amendment Fee paid on June 30, 2020. Finally, we will also pay an additional fee with respect to the Third Amendment in the amount of $2.0 million, with such fee being due and payable on the Maturity Date.

In November 2020, the Company entered into Amendment No. 4 to Credit Agreement (the “Fourth Amendment”).

Under the terms of the Fourth Amendment, the Credit Facility was amended to revise the required financial covenant ratios such that, after giving effect to the Fourth Amendment, for the periods ending December 31, 2020 through March 30, 2021, we will be required to comply with a maximum consolidated leverage of 5.50 to 1.00, decreasing to 4.80 to 1.00 for the periods ended March 31, 2021 through September 29, 2021, to 4.50 to 1.00 for the periods ending September 30, 2021 through December 30, 2021, and to 3.50 to 1.00 as of December 31, 2021 and thereafter. After giving effect to the Fourth Amendment, we will also be required to comply with a minimum fixed charge coverage ratio of 1.00 to 1.00 as of March 31, 2021, increasing to 1.20 to 1.00 as of June 30, 2021 and thereafter.

Our ability to comply with such financial covenants depends on the Company’s forecasted leverage and adjusted EBITDA for the applicable periods, which could be adversely impacted by the effects of COVID-19 or other unforeseen factors. Our financial forecasts, which we believe are reasonable given current market conditions, indicate that the Company will be in compliance with all financial covenants through the one-year period following the issuance of these financial statements. Those financial forecasts are highly dependent upon the demand for our byproduct sales, timing in new contract awards and completion of existing work. The current pandemic is making it more difficult to forecast future results, and as a result, it may have a significant impact on the Company's results of operations, financial position, liquidity or capital resources. These significant risks may also have an adverse impact and cause us not to comply with our financial covenants. If we are not in compliance with our financial covenants, the Company could be required to seek waivers, forbearance or amendments from the Administrative Agent. There can be no assurance that we could obtain such waivers, forbearance, or amendments as any future agreements with the Administrative Agent are not considered in the Company's control. If we are unable to comply in the future with such financial covenants upon delivery of our financial statements according to the terms of the Credit Facility, an Event of Default (as defined in the Credit Facility) will have occurred. The Administrative Agent can then, following a specified cure period, declare the unpaid principal amount of all outstanding loans, all interest accrued and unpaid thereon, and all other amounts payable to be immediately due and payable by the Company.

In accordance with Accounting Standards Codification ("ASC") 470, *Debt*, the Company calculated the present value of the cash flows for purposes of applying the 10% cash flow test for the Third Amendment and concluded that the original and new debt instruments were substantially different, necessitating that the Third Amendment be accounted for as an extinguishment. As a result of the Company's Third Amendment, the Company capitalized third-party fees of $1.6 million that will be amortized prospectively through interest expense, net in the Consolidated and Combined Statement of Operations using the effective interest method through the Maturity Date. Fees payable to the lenders (as discussed above) of $5.2 million were associated with the extinguishment of the old debt instrument and included in loss on extinguishment of debt in the accompanying Consolidated and Combined Statements of Operations. The Company wrote-off unamortized debt issuance costs of $3.4 million, which is included in loss on extinguishment of debt in the accompanying Consolidated and Combined Statements of Operations. Also, the Company calculated the present value of the cash flows for purposes of applying the 10% cash flow test for the Fourth Amendment and concluded that the original and new debt instruments were not substantially different, necessitating that the Fourth Amendment be accounted for as a modification.

Equipment Financing Facilities

We have entered into various equipment financing arrangements to finance the acquisition of certain equipment (the "Equipment Financing Facilities"). As of December 31, 2020, we had $22.6 million of equipment notes outstanding. Each of the Equipment Financing Facilities includes non-financial covenants, and, as of December 31, 2020, we complied with all such covenants.

Series A Preferred Stock

As a condition to the Third Amendment, the Company entered into an agreement with an investment fund affiliated with Bernhard Capital Partners Management, LP ("BCP") to sell 26,000 shares of Series A Preferred Stock, par value $0.01 per share (the "Preferred Stock"), for net proceeds of approximately $25.2 million in a private placement (the "Preferred Stock Offering"). The Preferred Stock has an initial liquidation preference of $1,000 per share and pays a dividend at the rate of 10% per annum in cash, or 13% if the Company elects to pay dividends in-kind by adding such amount to the liquidation preference. The Company intends to pay dividends-in-kind for the foreseeable future. We used proceeds from the Preferred Stock Offering for liquidity and general corporate purposes.

For more information related to the Series A Preferred Stock, see Note 12 "Mezzanine Equity" to the notes to consolidated and combined financial statements included in Part II, Item 8. Financial Statements and Supplementary Data of this Annual Report on Form 10-K.

Contractual and Commercial Commitments

The following table summarizes our contractual obligations and commercial commitments as of December 31, 2020.

	Total	2021	2022	2023	2024	2025	Thereafter
				(in thousands)			
Term Loan	$ 125,239	$ 15,360	$ 109,879	$ —	$ —	$ —	$ —
Revolving Loan	12,003	—	12,003	—	—	—	—
Equipment Financing Facilities	22,609	6,495	6,832	5,648	2,927	707	—
Commercial insurance financing agreement	453	453	—	—	—	—	—
Interest on Outstanding Loans(1)	18,975	7,673	10,816	356	120	10	—
Capital Lease Obligations	6,684	2,199	2,357	2,128	—	—	—
Interest on Capital Lease Obligations	701	395	237	69	—	—	—
Operating Lease Obligations(2)	30,353	9,128	8,032	7,337	4,009	1,204	643
Credit Facility Amendment fees(3)	2,000	—	2,000	—	—	—	—
Minimum Royalty and purchase obligations	44,685	11,721	11,820	11,196	9,218	730	—
Total(4)	$ 263,702	$ 53,424	$ 163,976	$ 26,734	$ 16,274	$ 2,651	$ 643

(1) Includes paid-in-kind interest that will be compounded during 2021 and 2022 and will be payable at the Term Loan maturity date.

(2) We lease equipment and office facilities under non-cancellable operating leases.

(3) Represents minimum fees required that are owed at the Maturity Date.

(4) Contingent payments for acquisitions and the asset retirement obligation are not included in the table above because such payments' timing is uncertain. There are no uncertain tax positions.

Non-GAAP Financial Measures

Adjusted EBITDA

Adjusted EBITDA and Adjusted EBITDA margin are not financial measures determined in accordance with GAAP.

We define Adjusted EBITDA as net earnings attributable to Charah Solutions, Inc. before loss on extinguishment of debt, impairment expense, gain on change in contingent payment liability, interest expense, income taxes, depreciation and amortization, equity-based compensation, non-recurring legal costs and expenses, the Brickhaven contract deemed termination revenue reversal and transaction-related expenses and other items. Adjusted EBITDA margin represents the ratio of Adjusted EBITDA to total revenue.

We believe Adjusted EBITDA and Adjusted EBITDA margin are useful performance measures because they allow for an effective evaluation of our operating performance compared to our peers, without regard to our financing methods or capital structure. We exclude the items listed above from net loss attributable to Charah Solutions, Inc. in arriving at Adjusted EBITDA because these amounts are either non-recurring or can vary substantially within our industry depending upon accounting methods and book values of assets, capital structures and the method by which the assets were acquired. Adjusted EBITDA should not be considered as an alternative to, or more meaningful than, net loss attributable to Charah Solutions, Inc. determined according to GAAP. Certain items excluded from Adjusted EBITDA are significant components in understanding and assessing a company's financial performance, such as a company's cost of capital and tax structure, as well as the historic costs of depreciable assets, none of which are reflected in Adjusted EBITDA. Our Adjusted EBITDA presentation should not be construed as an indication that our results will be unaffected by the items excluded from Adjusted EBITDA. Our computations of Adjusted EBITDA may not be identical to other similarly titled measures of other companies. We use Adjusted EBITDA margin to measure our business's success in managing our cost base and improving profitability. The following table presents a reconciliation of Adjusted EBITDA to net loss attributable to Charah Solutions Inc., our most directly comparable financial measure calculated and presented in accordance with GAAP, along with our Adjusted EBITDA margin.

The table below represents the consolidated financial information of Charah Solutions for the years ended December 31, 2020, 2019 and 2018.

	Year Ended December 31,		
	2020	2019	2018
		(in thousands)	
Net loss attributable to Charah Solutions, Inc.	$ (55,863)	$ (42,058)	$ (8,902)
Adjustments - continuing operations			
Interest expense, net	13,774	14,624	30,282
Loss on extinguishment of debt	8,603	—	—
Impairment expense	44,572	—	—
Gain on change in contingent payment liability	(9,702)	—	—
Income tax (benefit) expense	(914)	4,190	4,022
Depreciation and amortization	19,131	22,846	42,232
Equity-based compensation	2,394	2,414	1,471
Brickhaven contract deemed termination revenue reversal	—	10,000	—
Transaction-related expenses and other items(1)	1,130	3,458	1,015
Adjustments - discontinued operations			
Interest expense, net	2,745	2,211	1,944
Income tax expense (benefit)	94	—	(6,449)
Depreciation and amortization	755	591	76
Elimination of certain non-recurring legal costs and expenses(2)	(2,137)	(2,231)	25,427
Elimination of certain non-recurring start-up costs(2)	—	—	1,480
Equity-based compensation	145	99	2,656
Transaction-related expenses and other items(1)	255	1,996	3,518
Adjusted EBITDA	$ 24,982	$ 18,140	$ 98,772
Adjusted EBITDA margin(3)	10.8 %	7.4 %	24.6 %

(1) Represents expenses associated with the Amendment to the Credit Facility, SCB transaction expenses, severance costs, IPO-related costs and other miscellaneous items.

(2) Represents non-recurring legal and start-up costs associated with discontinued operations, including the setup of financial operations systems and modules, pre-contract expenses to obtain initial contracts, and the hiring of operational staff. Negative amounts represent insurance recoveries related to these matters.

(3) Adjusted EBITDA margin is a non-GAAP financial measure that represents the ratio of Adjusted EBITDA to total revenue. We use Adjusted EBITDA margin to measure the success of our businesses in managing our cost base and improving profitability.

Critical Accounting Policies and Estimates

Our financial statements are prepared in accordance with GAAP. In connection with preparing our financial statements, we are required to make assumptions and estimates about future events and apply judgments that affect the reported amounts of assets, liabilities, revenue, expense, and the related disclosures. We base our assumptions, estimates, and judgments on historical experience, current trends and other factors that management believes to be relevant when preparing our consolidated and combined financial statements. Regularly, management reviews the accounting policies, assumptions, estimates, and judgments to ensure that our consolidated combined financial statements are presented fairly and in accordance with GAAP. However, because future events and their effects cannot be determined with certainty, actual results could differ materially from our assumptions and estimates.

Our significant accounting policies are described in Note 2 to our consolidated and combined financial statements included herein. Our critical accounting policies are described below to provide a better understanding of our estimates and assumptions about future events that affect the amounts reported in the consolidated and combined financial statements and accompanying notes. Significant accounting estimates are important to the representation of our financial position and results of operations and involve our most difficult, subjective or complex judgments. We base our estimates on historical experience and various other assumptions we believe to be reasonable according to the current facts and circumstances through the date of the issuance of our financial statements.

Revenue

To determine revenue recognition for contracts, we evaluate whether two or more contracts should be combined and accounted for as one single contract and whether the combined or single contract should be accounted for as more than one performance obligation. This evaluation requires significant judgment and the decision to combine a group of contracts or separate a combined or single contract into multiple performance obligations could change the amount of revenue and profit recorded in a given period. Contracts are considered to have a single performance obligation if the promise to transfer the individual goods or services is not separately identifiable from other promises in the contracts primarily because we provide a service that involves multiple inter-related and integrated tasks to achieve the completion of a specific, single project. We allocate the transaction price to each performance obligation for contracts with multiple performance obligation using our best estimate of the stand-alone selling price of each distinct good or service in the contract.

For sales and service contracts where we have the right to consideration from the customer in an amount that corresponds directly with the value received by the customer based on our performance to date, revenue is recognized at a point in time when services are performed and contractually billable. Certain service contracts contain provisions dictating fluctuating rates per unit for the certain services in which the rates are not directly related to changes in the Company's effort to perform under the contract. We recognize revenue based on the stand-alone selling price per unit for such contracts, calculated as the average rate per unit over the term of those contractual rates. This creates a contract asset or liability for the difference between the revenue recognized and the amount billed to the customer.

Under the typical payment terms of our services contracts, amounts are billed as work progresses in accordance with agreed-upon contractual terms, at periodic intervals (*e.g.,* weekly, biweekly or monthly).

We recognize revenue over time, as performance obligations are satisfied, for substantially all of our construction contracts due to the continuous transfer of control to the customer. For most of our construction contracts, the customer contracts with us to provide a service that involves multiple inter-related and integrated tasks to complete a specific, single project and is therefore accounted for as a single performance obligation. We recognize revenue using the cost-to-cost input method, based primarily on contract costs incurred to date compared to total estimated contract costs. This method is the most accurate measure of our contract performance because it depicts the company's performance in transferring control of goods or services promised to customers according to a reasonable measure of progress toward complete satisfaction of the performance obligation.

Contract costs include all direct material, labor and subcontractor costs and indirect costs related to contract performance. The costs incurred that do not relate directly to transferring a service to the customer are excluded from the input method used to recognize revenue. Project mobilization costs are generally charged to the project as incurred when they are an integrated part of the performance obligation being transferred to the client. Pre-contract costs are expensed as incurred unless they are expected to be recovered from the client.

It is common for our contracts to contain contract provisions that give rise to variable consideration such as unpriced change orders or volume discounts that may either increase or decrease the transaction price. We estimate the amount of variable consideration at the expected value or most likely amount, depending on which is determined to be more predictive of the amount to which the Company will be entitled. Variable consideration is included in the transaction price when it is probable that a significant reversal of cumulative revenue recognized will not occur or when the uncertainty associated with the variable consideration is resolved. Our estimates of variable consideration and determination of whether to include such amounts in the transaction price are based largely on our assessment of legal enforceability, anticipated performance, industry business practices, and any other information (historical, current or forecasted) that is reasonably available to us. Variable consideration associated with unapproved change orders is included in the transaction price only to the extent of costs incurred.

We provide limited warranties to customers for work performed under our contracts. Such warranties are not sold separately, assure that the services comply with the agreed-upon specifications and legal requirements and do not provide customers with a service in addition to assurance of compliance with agreed-upon specifications. Accordingly, these types of warranties are not considered to be separate performance obligations. Historically, warranty claims have not resulted in material costs incurred by the Company.

Due to the nature of the work required to be performed on many of our performance obligations, the estimation of total revenue and cost at completion is complex, subject to many variables and requires significant judgment. As a significant change in one or more of these estimates could affect the profitability of our contracts, we routinely review and update our contract-related estimates through a disciplined project review process in which management reviews the progress and execution of our performance obligations and the estimated costs at completion. As part of this process, management reviews information including, but not limited to, outstanding contract matters, progress towards completion, program schedule and the associated changes in estimates of revenue and costs. Management must make assumptions and estimates regarding the availability and productivity of labor, the complexity of the work to be performed, the availability and cost of materials, the performance of subcontractors, and the availability and timing of funding from the customer, along with other risks inherent in performing services under all contracts where we recognize revenue over-time using the cost-to-cost method.

We recognize changes in contract estimates on a cumulative catch-up basis in the period in which the changes are identified. Such changes in contract estimates can result in the recognition of revenue in a current period for performance obligations that were satisfied or partially satisfied in prior periods. Changes in contract estimates may also result in the reversal of previously recognized revenue if the current estimate differs from the previous estimate. If at any time the estimate of contract profitability indicates an anticipated loss on the contract, we recognize the total loss in the period it is identified.

Contracts are often modified to account for changes in contract specifications and requirements. Most of our contract modifications are for goods or services that are not distinct from existing contracts due to the significant integration provided in the context of the contract and are accounted for as if they were part of the original contract. The effect of a contract modification on the transaction price and our measure of progress for the performance obligation to which it relates is recognized as an adjustment to revenue (either as an increase in or a reduction of revenue) on a cumulative catch-up basis. We account for contract modifications when the modification results in the promise to deliver additional goods or services that are distinct and the increase in the price of the contract is for the same amount as the stand-alone selling price of the additional goods or services included in the modification.

We evaluate our contracts whether we are acting as the principal or as the agent when providing services, which we consider in determining if revenue should be reported on a gross or net basis. We determine the Company to be a principal if we control the specified service before that service is transferred to a customer.

Billing practices are governed by each project's contract terms based upon costs incurred, the achievement of milestones or predetermined schedules. Billings do not necessarily correlate with revenue recognized over time using the cost-to-cost input method. Contract assets include unbilled amounts typically resulting from revenue under long-term contracts when the revenue recognized exceeds the amount billed to the customer. Contract liabilities consist of advance payments and billings in excess of revenue recognized as well as deferred revenue.

Contract assets also include retainage, which represents amounts withheld by our clients from billings according to provisions in the contracts and may not be paid to us until the completion of specific tasks or the completion of the project and, in some instances, for even longer periods.

Our contract assets and liabilities are reported in a gross position on a contract-by-contract basis at the end of each reporting period. We include in current assets and liabilities contract assets and liabilities, which may extend beyond one year.

Goodwill

Goodwill represents the cost of an acquisition purchase price over the fair value of acquired net assets, and such amounts are reported separately as goodwill on our Consolidated Balance Sheets. Our total goodwill resulted from applying “push-down” accounting associated with BCP’s January 2017 acquisition of a controlling equity position in Charah Management and the acquisition of certain assets and liabilities of SCB.

Goodwill is not amortized, but instead is tested for impairment at least annually, at October 1st of each year, or more often if events or circumstances indicate that goodwill might be impaired. We test goodwill at the reporting unit level. We may elect to perform a qualitative assessment for our reporting units to determine whether it is more likely than not that the reporting units' fair value is greater than its carrying value. If a qualitative assessment is not performed, or if as a result of a qualitative assessment it is not more likely than not that the fair value of a reporting unit exceeds its carrying value, then the reporting unit’s fair value is compared to its carrying value. Fair value is typically estimated using an income approach based on discounted cash flows. However, when appropriate, we may also use a market approach. The income approach is based on the long-term projected future cash flows of the reporting unit. We discount the estimated cash flows to present value using a weighted average cost of capital that considers factors such as market assumptions, the timing of the cash flows, and the risks inherent in those cash flows. We believe that this approach is appropriate because it provides a fair value estimate based upon the reporting units’ expected long-term performance considering the economic and market conditions that generally affect our business. The market approach estimates fair value by measuring the aggregate market value of publicly traded companies with similar characteristics to our business as a multiple of their reported earnings. We then apply that multiple to the reporting units’ earnings to estimate their fair values. We believe that this approach may also be appropriate in certain circumstances because it provides a fair value estimate using valuation inputs from entities with operations and economic characteristics comparable to our reporting units. We compute fair value using several factors, including projected future operating results, economic projections, anticipated future cash flows, comparable marketplace data, and the cost of capital. There are inherent uncertainties related to these factors and to our judgment in applying them in our analysis. However, we believe our methodology for estimating the fair value of our reporting units is reasonable. If the reporting unit's carrying value exceeds its fair value, goodwill is written down to its implied fair value.

The Company performed quantitative assessments of its Environmental Solutions and Maintenance and Technical Services reporting units as of October 1, 2020. The Environmental Solutions and Maintenance and Technical Services reporting units' fair values, as calculated, were approximately 15.1% and 7.2%, respectively, greater than their book values as of October 1, 2020.

After the Allied Transaction, we concluded that the Company has two components: (i) sales and operations, and (ii) construction. Each component constitutes a business as defined by ASC 805, *Business Combinations*, has discrete financial information, and segment management reviews the operating results during monthly meetings. Based on a review of the relevant qualitative and quantitative factors, we concluded that these components were aggregated to be a single reporting unit as they were deemed to have similar economic characteristics. The Company performed a quantitative assessment of its single reporting unit's fair value immediately following the completion of the Allied Transaction, and the reporting unit's fair value was approximately 7.3% greater than the book value as of November 30, 2020.

The valuation used to test goodwill for impairment depends on several significant estimates and assumptions, including macroeconomic conditions, growth rates, competitive activities, cost containment, margin expansion and the Company's business plans. The most significant assumptions utilized in determining the estimated fair value of our reporting unit are the net sales and earnings growth rates (including residual growth rates) and the discount rate. The residual growth rate represents the rate at which the reporting unit is expected to grow beyond the shorter-term business planning period. The residual growth rate utilized in our fair value estimate is consistent with the reporting unit operating plans and approximates expected long-term category market growth rates and inflation. The discount rate, which is consistent with a weighted average cost of capital that is likely to be expected by a market participant, is based upon industry-required rates of return, including consideration of both debt and equity components of the capital structure. Our discount rate may be affected by adverse changes in the macroeconomic environment, volatility in the equity and debt markets or other factors. We believe these estimates and assumptions are reasonable. However, future changes in the judgments, assumptions and estimates used in our impairment testing for goodwill, including discount and tax rates or future cash flow projections, could result in significantly different estimates of the fair values.

Some of the inherent estimates and assumptions used in determining the reporting unit's fair value are outside management control, including interest rates, cost of capital, tax rates and credit ratings. Given the current COVID-19 global pandemic and the uncertainties regarding the potential financial impact on the Company's business, there can be no assurance that the Company's estimates and assumptions regarding the impact of COVID-19 and the recovery period made for purposes of the goodwill impairment testing performed during our 2020 fiscal year will prove to be accurate predictions of the future. While the Company believes it has made reasonable estimates and assumptions to calculate the reporting unit's fair value, it is possible changes could occur. As for the Company’s reporting unit, if in future years, the reporting unit’s actual results are not consistent with the Company’s estimates and assumptions used to calculate fair value, the Company may be required to recognize material impairments to goodwill. The Company will continue to monitor its reporting unit for any triggering events or other signs of impairment. The Company may be required to perform additional impairment testing based on changes in the economic environment, disruptions to the Company’s business, significant declines in operating results of the Company’s reporting unit, further sustained deterioration of the Company’s market capitalization, and other factors, which could result in impairment charges in the future. Although management cannot predict when improvements in macroeconomic conditions will occur, if contract awards decline significantly in the future or if the operational activity or the market capitalization deteriorates significantly from current levels, it is reasonably likely the Company will be required to record impairment charges in the future.

Indefinite-Lived Intangible Assets

We assess indefinite-lived intangible asset (trade name) at least annually as of October 1 for impairment, or more frequently if certain events occur or circumstances change that would more likely than not reduce the fair value of an indefinite-lived intangible asset below its carrying value. The Charah Solutions trade name fair value is based upon the income approach, primarily utilizing the relief from royalty methodology. This methodology assumes that a third party would be willing to pay a royalty to obtain the rights to use the comparable asset in place of ownership. An impairment loss is recognized when the intangible asset's estimated fair value is less than the carrying value. Fair value calculation requires significant judgments in determining both the assets’ estimated cash flows and the appropriate discount and royalty rates applied to those cash flows to determine fair value. Variations in economic conditions or a change in general consumer demands, operating results estimates or the application of alternative assumptions could produce significantly different results.

During the year ended December 31, 2020, we recorded an impairment of our Charah Solutions trade name intangible asset of $21.0 million. As part of the October 1, 2020 annual impairment test, we identified a decrease in the royalty rate used in the valuation primarily attributable to the Company's recent performance.

Some of the inherent estimates and assumptions used in determining the fair value of the indefinite-lived intangible asset are outside management control, including interest rates, cost of capital, tax rates and credit ratings. Given the current COVID-19 global pandemic and the uncertainties regarding the potential financial impact on the Company's business, there can be no assurance that the Company's estimates and assumptions regarding the impact of COVID-19 and the recovery period made for purposes of the indefinite-lived intangible asset impairment testing performed during our 2020 fiscal year will prove to be accurate predictions of the future. While the Company believes it has made reasonable estimates and assumptions to calculate the indefinite-lived intangible asset's fair value, it is possible changes could occur. As for the indefinite-lived intangible asset, the most significant assumptions used are the revenue growth rate, the royalty rate, and the discount rate. A decrease in the revenue growth rate, a decrease in the royalty rate, or an increase in the discount rate could result in a future impairment. We will continue to monitor our Charah Solutions trade name for any triggering events or other signs of impairment. We may be required to perform additional impairment testing based on changes in the economic environment, disruptions to our business, significant declines in our operating results and other factors that could result in impairment charges in the future. Although management cannot predict when improvements in macroeconomic conditions will occur, if contract awards decline significantly in the future or if operational activity deteriorates significantly from current levels, it is reasonably likely the Company will be required to record impairment charges in the future.

Long-Lived Assets

Long-lived assets, including tangible and intangible assets with finite lives, are amortized over their respective lives to their estimated residual values and are reviewed for impairment whenever certain triggering events may indicate impairment. When such events or changes in circumstances occur, a recoverability test is performed comparing projected undiscounted cash flows from an asset or asset group's use and eventual disposition to its carrying value. If the projected undiscounted cash flows are less than the carrying value, an impairment would be recorded for the excess of the carrying value over the fair value, which is determined by discounting future cash flows.

During the year ended December 31, 2020, we recorded asset impairments of $6.4 million for the structural fill asset, $7.9 million for the technology construction in progress and equipment assets and $1.5 million for the technology intangible asset. Please see Note 5. "Balance Sheet Items" and Note 8. "Goodwill and Intangible Assets" to our consolidated financial statements as of and for the years ended December 31, 2020 and 2019, included elsewhere herein, for a discussion of these impairments.

Deferred Taxes, Valuation Allowance

As discussed in Note 19 to our consolidated financial statements, deferred tax assets and liabilities are recognized for the expected future tax consequences of events that have been recognized in our consolidated and combined financial statements or tax returns. We record a valuation allowance to reduce certain deferred tax assets to amounts that are more-likely-than-not to be realized. We evaluate the realizability of our deferred tax assets by assessing the valuation allowance and adjusting the amount of such allowance, if necessary. The factors used to assess the likelihood of realization include our forecast of future taxable income exclusive of reversing temporary differences and carryforwards, future reversals of existing taxable temporary differences and available tax planning strategies that could be implemented to realize the net deferred tax assets.

Based on the available evidence as of December 31, 2020 and 2019, we could not conclude it is more likely than not certain deferred tax assets will be realized. Therefore, a valuation allowance of $17.2 million and $12.9 million, respectively was recorded against our deferred tax assets. We will continue to evaluate the need for a valuation allowance on our deferred tax assets in future periods.

Recent Accounting Pronouncements

Please see Note 2, “Summary of Significant Accounting Policies—Recently Adopted Accounting Pronouncements” and “Summary of Significant Accounting Policies—Recently Issued Accounting Pronouncements” to our historical consolidated financial statements as of and for the years ended December 31, 2020 and 2019, included elsewhere herein, for a discussion of recent accounting pronouncements.

Under the JOBS Act, we meet the definition of an “emerging growth company,” which allows us to have an extended transition period for complying with new or revised accounting standards under Section 107(b) of the JOBS Act. We intend to take advantage of all of the reduced reporting requirements and exemptions, including the longer phase-in periods for adopting new or revised financial accounting standards under Section 107(b) of the JOBS Act until we are no longer an emerging growth company.

Item 7A. Quantitative and Qualitative Disclosure About Market Risks

Market risk is the risk of loss arising from adverse changes in market rates and prices. Currently, our market risks relate to potential changes in the fair value of our long-term debt due to fluctuations in applicable market interest rates. We expect that in the future, our market risk exposure generally will be limited to those risks that arise in the normal course of business, as we do not engage in speculative, non-operating transactions, nor do we utilize financial instruments or derivative instruments for trading purposes.

Interest Rate Risk

As of December 31, 2020, we had $125.2 million of debt outstanding under the Term Loan and $12.0 million of outstanding borrowings under the Revolving Loan, with a weighted average interest rate of 7.8%. A 1.0% increase or decrease in the interest rate would increase or decrease interest expense by approximately $1.4 million per year assuming a consistent debt balance. We currently have an interest rate cap in place for outstanding indebtedness under our Term Loan that provides a ceiling on three-month LIBOR at 2.5% for a notional amount of $150.0 million. A fair value liability of $0.9 million and $1.1 million, respectively, was recorded for our interest rate cap in the Consolidated Balance Sheet within other liabilities as of December 31, 2020 and 2019.

Credit Risk

While we are exposed to credit risk in the event of non-performance by counterparties, the majority of our customers are investment-grade companies and we do not anticipate non-performance. We mitigate the associated credit risk by performing credit evaluations and monitoring the payment patterns of our customers.

Off-Balance Sheet Arrangements

We currently have no material off-balance sheet arrangements except for operating leases as referenced in "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources."

Item 8. Financial Statements and Supplementary Data

Our consolidated and combined financial statements and the related notes begin on page F-1 herein.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our principal executive officer and principal financial officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this Annual Report. Based on such evaluation, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures were effective as of such date.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act). The Company's internal control over financial reporting is a process designed under the supervision of its Chief Executive Officer (Principal Executive Officer) and Chief Financial Officer and Treasurer (Principal Financial Officer) and effected by the Company's Board of Directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of its financial statements for external reporting purposes in accordance with GAAP.

The Company's internal control over financial reporting includes policies and procedures that pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and dispositions of the Company's assets; provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures of the Company are being made only following authorizations of management and the directors; and provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on its financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management evaluated the effectiveness of the Company's internal control over financial reporting as of December 31, 2020 based on the framework established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management concluded that the Company's internal control over financial reporting was effective as of December 31, 2020.

This annual report does not include an attestation report of the Company's registered public accounting firm due to an exemption for emerging growth companies under the JOBS Act.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rules 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the year ended December 31, 2020 that have materially affected or are reasonably likely to materially affect, our internal control over financial reporting. In response to the COVID-19 pandemic, the majority of our office employees have been working remotely since the middle of March 2020. We have taken precautionary measures to ensure our internal control over financial reporting addressed risks working in a remote environment. We are continually monitoring and assessing the COVID-19 potential effects on our internal control over financial reporting and the design and operating effectiveness of our internal control.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Charah Solutions will file with the SEC a definitive proxy statement for its 2021 Annual Meeting of Stockholders (the "Proxy Statement") no later than 120 days after the close of its fiscal year ended December 31, 2020. The information required by this item for our executive officers appears in Part I of this Annual Report under the heading "Information About Our Executive Officers." The other information required by this item is furnished by incorporation by reference to the information under the headings "Election of Directors," "Corporate Governance," and "Delinquent Section 16(a) Reports" in the Proxy Statement.

We have adopted a Financial Code of Ethics (the "Code of Ethics"), which is intended to qualify as a "code of ethics" within the meaning of Item 406 of Regulation S-K of the Exchange Act. The Code of Ethics applies to our principal executive officer, principal financial officer, principal accounting officer or controller, and persons performing similar functions. The Code of Ethics is available on our website at www.charah.com.

We will disclose information about any amendment to, or waiver from, the provisions of the Code of Ethics that apply to our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions and that relate to any element of the Code of Ethics enumerated in the SEC rules and regulations by posting this information on our website, www.charah.com. The information contained on our website or available by hyperlink from our website is not a part of this Annual Report and is not incorporated into this Annual Report or any other documents we file with or furnish to, the SEC.

Item 11. Executive Compensation

The information required by this item is furnished by incorporation by reference to the information under the headings "Director Compensation," "Executive Compensation," "Compensation Committee Interlocks and Insider Participation," and "Compensation Committee Report" in the Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item is furnished by incorporation by reference to the information under the headings "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" in the Proxy Statement.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item is furnished by incorporation by reference to the information under the headings "Corporate Governance—Director Independence," "Corporate Governance—Policy for Review of Related Party Transactions," and "Corporate Governance—Related Party Transactions" in the Proxy Statement.

Item 14. Principal Accountant Fees and Services

The information required by this item is furnished by incorporation by reference to the information under the heading "Ratification of the Appointment of Independent Registered Public Accounting Firm" in the Proxy Statement.

PART IV

Item 15. Exhibits and Financial Statement Schedules

1. Financial Statements

2. Financial Statement Schedules

3. Listing of Exhibits

INDEX TO EXHIBITS

Exhibit Number	Description
2.1††	Master Reorganization Agreement, dated June 13, 2018, by and among Charah Solutions, Inc. and the other parties named therein (incorporated by reference to Exhibit 2.1 to the Current Report on Form 8-K filed on June 19, 2018 (File No. 001-38523)).
2.2††	Unit Purchase Agreement dated November 19, 2020, by and among Allied Group Intermediate Holdings LLC, Charah Solutions, Inc, Allied Power Holdings, LLC and the other parties named therein (incorporated by reference to Exhibit 2.1 to the Current Report on Form 8-K filed on November 20, 2020 (File No. 001-38523)).
3.1	Amended and Restated Certificate of Incorporation of Charah Solutions, Inc. (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed June 22, 2018 (File No. 001-38523)).
3.2	Certificate of Designation of Series A Preferred Stock, dated March 16, 2020 (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed on March 18, 2020 (File No. 001-38523)).
3.3	Amended and Restated Bylaws of Charah Solutions, Inc. (incorporated by reference to Exhibit 3.2 to the Current Report on Form 8-K filed June 22, 2018 (File No. 001-38523)).
4.1*	Description of Common Stock of Charah Solutions, Inc. (incorporated by reference to Exhibit 4.1 to the Annual Report on Form 10-K for the year ended December 31, 2019, filed March 27, 2020 (File No. 001-38523)).
4.2	Registration Rights Agreement (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed June 22, 2018 (File No. 001-38523)).
4.3	Amendment No.1 to Registration Rights Agreement (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed on March 18, 2020 (File No. 001-38523))
4.4	Stockholders' Agreement (incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed June 22, 2018 (File No. 001-38523)).
4.5	Waiver of Rights Under Stockholders' Agreement (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed July 15, 2020 (File No. 001-38523)).
10.1	Credit Agreement, dated as of September 21, 2018, by and among Charah Solutions, Inc., certain of the Charah Solutions, Inc.'s subsidiaries, as guarantors, Bank of America, N.A., as administrative agent, swingline lender and letter of credit issuer, and the other lenders party thereto (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed September 25, 2018 (File No. 001-38523)).

Exhibit Number	Description
10.2	Amendment No. 1 to Credit Agreement, dated as of March 5, 2019, by and among Charah Solutions, Inc., certain subsidiaries of Charah Solutions, Inc., as guarantors, Bank of America, N.A., as administrative agent, swingline lender and letter of credit issuer, and the other lenders party thereto (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2019 (File No. 001-38523)).
10.3	Amendment No. 2 to Credit Agreement and Waiver, by and among Charah Solutions, Inc., Bank of America, N.A., as administrative agent, the lenders party thereto and certain subsidiary guarantors named therein, dated August 13, 2019 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed August 14, 2019 (File No. 001-38523)).
10.4	Amendment No. 3 to Credit Agreement, by and among Charah Solutions, Inc., Bank of America, N.A., as administrative agent, the lenders party thereto and certain subsidiary guarantors named therein, dated March 5, 2020 (incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed March 6, 2020 (File No. 001-38523)).
10.5	Amendment No. 4 to Credit Agreement, by and among Charah Solutions, Inc., Bank of America, N.A., as administrative agent, the lenders party thereto and certain subsidiary guarantors named therein, dated November 19, 2020 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed November 20, 2020 (File No. 001-38523)).
10.6	Series A Preferred Stock Purchase Agreement between Charah Solutions, Inc. and Charah Preferred Stock Aggregator, LP, as purchaser, dated March 5, 2020 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed March 6, 2020 (File No. 001-38523)).
10.7	Information Rights Agreement, dated October 9, 2018, by and between Charah Solutions, Inc. and Bernhard Capital Partners Management, LP (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed October 10, 2018 (File No. 001-38523)).
10.8	Mutual Release Agreement, effective as of December 13, 2018, by and between Charah Solutions, Inc. and Bernhard Capital Partners Management, LP (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed December 18, 2018 (File No.001-38523)).
10.9†	Charah Solutions, Inc. 2018 Omnibus Incentive Plan (incorporated by reference to Exhibit 4.4 to the Registration Statement on Form S-8 filed June 19, 2018 (File No. 333-225717)).
10.10†	Form of Restricted Stock Agreement under the Charah Solutions, Inc. 2018 Omnibus Incentive Plan (Time Based) (incorporated by reference to Exhibit 4.5 to the Registration Statement on Form S-8 filed June 19, 2018 (File No. 333-225717)).
10.11†	Form of Restricted Stock Agreement under the Charah Solutions, Inc. 2018 Omnibus Incentive Plan (Time and Performance Based) (incorporated by reference to Exhibit 4.6 to the Registration Statement on Form S-8 filed June 19, 2018 (File No. 333-225717)).
10.12†	Form of Restricted Stock Unit Agreement under the Charah Solutions, Inc. 2018 Omnibus Plan (incorporated by reference to Exhibit 10.12 to the Annual Report on Form 10-K for the year ended December 31, 2018 (File No. 001-38523)).
10.13†	Form of Performance Share Unit Grant Notice (Form for grantee with employment agreement) (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2019 (File No. 001-38523)).
10.14†	Form of Performance Share Unit Grant Notice (Form for grantee without employment agreement) (incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2019 (File No. 001-38523)).
10.15†	Form of Restricted Stock Unit Grant Notice (Form for grantee with employment agreement) (incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2019 (File No. 001-38523)).
10.16†	Form of Restricted Stock Unit Grant Notice (Form for grantee without employment agreement) (incorporated by reference to Exhibit 10.4 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2019 (File No. 001-38523)).
10.17†	Letter Agreement between Charah Solutions, Inc. and Scott Sewell, dated January 23, 2019 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed January 24, 2019 (File No.001-38523)).
10.18†	Amended and Restated Employment Agreement between Charah, LLC, Charah Solutions, Inc. and Scott A. Sewell, dated June 10, 2019 (incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K, filed June 14, 2019 (File No. 001-38523)).
10.19†	Amended and Restated Employment Agreement with Dorsey “Ron” McCall, dated July 12, 2017 (incorporated by reference to Exhibit 10.10 to the Registration Statement on Form S-1 filed May 18, 2018 (File No. 333-225051)).

Exhibit Number	Description
10.20†	First Amendment to Employment Agreement with Dorsey "Ron" McCall, dated June 5, 2018 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed June 19, 2018 (File No. 001-38523)).
10.21†	Employment Agreement between Charah, LLC, Charah Solutions, Inc. and Roger D. Shannon, dated June 17, 2019 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K, filed June 14, 2019 (File No. 001-38523)).
10.22†	Form of Indemnification Agreement (incorporated by reference to Exhibit 10.2 to the Registration Statement on Form S-1 filed May 18, 2018 (File No. 333-225051)).
10.23	Confidential Settlement Agreement and Release, dated August 30, 2019, by and between Duke Energy Business Services LLC, as agent for and on behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC, and Charah, LLC (incorporated by reference to the Company's Current Report on Form 8-K filed on August 30, 2019 (File No. 001-38523)).
21.1*	List of Subsidiaries of Charah Solutions, Inc.
23.1*	Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm.
31.1*	Certification of Principal Executive Officer pursuant to Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Principal Financial Officer pursuant to Rule 13a-14(a)/15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.INS*	Inline XBRL Instance Document.
101.LAB*	Inline XBRL Taxonomy Extension Labels Linkbase Document.
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
101.SCH*	Inline XBRL Taxonomy Extension Schema Document
104*	Cover page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

*	Filed herewith.
**	Furnished herewith.
†	Indicates a management contract or compensatory plan or arrangement.
††	Schedules and similar attachments have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The registrant will furnish a supplemental copy of any omitted schedule or similar attachment to the SEC upon request.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CHARAH SOLUTIONS, INC.

March 24, 2021

By:	/s/ Scott A. Sewell
Name:	Scott A. Sewell
Title:	President, Chief Executive Officer and Director (Principal Executive Officer)

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Scott A. Sewell, Roger D. Shannon and Steven A. Brehm, or any of them, his or her attorney-in-fact, with full power of substitution and resubstitution for such person in any and all capacities, to sign any amendments to this report and to file the same, with exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that either of said attorney-in-fact, or substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the date indicated:

Signature	Title
/s/ Scott A. Sewell Scott A. Sewell	President, Chief Executive Officer and Director (Principal Executive Officer)
/s/ Roger D. Shannon Roger D. Shannon	Chief Financial Officer and Treasurer (Principal Financial Officer and Principal Accounting Officer)
/s/ Jack A. Blossman, Jr. Jack A. Blossman, Jr.	Director
/s/ Mignon L. Clyburn Mignon L. Clyburn	Director
/s/ Timothy J. Poché Timothy J. Poché	Director

Signature	**Title**
/s/ Robert C. Flexon Robert C. Flexon	Director
/s/ Mark Spender Mark Spender	Director
/s/ Stephen R. Tritch Stephen R. Tritch	Director

March 24, 2021

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
Charah Solutions, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Charah Solutions, Inc. and subsidiaries (the “Company”) as of December 31, 2020 and 2019, the related consolidated and combined statements of operations, stockholders’ and members’ equity, and cash flows for each of the three years in the period ended December 31, 2020, and the related notes and the schedule listed in the Index at Item 15 (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

Change in Accounting Principle

As discussed in Note 2 to the financial statements, in 2019 the Company has changed its method of accounting for revenue due to the adoption of Accounting Standard Codification 606, *Revenue from Contracts with Customers*.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

Louisville, Kentucky
March 24, 2021

We have served as the Company’s auditor since 2017.

CHARAH SOLUTIONS, INC.

Consolidated Balance Sheets
(amounts in thousands except par value amounts)

	December 31, 2020	December 31, 2019
Assets		
Current assets:		
Cash	$ 24,787	$ 4,912
Restricted cash	4,424	1,000
Trade accounts receivable, net	46,609	37,325
Receivable from affiliates	182	390
Contract assets	18,329	20,641
Inventory	5,917	14,792
Income tax receivable	260	1,374
Prepaid expenses and other current assets	5,287	3,146
Current assets of discontinued operations held for sale	—	14,930
Total current assets	105,795	98,510
Property and equipment, net	49,470	83,498
Goodwill	62,193	62,193
Intangible assets, net	61,426	92,473
Equity method investments	831	5,078
Other assets	1,245	188
Long-term assets of discontinued operations held for sale	—	13,816
Total assets	$ 280,960	$ 355,756
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 15,613	$ 17,518
Contract liabilities	6,295	582
Capital lease obligations, current portion	2,199	—
Notes payable, current maturities	22,308	34,873
Asset retirement obligation	2,043	9,944
Purchase option liability	—	7,110
Accrued liabilities	34,937	15,796
Other liabilities	935	1,116
Current liabilities of discontinued operations held for sale	—	27,686
Total current liabilities	84,330	114,625
Deferred tax liabilities	368	1,492
Contingent payments for acquisitions	1,950	11,481
Asset retirement obligation	3,116	5,187
Line of credit	12,003	19,000
Capital lease obligations less current portion	4,485	—
Notes payable, less current maturities	124,969	150,698
Other liabilities	2,000	—
Total liabilities	233,221	302,483
Commitments and contingencies (see Note 17)		
Mezzanine equity		
Series A Preferred Stock — $0.01 par value; 50 shares authorized, 26 shares issued and outstanding as of December 31, 2020; aggregate liquidation preference of $28,783 as of December 31, 2020	27,423	—
Stockholders' equity		
Retained losses	(88,865)	(33,002)
Common Stock — $0.01 par value; 200,000 shares authorized, 30,077 and 29,624 shares issued and outstanding as of December 31, 2020 and 2019, respectively	300	296
Additional paid-in capital	108,471	85,187
Total stockholders' equity	19,906	52,481
Non-controlling interest	410	792
Total equity	20,316	53,273
Total liabilities and equity	$ 280,960	$ 355,756

See notes to consolidated & combined financial statements.

CHARAH SOLUTIONS, INC.

Consolidated & Combined Statements of Operations
(dollars in thousands except per share data)

	Year Ended December 31,		
	December 31, 2020	December 31, 2019	December 31, 2018
Revenue	$ 232,377	$ 244,661	$ 400,887
Cost of sales	209,570	223,386	319,846
Gross profit	22,807	21,275	81,041
General and administrative expenses	34,064	51,085	35,292
Gain on change in contingent payment liability	(9,702)	—	—
Impairment expense	38,014	—	—
Operating (loss) income	(39,569)	(29,810)	45,749
Interest expense, net	(13,774)	(14,624)	(30,282)
Loss on extinguishment of debt	(8,603)	—	—
(Loss) income from equity method investment	(2,516)	2,295	2,407
(Loss) income from continuing operations before income taxes	(64,462)	(42,139)	17,874
Income tax (benefit) expense	(914)	4,190	4,022
(Loss) income from continuing operations, net of tax	(63,548)	(46,329)	13,852
Income (loss) from discontinued operations, net of tax	8,883	7,105	(20,268)
Net loss	(54,665)	(39,224)	(6,416)
Less income attributable to non-controlling interest	1,198	2,834	2,486
Net loss attributable to Charah Solutions, Inc.	$ (55,863)	$ (42,058)	$ (8,902)
Amounts attributable to Charah Solutions, Inc.			
(Loss) income from continuing operations, net of tax and non-controlling interest	$ (64,746)	$ (49,163)	$ 11,366
Deemed and imputed dividends on Series A Preferred Stock	(461)	—	—
Series A Preferred Stock dividends	(4,064)	—	—
Net (loss) income from continuing operations attributable to common stockholders	(69,271)	(49,163)	11,366
Net income (loss) from discontinued operations	8,883	7,105	(20,268)
Net loss attributable to common stockholders	$ (60,388)	$ (42,058)	$ (8,902)
Net (loss) income from continuing operations per common share			
Basic	$ (2.32)	$ (1.67)	$ 0.43
Diluted	$ (2.32)	$ (1.67)	$ 0.41
Net income (loss) from discontinued operations per common share			
Basic	$ 0.30	$ 0.24	$ (0.76)
Diluted	$ 0.30	$ 0.24	$ (0.73)
Net loss attributable to common stockholders per common share			
Basic	$ (2.02)	$ (1.43)	$ (0.33)
Diluted	$ (2.02)	$ (1.43)	$ (0.32)
Weighted-average shares outstanding used in loss per common share:			
Basic	29,897	29,495	26,610
Diluted	29,897	29,495	27,630

See notes to consolidated & combined financial statements.

CHARAH SOLUTIONS, INC.

Consolidated & Combined Statements of Stockholders' and Members' Equity
(dollars in thousands unless otherwise indicated)

	Charah Solutions, Inc.								
	Common Stock (Shares)	Common Stock (Amount)	Additional Paid-In Capital	Charah, LLC Members' Interest	Allied Power Management, LLC Members' Interest	Retained Earnings (Losses)	Total	Non-Controlling Interest	Total
Balance, December 31, 2017	—	$ —	$ —	$ 19,718	$ 9,687	$ 18,316	$ 47,721	$ 598	$ 48,319
Net (loss) income	—	—	—	—	—	(8,902)	(8,902)	2,486	(6,416)
Share based compensation expense	—	—	—	214	—	—	214	—	214
Distributions	—	—	—	(686)	—	—	(686)	(2,279)	(2,965)
Conversion from members' interest to common stock	23,436,398	234	28,699	(19,246)	(9,687)	—	—	—	—
Issuance of shares	5,294,117	53	59,188	—	—	—	59,241	—	59,241
Share based common stock issued	372,169	4	(4)	—	—	—	—	—	—
Shares repurchased	(19,696)	—	—	—	—	—	—	—	—
Share based compensation expense	—	—	3,913	—	—	—	3,913	—	3,913
Deferred offering costs	—	—	(8,916)	—	—	—	(8,916)	—	(8,916)
Balance, December 31, 2018	29,082,988	$ 291	$ 82,880	$ —	$ —	$ 9,414	$ 92,585	$ 805	$ 93,390
Net (loss) income	—	—	—	—	—	(42,058)	(42,058)	2,834	(39,224)
Share based compensation expense	—	—	2,513	—	—	—	2,513	—	2,513
Adoption of ASC 606, net of tax	—	—	—	—	—	(358)	(358)	—	(358)
Shares issued under share-based compensation plan	568,500	5	(5)	—	—	—	—	—	—
Distributions	—	—	—	—	—	—	—	(2,847)	(2,847)
Taxes paid related to net settlement of shares	(28,653)	—	(201)	—	—	—	(201)		(201)
Balance, December 31, 2019	29,622,835	$ 296	$ 85,187	$ —	$ —	$ (33,002)	$ 52,481	$ 792	$ 53,273

See notes to consolidated & combined financial statements.

CHARAH SOLUTIONS, INC.

Consolidated & Combined Statements of Stockholders’ and Members’ Equity
(dollars in thousands unless otherwise indicated)

	For the Year Ended December 31, 2020								
	Mezzanine Equity		Permanent Equity						
	Preferred Stock (Shares)	Preferred Stock (Amount)	Common Stock (Shares)	Common Stock (Amount)	Additional Paid-In Capital	Retained Losses	Total	Non-Controlling Interest	Total
Balance, December 31, 2019	—	$ —	29,622,835	$ 296	$ 85,187	$ (33,002)	$ 52,481	$ 792	$ 53,273
Net (loss) income	—	—	—	—	—	(55,863)	(55,863)	1,198	(54,665)
Share based compensation expense	—	—	—	—	2,539	—	2,539	—	2,539
Distributions	—	—	—	—	—	—	—	(1,580)	(1,580)
Shares issued under share-based compensation plans	—	—	549,705	5	(5)	—	—	—	—
Taxes paid related to the net settlement of shares	—	—	(95,522)	(1)	(231)	—	(232)	—	(232)
Contribution from sale of subsidiary to entity under common control	—	—	—	—	25,506	—	25,506	—	25,506
Issuance of Series A Preferred Stock, net of issuance costs	26,000	24,253	—	—		—	—	—	—
Deemed and imputed dividends on Series A Preferred Stock	—	3,169	—	—	(461)	—	(461)	—	(461)
Series A Preferred Stock Dividends	—	—	—	—	(4,064)	—	(4,064)	—	(4,064)
Balance, December 31, 2020	26,000	$ 27,423	30,077,018	$ 300	$ 108,471	$ (88,865)	$ 19,906	$ 410	$ 20,316

See notes to consolidated & combined financial statements.

CHARAH SOLUTIONS, INC.

Consolidated & Combined Statements of Cash Flows
(dollars in thousands unless otherwise indicated)

	Year Ended December 31,		
	2020	2019	2018
Cash flows from operating activities:			
Net loss	$ (54,665)	$ (39,224)	$ (6,416)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Depreciation and amortization	19,886	23,437	42,308
Loss on extinguishment of debt	8,603	—	—
Paid-in-kind interest on long-term debt	4,448	—	—
Impairment expense	40,772	—	—
Amortization of debt issuance costs	599	1,206	11,631
Deferred income tax (benefit) expense	(834)	4,359	(2,995)
Loss on sale of assets	708	2,376	899
Loss (income) from equity method investment	2,516	(2,295)	(2,407)
Distributions received from equity investment	1,731	2,277	2,353
Non-cash share-based compensation	2,539	2,513	4,127
(Gain) loss on interest rate swap	(181)	2,006	(1,089)
Gain on change in contingent payment liability	(9,702)	—	—
Interest accreted on contingent payments for acquisition	171	267	200
Increase (decrease) in cash due to changes in:			
Trade accounts receivable	(21,791)	10,208	(7,595)
Contract assets and liabilities	8,025	65,299	(93,282)
Inventory	6,037	11,085	(5,720)
Accounts payable	(457)	(69)	9,086
Asset retirement obligation	(9,694)	(10,934)	24,993
Accrued expenses and other liabilities	13,811	(3,858)	10,274
Net cash provided by (used in) operating activities	12,522	68,653	(13,633)
Cash flows from investing activities:			
Proceeds from the sale of equipment	1,517	2,312	1,682
Purchases of property and equipment	(4,304)	(18,071)	(22,036)
Proceeds from sale-leaseback transaction	7,000	—	—
Payments for business acquisitions, net of cash received	—	—	(19,983)
Purchase of intangible assets	—	—	(31)
Proceeds from the sale of subsidiary, net of subsidiary cash	37,860	—	—
Net cash provided by (used in) investing activities	42,073	(15,759)	(40,368)
Cash flows from financing activities:			
Net proceeds (payments) on line of credit	(6,997)	(799)	19,799
Proceeds from long-term debt	18,897	20,843	217,255
Principal payments on long-term debt	(63,996)	(69,268)	(255,777)
Payments of debt issuance costs	(1,623)	(1,394)	—
Principal payments on capital lease obligations	(316)	—	—
Taxes paid related to net settlement of shares	(150)	(201)	—
Net proceeds from issuance of convertible Series A Preferred Stock	24,253	—	—
Payments of offering costs	—	—	(8,916)
Issuance of common stock	—	—	59,241
Distributions to non-controlling interest	(1,580)	(2,847)	(2,279)
Distributions to members	—	—	(686)
Net cash (used in) provided by financing activities	(31,512)	(53,666)	28,637
Net increase (decrease) in cash, cash equivalents and restricted cash	23,083	(772)	(25,364)
Cash, cash equivalents and restricted cash, beginning of period	6,128	6,900	32,264
Cash, cash equivalents and restricted cash, end of period	$ 29,211	$ 6,128	$ 6,900
Supplemental disclosures of cash flow information:			
Cash paid during the year for interest	$ 13,331	$ 12,044	$ 22,842
Cash (refunded) paid during the year for taxes	$ (942)	$ (1,833)	3,334

Supplemental Disclosures and Non-cash investing and financing transactions

The following table summarizes additional supplemental disclosures and non-cash investing and financing transactions:

	Year Ended		
	2020	2019	2018
Gross proceeds from revolving loan included in line of credit	$ 118,895	$ 134,914	$ —
Gross payments on revolving loan included in line of credit	125,892	135,713	—
Property and equipment reduction due to sale-leaseback	7,000	—	—
Working capital owed related to sale of subsidiary included in accrued expenses	6,954	—	—
Deemed and imputed dividends on Series A Preferred Stock	3,169	—	—
Note receivable for sale of property and equipment	1,450	—	—
Non-cash Series A Preferred Stock dividends included in accrued expenses	1,356	—	—
Asset retirement obligation reduction through property and equipment	279	—	—
Property and equipment additions included in accounts payable and accrued expenses	205	1,245	—
Taxes paid related to the net settlement of shares included in current liabilities of discontinued operations held for sale	79	—	—
Equipment purchased with seller-provided financing	—	1,051	13,487

See notes to consolidated & combined financial statements.

1. Nature of Business and Basis of Presentation

Organization

During 2016, Charah, Inc. converted from an S corporation to a limited liability company and changed its name to Charah, LLC, a Delaware limited liability company ("Charah"). In December 2016, Charah became a wholly owned subsidiary of CEP Holdings, Inc. In January 2017, Charah became a wholly-owned subsidiary of Charah Sole Member LLC, which itself is a wholly-owned subsidiary of Charah Management LLC, a Delaware limited liability company ("Charah Management"). Charah Management was a wholly-owned subsidiary of CEP Holdings, Inc.

On January 13, 2017, Charah Management completed a transaction with Bernhard Capital Partners Management, LP ("BCP"), a previously unrelated third party, pursuant to which BCP acquired a 76% equity position of Charah Management ("the BCP transaction"). Allied Power Management, LLC, a Delaware limited liability company ("Allied"), was formed and became a wholly-owned subsidiary of Allied Power Holdings, LLC, a Delaware limited liability company ("Allied Power Holdings"), in May 2017. In July 2017, Allied became a wholly-owned subsidiary of Allied Power Sole Member, LLC, which itself is a wholly-owned subsidiary of Allied Power Holdings. Allied Power Holdings was under common control with Charah Management from April 2017 to November 2020.

Charah Solutions, Inc. and subsidiaries ("Charah Solutions," the "Company," "we," "us," or "our") was formed as a Delaware corporation in January 2018 and did not conduct any material business operations before the transactions described below other than certain activities related to its initial public offering, which was completed on June 18, 2018 (the "IPO"). Charah Solutions is a holding company, the sole material assets of which consist of membership interests in Charah Management. Through the Company's ownership of Charah Management, the Company owns the outstanding equity interests in Charah, the subsidiaries through which Charah Solutions operates its businesses.

Corporate Reorganization

On June 18, 2018, pursuant to the terms of the reorganization transactions completed in connection with the IPO, (i) (a) Charah Holdings LP, a Delaware limited partnership ("Charah Holdings") owned by BCP, contributed all of its interests in Charah Management and Allied Power Holdings to the Company in exchange for 17,514,745 shares of common stock, (b) CEP Holdings, Inc., a Delaware corporation owned by Charles E. Price and certain affiliates ("CEP Holdings"), contributed all of its interests in Charah Management and Allied Power Holdings to the Company in exchange for 4,605,465 shares of common stock, (c) Charah Management Holdings LLC, a Delaware limited liability company ("Charah Management Holdings"), contributed all of its interests in Charah Management and Allied Power Holdings to the Company in exchange for 907,113 shares of common stock, and (d) Allied Management Holdings, LLC, a Delaware limited liability company ("Allied Management Holdings"), contributed all of its interests in Charah Management and Allied Power Holdings to the Company in exchange for 409,075 shares of common stock, (ii) each of Charah Management Holdings and Allied Management Holdings distributed the shares of common stock received by them pursuant to clause (i) to their respective members in accordance with the respective terms of their limited liability company agreements and (iii) Charah Holdings distributed a portion of the shares of common stock it received in clause (i) above to certain direct and indirect blocker entities which ultimately merged into the Company, with the Company surviving, and affiliates of BCP received shares of common stock as consideration in the mergers.

Description of Business Operations

The Company is a leading national service provider of mission-critical environmental services and byproduct sales to the power generation industry, enabling our customers to address challenges related to the remediation of coal ash ponds and landfills at open and closed power plant sites while continuously operating and providing necessary electric power to communities nationwide. Services offered include a suite of remediation and compliance services, byproduct sales and marketing, fossil services and environmental risk transfer ("ERT") services. The Company has corporate offices in Kentucky and North Carolina and principally operates in the eastern and mid-central United States.

The accompanying consolidated financial statements include the assets, liabilities, stockholders' equity, members' equity, and results of operations of the Company and its consolidated subsidiaries. Intercompany transactions and balances have been eliminated in consolidation. For periods before the June 18, 2018 corporate reorganization, the accompanying financial statements are presented on a combined basis.

Under the Jumpstart Our Business Startups Act (the “JOBS Act”), the Company meets the definition of an “emerging growth company,” which allows the Company to have an extended transition period for complying with new or revised accounting standards pursuant to Section 107(b) of the JOBS Act. The Company intends to take advantage of all of the reduced reporting requirements and exemptions, including the longer phase-in periods for the adoption of new or revised financial accounting standards under Section 107 of the JOBS Act until the Company is no longer an emerging growth company. Among other things, we are not required to provide an auditor attestation report on the assessment of the internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act of 2002 and our disclosure obligations regarding executive compensation may be reduced. We may take advantage of these provisions until the last day of our fiscal year following the fifth anniversary of the IPO, or December 31, 2023. However, if certain events occur before the end of such five-year period, including if we become a “large accelerated filer,” our annual gross revenue exceeds $1.07 billion, or we issue more than $1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company before the end of such five-year period.

Discontinued Operations

On November 19, 2020, the Company sold its Allied subsidiary engaged in maintenance, modification and repair services to the nuclear and fossil power generation industry to an affiliate of BCP (the “Purchaser”), the Company’s majority shareholder, in an all-cash deal for $40,000 (the “Allied Transaction”), subject to adjustments for working capital and certain other adjustments as set forth in the purchase agreement (the "Purchase Agreement").

Discontinued operations comprise those activities that have been disposed of during the period and represent a separate major line of business that can be clearly distinguished for operational and financial reporting purposes. Accordingly, the Consolidated Balance Sheets, Statements of Operations, and the notes to consolidated financial statements reflect the Allied results as discontinued operations for all periods presented. Unless otherwise specified, disclosures in these consolidated financial statements reflect continuing operations only. The consolidated statements of cash flows includes both continuing and discontinued operations. Refer to Note 3, Discontinued Operations, for further information on the discontinued operations relating to the Allied Transaction.

Segment Information

The Company had two reporting units, two operating segments and two reportable segments in 2019, Environmental Solution (“ES”) and Maintenance and Technical Services (“M&TS”), which primarily consisted of the Company’s historical business before the Allied Transaction. The Company determined that it had two reporting units because of the way the reporting units were managed.

After the Allied Transaction, the Company realigned our segment reporting into a single operating segment to reflect the suite of end-to-end services we offer our utility partners and how our Chief Operating Decision Maker (“CODM”) reviews consolidated financial information to evaluate results of operations, assess performance and allocate resources. Due to the nature of the Company’s business, the Company's Chief Executive Officer who is also the CODM, evaluates performance of the Company and allocates resources of the Company based on consolidated gross profit, general and administrative expenses, balance sheet, liquidity, capital spending, safety statistics and business development reports for the Company as a whole. Since the Company has a single operating segment, all required financial segment information can be found in the consolidated financial statements. The prior year results in the accompanying consolidated statements of operations were reclassified to conform to this presentation.

We provide the following services through our one segment: remediation and compliance services, byproduct sales, fossil services and ERT transfer services. Remediation and compliance services are associated with our customers’ need for multi-year environmental improvement and sustainability initiatives, whether driven by regulatory requirements, by power generation customer initiatives or by consumer expectations and standards. Byproduct sales support both our power generation customers’ desire to recycle their recurring and legacy volumes of coal combustion residuals (“CCRs”), commonly known as coal ash, and our ultimate end customers’ need for high-quality, cost-effective raw material substitutes. Fossil services consist of recurring and mission-critical coal ash management and operations for coal-fired power generation facilities. ERT services represent an innovative solution designed to meet the evolving and increasingly complex needs of utility customers. These customers need to retire and decommission older or underutilized assets while maximizing the asset's value and improving the environment. Our ERT services manage the sites' environmental remediation requirements, which benefits the communities and lowers the utility customers' cost.

Unaudited Pro Forma Income Information

Before the corporate reorganization on June 18, 2018, the holding company for Charah was a limited liability company and generally not subject to income taxes. The pro forma adjustment for income tax expense as if the holding company for Charah had been a "C" Corporation for the year ended December 31, 2018 was not material.

Impact of the COVID-19 Pandemic

In March 2020, the World Health Organization categorized the disease caused by a novel coronavirus ("COVID-19") as a pandemic and the President of the United States declared the COVID-19 pandemic to be a national emergency. The Company is a mission-critical contractor to the power generation industry, which has been identified as part of the Department of Homeland Security's Critical Infrastructure Sector.

On March 27, 2020, the U.S. government enacted the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act"), which includes modifications to the limitation on business interest expense and net operating loss carryforward provisions and provides a payment delay of certain employer payroll taxes during 2020. The Company deferred $1,637 of employer payroll taxes otherwise due in 2020 with 50% due by December 31, 2021 and the remaining 50% due by December 31, 2022. The CARES Act did not have a material impact on the Company's consolidated financial statements.

Our commitment to safety is a core value and an integral component of our culture. As the COVID-19 pandemic continues within the United States and around the world, our highest priority remains the safety of our employees and customers. Our business was built on an unwavering commitment to safety. To that end, we took immediate action to protect our employees, our customers, and our business. The mission-critical nature of our and our customers' operations made it imperative to quickly initiate a series of contingency plans to ensure business continuity for our customers, the vast majority of whom are highly-regulated and who must continue operating to provide safe and reliable power to the country. In March 2020, as a response to the ongoing COVID-19 pandemic, we established a COVID-19 task force to oversee the Company's initiatives, procedures and responses to address the potential impact of COVID-19. We have implemented measures to manage through possible service interruptions, and we are maintaining real-time communication across our entire organization and with our customers. As of March 24, 2021, we have not had any work stoppages.

With respect to our business operations, we have not observed any significant slowdown in activity on existing job sites as a result of the COVID-19 pandemic at this time and are in continuous communication with our utility customers. We have a shared commitment to partner with them in keeping all employees safe by abiding with their health and hygiene policies and aligning with their health risk mitigation procedures. In April 2020, we implemented a series of preemptive cost cutting and cost savings initiatives across the Company including reductions in employee compensation, reductions in cash-based retainers to our Board of Directors, reduced hiring and significantly reducing discretionary spending including travel restrictions. In addition, we are implementing applicable benefits of the CARES Act. In October 2020, employee compensation and cash-based retainers to our Board of Directors were returned to their pre-COVID-19 pandemic annual base levels.

2. Summary of Significant Accounting Policies

Management's Use of Estimates

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America ("GAAP") requires management to make estimates and assumptions, in particular estimates of legal reserves, costs to complete contracts in process, contract modifications and unapproved change orders, that affect the reported amounts in the consolidated financial statements and accompanying notes. Actual results could differ from those estimates.

Balance Sheet Classification

The Company includes in current assets and liabilities contract assets, contract liabilities and retainage amounts payable, which may extend beyond one year. One year is used as the basis for classifying all other assets and liabilities.

Cash

The Company maintains cash in bank deposit accounts which, at times, may exceed federally insured limits. The Company has not experienced any losses in such accounts. The Company believes it is not exposed to any significant credit risk on cash.

Restricted Cash

We maintain restricted cash in a non-interest bearing escrow account for a specific remediation and compliance project. This cash becomes unrestricted as project milestones are completed in accordance with the project's defined project schedule. As of December 31, 2020, this account held $4,424. As of December 31, 2019, restricted cash consisted of $1,000 related to a non-interest escrow account associated with a non-revolving credit note with a bank.

Trade Accounts Receivable, Net

Trade accounts receivable, net consist of amounts due from customers. An allowance for doubtful accounts is recorded to the extent it is probable that a portion of a particular account will not be collected. Management determines the allowance for doubtful accounts by evaluating individual customer receivables and considering a customer’s financial condition, credit history, and the current economic conditions. An allowance for doubtful accounts of $467 and $146 was included in trade accounts receivable, net as of December 31, 2020 and 2019, respectively.

Trade accounts receivable balances are considered past due based upon contract or invoice terms and are charged off when deemed uncollectible. The Company does not charge interest on customer accounts and generally does not require collateral on sales and services during the normal course of business. The Company has the right to file liens on the owner’s property with regards to certain construction contracts.

Inventory

Inventories, mainly comprising ash for resale, are valued using the first-in, first-out (“FIFO”) method. Inventories are stated at the lower of cost or net realizable value.

Property and Equipment

Property and equipment are stated at cost. Construction-in-progress represents costs incurred on the construction of assets that have not been completed or placed in service as of the end of the year. We evaluate the long lived assets each reporting period to determine whether events and circumstances continue to support the asset's carrying value. Depreciation is provided principally by the straight-line method over the estimated useful lives of the assets as follows:

Plant, machinery and equipment	2 - 15 years
Vehicles	2 - 10 years
Office equipment	2 - 10 years
Buildings and leasehold improvements	5 - 40 years
Capital lease assets	3 - 7 years

Repair and maintenance costs are expensed as incurred and expenditures for improvements are capitalized.

Structural Fill Sites

Cost Basis of Structural Fill Sites, Associated Site Improvement Costs, and Related Asset Retirement Obligation (ARO)

Before the January 2017 BCP transaction (see Note 1), the acquisition cost of the structural fill sites was capitalized. As a result of the BCP transaction, the fair value of the site improvements related to the structural fill sites was recognized. The site improvement costs relate to items such as directly related engineering, liner material and installation, leachate collection systems, environmental monitoring equipment, on-site road and rail construction, and other infrastructure costs.

Following is a description of our asset retirement activities and our related accounting:

- Final capping and closure involve the installation of drainage and compacted soil layers and topsoil over areas where total airspace capacity has been consumed. Asset retirement obligations are recorded on a units-of-consumption basis as airspace is consumed. The liability is based on estimates of the discounted cash flows.
- Post closure involves the maintenance and monitoring of the structural fill sites. Generally, we are required to maintain and monitor the structural fill sites for a 30-year period. These maintenance and monitoring costs are recorded as an asset retirement obligation as airspace is consumed over the life of the structural fill sites. Post-

closure obligations are recorded over the life of the structural fill sites on a units-of-consumption basis as airspace is consumed, based on estimates of the discounted cash flows associated with performing post-closure activities.

We develop our estimates of these obligations using input from our operations personnel. Our estimates are based on our interpretation of current requirements and proposed regulatory changes and are intended to approximate fair value. Absent quoted market prices, the estimate of fair value is based on the best available information, including the results of present value techniques. We use professional engineering judgment and estimated prices paid for similar work to determine the fair value of these obligations. We are required to recognize these obligations at market prices whether we plan to contract with third parties or perform the work ourselves. In those instances where we perform the work with internal resources, the incremental profit margin realized will be recognized as a component of operating income when the work is completed.

Once we have determined the final capping, closure, and post-closure costs, we inflate those costs to the expected time of payment and discount those expected future costs back to present value. During the years ended December 31, 2020, 2019, and 2018, we inflated these costs in current dollars until the expected time of payment using an inflation rate of 3.0%. We discounted these costs to present value using the credit-adjusted, risk-free rate effective at the time an obligation is incurred, consistent with the expected cash flow approach. Any changes in expectations that result in an upward revision to the estimated cash flows are treated as a new liability and discounted at the current rate while downward revisions are discounted at the historical weighted average rate of the recorded obligation. As a result, the credit-adjusted, risk-free discount rate used to calculate the present value of an obligation is specific to each individual asset retirement obligation. The weighted average rate applicable to our long-term asset retirement obligations at December 31, 2020 and 2019 was approximately 5.25%.

We record the estimated fair value of final capping, closure, and post-closure liabilities for our structural fill sites based on the capacity consumed through the current period. Because these obligations are measured at estimated fair value using present value techniques, changes in the estimated cost or timing of future final capping, closure, and post-closure activities could result in a material change in these liabilities, related assets, and results of operations. We assess the appropriateness of the estimates used to develop our recorded balances annually, or more often if conditions warrant.

Changes in inflation rates or the estimated costs, timing, or extent of future final capping, closure, and post-closure activities typically result in both (i) a current adjustment to the recorded liability and structural fill site asset, and (ii) a change in liability and asset amounts to be recorded prospectively over the remaining permitted airspace. Any changes related to the capitalized and future cost of the structural fill assets are then recognized in accordance with our amortization policy, which would generally result in amortization expense being recognized prospectively over the remaining capacity of the permitted airspace. Changes in such estimates associated with airspace that has been fully utilized results in an adjustment to the recorded liability and landfill assets with an immediate corresponding adjustment to landfill airspace amortization expense.

Depreciation of Structural Fill Sites and Site Improvements

Depreciation for the structural fill sites and site improvements for the years ended December 31, 2020, 2019, and 2018 was $0, $4,190, and $33,956, respectively.

The Company commenced closure of our structural fill sites during the year ended December 31, 2019 and closure activities continued through the year ended December 31, 2020. The remaining capacity of the active structural fill site at December 31, 2018 was 5.0 million tons (41%).

The depreciable basis of a structural fill site includes amounts previously expended and capitalized and projected asset retirement costs related to final capping, closure, and post-closure activities.

The value of the structural fill sites to the Company diminishes in direct correlation to the amount of airspace used for ash deposits. Depreciation is recorded on a units-of-consumption basis, applying expense as a rate per ton. The rate per ton is calculated by dividing the depreciable basis of the structural fill site by the number of tons expected to be placed into the structural fill sites. Our engineers, in consultation with third-party engineering consultants and surveyors, are responsible for determining remaining permitted airspace at our structural fill sites. The remaining permitted airspace is determined by comparing the existing structural fill sites topography to the expected final structural fill sites topography.

Once the remaining permitted airspace is determined in cubic yards, an airspace utilization factor (“AUF”) is established to calculate the remaining permitted capacity in tons. The AUF is established using the measured density obtained from previous surveys and is then adjusted to account for current and future expected compaction rates. The initial selection of the AUF is subject to a subsequent multi-level review by our engineering group, and the AUF used is reviewed on a periodic basis and revised as necessary.

After determining the costs and remaining permitted capacity at each of our structural fill sites, we determine the per ton rates that will be expensed as ash is received and deposited at the structural fill sites by dividing the costs by the corresponding number of tons. These rates per ton are updated annually, or more often, as significant facts change.

It is possible that actual results, including the amount of costs incurred, the timing of final capping, closure, and post-closure activities, or our airspace utilization, could ultimately turn out to be significantly different from our estimates and assumptions. To the extent that such estimates, or related assumptions, prove to be significantly different than actual results, lower profitability may be experienced due to higher depreciation rates or higher expenses; or higher profitability may result if the opposite occurs. Most significantly, if it is determined that expansion capacity should no longer be considered in calculating the recoverability of a structural fill site asset, we may be required to recognize an asset impairment or to incur significantly higher depreciation expense.

Equity Method Investment

In January 2016, Charah organized a joint venture with VHSC Holdings, LLC, an unrelated third party. Charah has a 50% interest in the joint venture, which is accounted for by the equity method. In January 2021, Charah exited the joint venture.

Goodwill and Indefinite Lived Intangible Assets

Goodwill represents the excess purchase price over the estimated fair value of net assets acquired in a business combination. Our intangible assets in the Consolidated Balance Sheets as of December 31, 2020 and 2019 include a trade name that is considered to have an indefinite life.

Goodwill and indefinite-lived intangible assets are not amortized, but instead are tested for impairment at least annually or more often if events or changes in circumstances indicate that the fair value of the asset may have decreased below its carrying value. We evaluate the indefinite-lived trade name each reporting period to determine whether events and circumstances continue to support an indefinite useful life. Goodwill is tested at the reporting unit level. We may elect to perform a qualitative assessment to determine whether it is more likely than not that the fair value is greater than its carrying value. If a qualitative assessment is not performed, or if as a result of a qualitative assessment it is not more likely than not that the fair value exceeds its carrying value, then the fair value is compared to its carrying value. Fair value is typically estimated using an income approach based on discounted cash flows. However, when appropriate, we may also use a market approach. The income approach is based on the long-term projected future cash flows of the asset and reporting units. We discount the estimated cash flows to present value using a weighted average cost of capital that considers factors such as market assumptions, the timing of the cash flows, and the risks inherent in those cash flows. We believe that this approach is appropriate because it provides a fair value estimate based upon the reporting units' expected long-term performance considering the economic and market conditions that generally affect our business. The market approach estimates fair value by measuring the aggregate market value of publicly traded companies with similar characteristics to our business as a multiple of their reported earnings. We then apply that multiple to the reporting units' earnings to estimate their fair values. We believe that this approach may also be appropriate in certain circumstances because it provides a fair value estimate using valuation inputs from entities with operations and economic characteristics comparable to our reporting units. Fair value is computed using several factors, including projected future operating results, economic projections, anticipated future cash flows, comparable marketplace data, and the cost of capital. There are inherent uncertainties related to these factors and to our judgment in applying them in our analysis. However, we believe our methodology for estimating the fair value of our reporting units and the trade name is reasonable. If the carrying value exceeds its fair value, the asset is written down to its implied fair value.

Definite-Lived Intangible Assets

Definite-lived intangible assets include customer relationships, non-compete and other agreements, SCB trade name, and a rail easement. We evaluate the definite-lived intangible assets each reporting period to determine whether events and circumstances continue to support the asset's carrying value. These assets are amortized on a straight-line basis over their estimated useful lives as shown in the table below.

Definite Lived Intangible	**Useful Life**
Customer relationships	10 years
Non-compete agreement	2 years
SCB trade name	3 years
Rail easement	2 years

Fair Value Disclosure

Long-term debt bears interest at variable rates and book value approximates fair value, and is considered to be level 2 in the fair value hierarchy. The interest rate swap within other liabilities in the Consolidated Balance Sheets at December 31, 2020 and 2019 is considered to be level 2 in the fair value hierarchy. The Company did not have any recurring or non-recurring level 3 fair value measurements as of December 31, 2020 or 2019 other than impairment expense as described in Notes 5 and 8, the measurement of the preferred stock paid-in-kind dividends as described in Note 12 and the application of stock-based compensation accounting as described in Note 15. There have been no transfers between levels of the fair value hierarchy during the years ended December 31, 2020, 2019 and 2018.

Debt Issuance Costs

Debt issuance costs associated with our various credit agreements are amortized as interest expense over the term of the applicable agreement. Debt issuance costs are presented as a direct deduction from the carrying amount of the related liability.

Freight Costs

Freight costs charged to customers are included in revenue. Costs incurred by the Company for freight are included in cost of sales.

Leases

Leases are accounted under Accounting Standards Codification ("ASC") 840, *Leases*, and are categorized as either operating or capital leases at inception. Operating lease costs are recognized on a straight-line basis over the term of the lease. For capital leases, an asset and a corresponding liability are established for the present value at the beginning of the lease term of minimum lease payments during the lease term, excluding any executory costs. If the present value of the minimum lease payments exceeds the fair value of the leased property at lease inception, the amount measured initially as the asset and obligation shall be the fair value. The capital lease obligation is amortized over the life of the lease.

Income Taxes

Charah Solutions is a "C" Corporation under the Internal Revenue Code of 1986, as amended (the "Code"), and, as a result, is subject to U.S. federal, state and local income taxes. In connection with the IPO, predecessor flow-through entities for income tax purposes were contributed to the Company by their owners and became indirect subsidiaries of the Company. Prior to the contribution to the Company and its conversion to a taxable corporation, the predecessor entities passed through their taxable income to their owners for U.S. federal, state, and local income tax purposes, and thus these entities were not subject to such income taxes, except for franchise tax at the state level (at less than 1% of modified pre-tax earnings). Accordingly, the financial data attributable to the predecessor entities before the contribution on June 18, 2018 contains no provision for U.S. federal income taxes or income taxes in any state or locality, other than franchise taxes.

As of June 18, 2018, the Company became subject to U.S. federal, state and local income taxes, and as a result of the conversion, and in accordance with ASC 740, *Income Taxes*, ("ASC 740") the Company established a beginning net deferred tax liability of $1.5 million and recognized a corresponding amount of income tax expense.

Income taxes are accounted for in accordance with ASC 740. Income tax expense, or benefit, is calculated using the asset and liability method under which deferred tax assets and liabilities are recorded based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse.

The Company assesses its deferred tax assets each quarter to determine whether the assets are more likely than not (probability of more than 50%) realizable under ASC 740. The Company is required to record a valuation allowance for any portion of the tax assets that, based on the assessment, are not more likely than not realizable. The assessment considers, among other things, earnings in prior periods, forecasts of future taxable income, statutory carryforward periods, and tax planning strategies, to the extent feasible. The realization of deferred tax assets depends in large part on the generation of future taxable income during the periods in which the differences become deductible. The value of the deferred tax assets will also depend on applicable income tax rates. Judgment is required in determining the future tax consequences of events that have been recognized in the financial statements. Differences between anticipated and actual outcomes of these future tax consequences could have material impact on the financial statements. Changes in existing tax laws and tax rates also affect actual tax results and the valuation of deferred tax assets over time.

Stock/Share-Based Compensation Plans

In the year ended December 31, 2017, Charah Management and Allied Power Management each issued certain Series C member interests to employees. Additionally, certain employees of Allied Power Management were granted Series B member interests in both Charah Management and Allied Power Management.

The unvested Series C Profits Interests at June 18, 2018 were canceled as a result of the corporate reorganization that occurred upon the closing of the IPO. In connection with the corporate reorganization that occurred upon the closing of the IPO, the Series C Profits Interests were replaced by shares that are subject to time-based vesting conditions, as well as performance vesting conditions. The Company has issued further shares under the Charah Solutions, Inc. 2018 Omnibus Incentive Plan subject to time-based and performance vesting conditions.

The Company accounts for its stock/share-based compensation plans as equity-classified plans, in accordance with the fair value recognition provisions of ASC 718, *Compensation-Stock Compensation*. The Company utilizes the Black-Scholes model, which requires the input of subjective assumptions. These assumptions include estimating (i) the volatility of the common stock price over the expected term, (ii) the expected term, and (iii) expected dividends. Where the vesting of the stock is also based upon performance measures, management determines the likelihood of meeting such measures. Changes in the subjective assumptions can materially affect the estimate of the fair value of stock-based compensation and consequently, the related amounts recognized on the consolidated and Combined Statements of Operations.

Stock-based compensation expense is recognized in general and administrative expenses.

Recently Adopted Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (the "FASB") issued Accounting Standards Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers* ("ASC 606"), which provides a five-step framework to determine when and how revenue is recognized. We adopted ASC 606 on January 1, 2019, using the modified-retrospective method. Our financial results for reporting periods beginning January 1, 2019 are presented under the new accounting standard, while financial results for prior periods will continue to be reported in accordance with our historical accounting policy.

Revenue is measured based on the amount of consideration specified in a contract with a customer. Revenue is recognized when our performance obligations under the terms of the contract are satisfied which generally occurs with the transfer of control of the goods or services to the customer.

Contract Combination

To determine revenue recognition for contracts, we evaluate whether two or more contracts should be combined and accounted for as one single contract and whether the combined or single contract should be accounted for as more than one performance obligation. This evaluation requires significant judgment and the decision to combine a group of contracts or separate a combined or single contract into multiple performance obligations could change the amount of revenue and profit recorded in a given period. Contracts are considered to have a single performance obligation if the promise to transfer the individual goods or services is not separately identifiable from other promises in the contracts primarily because we provide a service that involves multiple inter-related and integrated tasks to achieve the completion of a specific, single project. We allocate the transaction price to each performance obligation for contracts with multiple performance obligation using our best estimate of the stand-alone selling price of each distinct good or service in the contract.

Sales and Services Contracts

For sales and service contracts where we have the right to consideration from the customer in an amount that corresponds directly with the value received by the customer based on our performance to date, revenue is recognized at a point in time when services are performed and contractually billable. Certain service contracts contain provisions dictating fluctuating rates per unit for the certain services in which the rates are not directly related to changes in the Company's effort to perform under the contract. We recognize revenue based on the stand-alone selling price per unit for such contracts, calculated as the average rate per unit over the term of those contractual rates. This creates a contract asset or liability for the difference between the revenue recognized and the amount billed to the customer.

Under the typical payment terms of our services contracts, amounts are billed as work progresses in accordance with agreed-upon contractual terms, at periodic intervals (*e.g.*, weekly, biweekly or monthly).

Construction Contracts

We recognize revenue over time, as performance obligations are satisfied, for substantially all of our construction contracts due to the continuous transfer of control to the customer. For most of our construction contracts, the customer contracts with us to provide a service that involves multiple inter-related and integrated tasks to complete a specific, single project and is therefore accounted for as a single performance obligation. We recognize revenue using the cost-to-cost input method, based primarily on contract costs incurred to date compared to total estimated contract costs. This method is the most accurate measure of our contract performance because it depicts the company's performance in transferring control of goods or services promised to customers according to a reasonable measure of progress toward complete satisfaction of the performance obligation.

Contract costs include all direct material, labor and subcontractor costs and indirect costs related to contract performance. The costs incurred that do not relate directly to transferring a service to the customer are excluded from the input method used to recognize revenue. Project mobilization costs are generally charged to the project as incurred when they are an integrated part of the performance obligation being transferred to the client. Pre-contract costs are expensed as incurred unless they are expected to be recovered from the client.

The payment terms of our construction contracts from time to time require the customer to make advance payments as well as interim payments as work progresses. The advance payment generally is not considered a significant financing component as we expect to recognize those amounts in revenue within a year of receipt as work progresses on the related performance obligation.

Variable Consideration

It is common for our contracts to contain contract provisions that give rise to variable consideration such as unpriced change orders or volume discounts that may either increase or decrease the transaction price. We estimate the amount of variable consideration at the expected value or most likely amount, depending on which is determined to be more predictive of the amount to which the Company will be entitled. Variable consideration is included in the transaction price when it is probable that a significant reversal of cumulative revenue recognized will not occur or when the uncertainty associated with the variable consideration is resolved. Our estimates of variable consideration and determination of whether to include such amounts in the transaction price are based largely on our assessment of legal enforceability, anticipated performance, industry business practices, and any other information (historical, current or forecasted) that is reasonably available to us. Variable consideration associated with unapproved change orders is included in the transaction price only to the extent of costs incurred.

We provide limited warranties to customers for work performed under our contracts. Such warranties are not sold separately, assure that the services comply with the agreed-upon specifications and legal requirements and do not provide customers with a service in addition to assurance of compliance with agreed-upon specifications. Accordingly, these types of warranties are not considered to be separate performance obligations. Historically, warranty claims have not resulted in material costs incurred.

Contract Estimates and Modifications

Due to the nature of the work required to be performed on many of our performance obligations, the estimation of total revenue and cost at completion is complex, subject to many variables and requires significant judgment. As a significant change in one or more of these estimates could affect the profitability of our contracts, we routinely review and update our contract-related estimates through a disciplined project review process in which management reviews the progress and execution of our performance obligations and the estimated costs at completion. As part of this process, management reviews information including, but not limited to, outstanding contract matters, progress towards completion, program schedule and the associated changes in estimates of revenue and costs. Management must make assumptions and estimates regarding the availability and productivity of labor, the complexity of the work to be performed, the availability and cost of materials, the performance of subcontractors, and the availability and timing of funding from the customer, along with other risks inherent in performing services under all contracts where we recognize revenue over-time using the cost-to-cost method.

We recognize changes in contract estimates on a cumulative catch-up basis in the period in which the changes are identified. Such changes in contract estimates can result in the recognition of revenue in a current period for performance obligations that were satisfied or partially satisfied in prior periods. Changes in contract estimates may also result in the reversal of previously recognized revenue if the current estimate differs from the previous estimate. If at any time the estimate of contract profitability indicates an anticipated loss on the contract, we recognize the total loss in the period it is identified.

Contracts are often modified to account for changes in contract specifications and requirements. Most of our contract modifications are for goods or services that are not distinct from existing contracts due to the significant integration provided in the context of the contract and are accounted for as if they were part of the original contract. The effect of a contract modification on the transaction price and our measure of progress for the performance obligation to which it relates is recognized as an adjustment to revenue (either as an increase in or a reduction of revenue) on a cumulative catch-up basis. We account for contract modifications when the modification results in the promise to deliver additional goods or services that are distinct and the increase in the price of the contract is for the same amount as the stand-alone selling price of the additional goods or services included in the modification.

We evaluate our contracts whether we are acting as the principal or as the agent when providing services, which we consider in determining if revenue should be reported on a gross or net basis. We determine the Company to be a principal if we control the specified service before that service is transferred to a customer.

Contract Assets and Liabilities

Billing practices are governed by each project's contract terms based upon costs incurred, achievement of the milestones or predetermined schedules. Billings do not necessarily correlate with revenue recognized over time using the cost-to-cost input method. Contract assets include unbilled amounts typically resulting from revenue under long-term contracts when the revenue recognized exceeds the amount billed to the customer. Contract liabilities consist of billings in excess of revenue recognized as well as deferred revenue.

Contract assets also include retainage, which represents amounts withheld by our clients from billings according to provisions in the contracts and may not be paid to us until the completion of specific tasks or the completion of the project and, in some instances, for even longer periods.

Our contract assets and liabilities are reported in a gross position on a contract-by-contract basis at the end of each reporting period. We include in current assets and liabilities contract assets and liabilities, which may extend beyond one year.

Practical Expedients and Exemptions

Upon the adoption of ASC 606, we adopted the practical expedient in which we do not adjust the contract price for the effects of a significant financing component if the company expects, at contract inception, that the period between when the company transfers a service to a customer and when the customer pays for that service will be one year or less.

Impact of ASC 606 Adoption

We recognized the cumulative effect of initially applying ASC 606 as an adjustment to retained earnings in the Consolidated Balance Sheet as of January 1, 2019 as follows:

	Balance at December 31, 2018	Adjustments due to ASC 606	Balance at January 1, 2019
Assets			
Trade accounts receivable, net	$ 60,742	$ (405)	$ 60,337
Contract assets	86,710	405	87,115
Deferred tax assets	2,747	117	2,864
Liabilities			
Deferred revenue	—	(475)	(475)
Equity			
Retained earnings (losses)	$ 9,414	$ (358)	$ 9,056

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. This ASU simplifies the measurement of goodwill impairment by eliminating the requirement that an entity compute the implied fair value of goodwill based on the fair values of its assets and liabilities to measure impairment. Instead, goodwill impairment will be measured as the difference between the fair value of the reporting unit and the carrying value of the reporting unit. This ASU also clarifies the treatment of the income tax effect of tax-deductible goodwill when measuring goodwill impairment loss. The Company adopted ASU No. 2017-04 as of April 1, 2020. The adoption of this ASU did not have a significant impact on the Company's consolidated financial statements.

Recently Issued Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*, requiring all leases to be recognized on the balance sheet as a right-of-use asset and a lease liability, unless the lease is a short-term lease (generally a lease with a term of 12 months or less). At the commencement date of the lease, the Company will recognize: (i) a lease liability for the Company’s obligation to make payments under the lease agreement, measured on a discounted basis; and (ii) a right-of-use asset that represents the Company’s right to use, or control the use of, the specified asset for the lease term. This ASU originally required recognition and measurement of leases at the beginning of the earliest period presented using a modified retrospective transition method. In July 2018, the FASB issued ASU No. 2018-11, which provided an additional (and optional) transition method that permits application of this ASU at the adoption date with recognition of a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. In June 2020, the FASB issued ASU No. 2020-05 and delayed the effective date of this ASU, extending the effective date for non-public business entities, and making the ASU effective for the Company for the fiscal year ending December 31, 2022, and interim periods within the fiscal year ending December 31, 2023, with early adoption permitted. The Company has not yet selected a transition method and is currently evaluating the effect that the adoption of this ASU will have on its consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326) - Measurement of Credit Losses on Financial Instruments*, which introduces a new model for recognizing credit losses on financial instruments based on an estimate of current expected credit losses. The new model will apply to: (1) loans, accounts receivable, trade receivables, and other financial assets measured at amortized cost, (2) loan commitments and certain other off-balance sheet credit exposures, (3) debt securities and other financial assets measured at fair value through other comprehensive income, and (4) beneficial interests in securitized financial assets. The amendments contained in this ASU will be applied through a modified retrospective approach through a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is adopted. In November 2018, the FASB issued ASU No. 2018-19, which amended the effective date of ASU No. 2016-13 and clarified that receivables arising from operating leases are not within the scope of Subtopic 326-20. In October 2019, the FASB delayed the effective date of this ASU, extending the effective date for non-public business entities and making the ASU effective for the Company for the fiscal year ending December 31, 2023, and interim periods therein, with early adoption permitted. The Company is currently evaluating the effect that the adoption of this ASU will have on its consolidated financial statements.

In March 2020, the FASB issued ASU No. 2020-04, *Reference Rate Reform (Topic 848) Facilitation of the Effects of Reference Rate Reform on Financial Reporting*. The ASU provides optional expedients and exceptions for applying GAAP to contract modifications and hedging relationships, subject to meeting certain criteria, that reference LIBOR or another rate that is expected to be discontinued. In January 2021, the FASB issued ASU No. 2021-01, *Reference Rate Reform (Topic 848)*. This ASU provides supplemental guidance and clarification to ASU No. 2020-04, and these updates must be adopted concurrently, cumulatively referred to as “Topic 848.” The amendments in Topic 848 are currently effective for all entities and upon adoption may be applied prospectively to contract modifications made on or before December 31, 2022. The Company is still assessing the impact of Topic 848 on its consolidated financial statements.

In August 2020, the FASB issued ASU No. 2020-06, *Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging – Contracts in Entity’s Own Equity (Subtopic 815 – 40): Accounting for Convertible Instruments and Contracts in an Entity’s Own Equity*. This ASU simplifies the guidance on accounting for convertible debt instruments by removing the separation models for convertible debt with a cash conversion feature and convertible debt with a beneficial conversion feature. As a result, after adopting the ASU’s guidance, entities will not separately present in equity an embedded conversion feature in such debt. Instead, they will account for a convertible debt instrument wholly as debt, and for convertible preferred stock wholly as preferred stock unless certain other conditions are met. Also, the ASU requires the application of the if-converted method for calculating diluted earnings per share and the treasury stock method will no longer be available. This ASU will be effective for the Company for the fiscal year ending December 31, 2024, and interim periods therein, with early adoption permitted. The Company anticipates adopting ASU No. 2020-06 as of January 1, 2021 and expects the adoption will not have a significant impact on its consolidated financial statements.

3. Discontinued Operations

On November 19, 2020, the Company completed the Allied Transaction through an all-cash deal for $40,000, subject to adjustments for working capital and certain other adjustments as set forth in the Purchase Agreement. The Allied Transaction was approved by a special committee of the Company's board of directors consisting solely of independent directors, which obtained a fairness opinion in connection with the Allied Transaction. This Allied Transaction has been treated as a sale to an entity under common control with $25,506 recognized as a contribution to equity.

The parties made customary representations and warranties and have agreed to customary covenants in the Purchase Agreement. The Company entered into a non-competition and non-solicitation arrangement under the Purchase Agreement with the Purchaser, subject to customary exceptions. In addition, the parties also entered into a Transition Services Agreement pursuant to which the Company will provide Allied and the Purchaser with certain transition assistance services from the date of the Allied Transaction until April 30, 2021 in exchange for payment. In accordance with applicable accounting guidance for the disposal of long-lived assets, the results of the Allied Transaction are presented as discontinued operations and, as such, have been excluded from continuing operations for all periods presented. Additionally, the Allied assets and liabilities that were included in the sale are presented as assets and liabilities held for sale in the Consolidated Balance Sheets.

The Company received cash proceeds of $37,860, which was net of transaction costs of $1,900 and Allied restricted cash of $240. The Company assumed Allied liabilities of $3,500, recorded a $301 increase to paid-in-capital for the income tax impact related to the Allied Transaction and recognized accruals of $6,954 for working capital adjustments and $413 for other acquisition related charges in accrued expenses in our Consolidated Balance Sheet as of December 31, 2020 that are to be paid in 2021. In February 2021, the Company paid the working capital settlement to the Purchaser. The Company derecognized the following assets and liabilities through this Allied Transaction:

Restricted cash	$	240
Trade accounts receivable, net		25,752
Prepaid expenses and other current assets		1,453
Property and equipment, net		1,112
Goodwill[(a)]		12,020
Accounts payable		(8,681)
Accrued liabilities		(26,367)
Carrying value of Allied	$	5,529

[(a)] Goodwill was allocated to discontinued operations on a relative fair value basis.

The assets and liabilities of Allied have been reflected as assets and liabilities of discontinued operations held for sale in the Consolidated Balance Sheet as of December 31, 2019. The assets and liabilities were as follows:

		December 31, 2019
Current assets:		
Cash	$	1
Restricted cash		215
Trade accounts receivable, net		13,244
Prepaid expenses and other current assets		1,470
Total current assets		14,930
Property and equipment, net		1,796
Goodwill[(a)]		12,020
Total assets	$	28,746
Current liabilities:		
Accounts payable		7,992
Accrued liabilities		19,694
Total current liabilities	$	27,686

[(a)] Goodwill was allocated to discontinued operations on a relative fair value basis.

The following amounts related to discontinued operation were derived from historical financial information and have been segregated from continuing operations and reported as discontinued operations in our Consolidated & Combined Statements of Operations:

	Year Ended December 31,		
	2020	2019	2018
Revenue	$ 314,251	$ 310,207	$ 339,575
Cost of sales	295,423	291,106	322,888
Gross profit	18,828	19,101	16,687
General and administrative expenses	7,106	9,785	41,460
Operating income (loss)	11,722	9,316	(24,773)
Interest expense, net[b]	(2,745)	(2,211)	(1,944)
Income (loss) from discontinued operations before income taxes	8,977	7,105	(26,717)
Income tax expense (benefit)	94	—	(6,449)
Income (loss) from discontinued operations	$ 8,883	$ 7,105	$ (20,268)

[b] Interest expense was allocated to discontinued operations due to the requirement in Amendment No. 4 to Credit Agreement that cash generated from the Allied Transaction was used to reduce our debt balances.

The following table provides supplemental cash, cash equivalent and restricted cash information related to discontinued operations:

	Year Ended December 31,		
	2020	2019	2018
Cash and cash equivalents:			
Cash, cash equivalents and restricted cash - continuing operations	$ 29,211	$ 5,912	$ 560
Cash, cash equivalents and restricted cash - discontinued operations	—	216	6,340
Total cash and cash equivalents	$ 29,211	$ 6,128	$ 6,900

The depreciation and amortization, capital expenditures and significant operating noncash items of Allied were as follows:

	Year Ended December 31,		
	2020	2019	2018
Cash flows from discontinued operating activities:			
Depreciation and amortization	$ 755	$ 591	$ 76
Loss on disposal of fixed assets	22	—	—
Non-cash shared-based compensation	145	99	2,656
Cash flows from discontinued investing activities:			
Purchase of property and equipment	$ 93	$ 1,412	$ 970

4. Revenue

We disaggregate our revenue from customers by type of service and by geographic region as we believe it best depicts how the nature, amount, timing and uncertainty of our revenue and cash flows are affected by economic factors. See details in the tables below.

	Year Ended December 31,		
	2020	2019	2018
Product sales	$ 84,625	$ 97,814	$ 80,851
Construction contracts	80,805	80,968	255,410
Services	66,947	65,879	64,626
Total revenue	$ 232,377	$ 244,661	$ 400,887

	Year Ended December 31,		
	2020	2019	2018
United States	$ 231,032	$ 244,661	$ 400,887
Foreign	1,345	—	—
Total revenue	$ 232,377	$ 244,661	$ 400,887

On December 31, 2020, we had $140,240 of the transaction price allocated to remaining performance obligations. We expect to recognize approximately 49% of our remaining performance obligations as revenue during 2021, 17% in 2022, 10% in 2023 and 23% thereafter. Revenue associated with our remaining performance obligations includes performance obligations related to our construction contracts. The balance of remaining performance obligations does not include variable consideration that was determined to be constrained as of December 31, 2020. As of December 31, 2020, there were $193 in an unapproved change order associated with project scope changes included in determining the profit or loss on certain construction contracts. This change order was approved subsequent to year end.

5. Balance Sheet Items

Allowance for doubtful accounts

The following table presents the changes in the allowance for doubtful accounts:

	December 31,	
	2020	2019
Balance, beginning of period	$ 146	$ —
Add: provision	354	146
Less: deductions and other adjustments	(33)	—
Balance, end of period	$ 467	$ 146

Property and equipment, net

The following table shows the components of property and equipment, net:

	December 31,	
	2020	2019
Plant, machinery and equipment	$ 68,308	$ 75,284
Structural fill site improvements	55,760	55,760
Vehicles	12,824	19,163
Office equipment	582	570
Buildings and leasehold improvements	262	262
Structural fill sites	432	7,110
Capital lease assets	6,627	—
Construction in progress	1,961	12,324
Total property and equipment	$ 146,756	$ 170,473
Less: accumulated depreciation	(97,286)	(86,975)
Property and equipment, net	$ 49,470	$ 83,498

Depreciation expense for the years ended December 31, 2020, 2019, and 2018 was $17,659, $17,353, and $49,155, respectively.

During the fourth quarter of the year ended December 31, 2019, the Company re-assessed the useful life estimates of certain assets adjusted to fair value through the application of "push-down" accounting in conjunction with the transaction on January 13, 2017 in which BCP acquired a 76% equity position in Charah Management. These assets are depreciated through cost of sales. The Company accounted for this as a change in estimate that was applied prospectively, effective as of October 1, 2019. This change in depreciable lives resulted in a decrease in the useful lives for these assets and an increase of $941 in depreciation expense during the year ended December 31, 2019.

Impairment of Long-Lived Assets Other than Goodwill and Intangible Assets

Long-lived assets other than goodwill and indefinite-lived intangible assets, held and used by the Company, including inventory and property and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. The Company evaluates recoverability of assets to be held and used by comparing the carrying amount of an asset to the future net undiscounted cash flows expected to be generated by the asset to determine if the carrying value is not recoverable. If the carrying value is not recoverable, the Company fair values the asset and compares to the carrying value. If the asset is considered to be impaired, the impairment loss is measured as the amount by which the carrying amount of the asset exceeds its fair value.

During the year ended December 31, 2020, as a result of the expiration of the option as discussed below, the Company determined that a triggering event had occurred that indicated that the asset group may not be recoverable as the option expiration led to a significant adverse change in the manner in which the long-lived asset was being used. The Company evaluated the recoverability of the structural fill site assets to be held and used by comparing the carrying amount of the asset group to the future net undiscounted cash flows expected to be generated to determine if the carrying value is not recoverable. The recoverability test indicated that these assets were not recoverable. The fair value of the assets was determined using an income approach of the discounted cash flows expected from the assets and compared to the assets' carrying value, which indicated that the assets were impaired and resulted in an impairment charge. The Company recognized an impairment charge of $6,399. The long-lived assets impaired during the year ended December 31, 2020, had a remaining fair value of $711 before the asset retirement obligation reassessment discussed below.

During the year ended December 31, 2020, as a result of a significant adverse change in the manner in which the long-lived assets were being used, the Company determined that certain grinding technology related equipment and construction in progress assets were no longer viable as certain performance sales levels would not be achieved. We concluded that a triggering event had occurred that indicated that the asset group may not be recoverable. The fair value of the assets was determined through a market approach using the net realizable value of the assets, which indicated that the assets were impaired and resulted in an impairment charge. The Company recognized an impairment charge of $9,150. The long-lived assets impaired during the year ended December 31, 2020, had a remaining fair value of $1,961.

In connection with the impairment of certain grinding technology equipment and construction in progress assets, the Company determined that certain slow-moving inventory stored at two locations would no longer be used to create finished goods through the use of the previously mentioned technology related equipment and would be sold to external parties. We concluded that a triggering event had occurred that the inventory value may not be recoverable. The fair value was determined through a market approach using the net realizable value of the inventory, which indicated that the assets were impaired and resulted in an impairment charge. The Company recognized an impairment charge of $2,757, which was recorded in cost of sales in the Consolidated and Combined Statement of Operations. The inventory impaired during the year ended December 31, 2020, had a remaining fair value of $1,090.

Purchase Option Liability

In the January 2017 BCP transaction, Charah recorded the fair value of a bargain purchase liability for an option held by a customer and a third party for the structural fill sites. The purchase option liability is calculated as the difference between the estimated fair value of the structural fill sites at the date of the BCP transactions (see Note 1) and the option price to be paid by the customer or third party. The purchase options are exercisable after completion of work at the structural fill sites. The bargain purchase option is amortized over the structural fill sites’ estimated useful lives. The options expired without exercise in August 2020, and the remaining purchase option liability was reduced through amortization expense within general and administrative expenses in our Consolidated and Combined Statement of Operations.

The following table reflects activity related to the bargain purchase liability:

	December 31,	
	2020	2019
Balance, beginning of period	$ 7,110	$ 10,017
Amortization expense	(7,110)	(2,907)
Balance, end of period	$ —	$ 7,110

Accrued liabilities

The following table shows the components of accrued liabilities:

	December 31, 2020	December 31, 2019
Accrued expenses	$ 19,323	$ 12,280
Accrued working capital adjustment for the Allied Transaction	6,954	—
Accrued payroll and bonuses	7,227	1,755
Accrued preferred stock dividends	1,356	—
Accrued interest	77	1,761
Accrued liabilities	$ 34,937	$ 15,796

Asset Retirement Obligations

The Company owns and operates two structural fill sites that will have continuing maintenance and monitoring requirements subsequent to their closure. As of December 31, 2020 and 2019, the Company has accrued $5,159 and $15,131, respectively, for the asset retirement obligation.

The following table reflects the activity for the asset retirement obligation:

	December 31, 2020	December 31, 2019
Balance, beginning of period	$ 15,131	$ 26,065
Liabilities incurred	—	1,017
Liabilities settled	(8,413)	(13,391)
Accretion	568	1,126
Revision in estimate	(2,127)	314
Balance, end of period	5,159	15,131
Less: current portion	(2,043)	(9,944)
Non-current portion	$ 3,116	$ 5,187

After the expiration of the option and the impairment of the structural fill site assets in August 2020 as discussed above, the Company performed a review of the asset retirement obligation to determine if there had been changes in the estimated amount or timing of cash flows. The Company identified a downward adjustment of $2,127 primarily due to the refinement of cost information associated with project bonding and insurance and the decrease in actual closure costs incurred since the site has ceased operations. The Company views the asset retirement obligation and the related structural fill site asset as a single asset so we first recorded a reduction of $279 to the carrying value of the asset and then recorded the excess balance of $1,848 as a reduction to cost of sales in the Consolidated and Combined Statement of Operations.

Contingent payments for acquisitions

The following table presents the changes in the contingent payments for acquisitions:

	December 31, 2020	December 31, 2019
Balance, beginning of period	$ 11,481	$ 11,214
Add: interest accreted on contingent payments for acquisition	171	267
Less: gain on change in contingent payment liability	(9,702)	—
Balance, end of period	$ 1,950	$ 11,481

On March 30, 2018, Charah Management completed a transaction with SCB Materials International, Inc. and affiliated entities ("SCB"), a previously unrelated third party, pursuant to which Charah Solutions acquired certain assets and liabilities of SCB for a purchase price of $35,000, with $20,000 paid at closing and $15,000 to be paid over time in conjunction with certain performance metrics. The contract also contained various mechanisms for a working capital true-up. The acquisition was accounted for under the acquisition method of accounting in accordance with ASC 805, *Business Combinations*, ("ASC 805") with the allocation of the purchase price for the acquisition finalized as of March 31, 2019 with the recognized goodwill allocated to the Consolidated Balance Sheets. In November 2018, the $15,000 to be paid over time was reduced by $3,300.

As previously discussed and as further discussed in Note 8, during the year ended December 31, 2020, the Company evaluated the recoverability of certain grinding technology assets. As part of that review, we assessed the likelihood of paying the contingent liability based on achieving certain performance sales levels using these technology assets. The Company concluded that certain sales levels would not be achieved and we reduced the corresponding liability by $9,702 and this reduction was recognized as a component of operating (loss) income in the Consolidated and Combined Statement of Operations. As of December 31, 2020, the remaining liability balance of $1,950 is expected to be paid in 2022 and beyond.

6. Equity Method Investments

The Company has an investment in a company that provides ash management and remarketing services to the electric utility industry. The Company accounts for its investment under the equity method of accounting because we have significant influence over the financial and operating policies of the company. The Company had a receivable due from the equity method investment of $182 and $96 at December 31, 2020 and 2019, respectively.

In December 2020, the Company informed our joint venture partner of our decision to exit the joint venture due to unfavorable economic conditions associated with a new contract that would adversely impact the future earnings capacity of our investment. As a result, the Company determined it was unlikely that it would recover the full carrying amount of the investments and recognized an impairment charge of $3,800. In 2021, the joint venture sold its property and equipment at an amount exceeding carrying value and continues to settle its remaining current assets and liabilities through the normal course of business.

The following table sets forth the summarized balance sheet information of our equity method investment entity as of:

	December 31,	
	2020	2019
Current assets	$ 1,812	$ 2,482
Noncurrent assets	282	395
Total assets	$ 2,094	$ 2,877
Current liabilities	432	321
Equity of Charah	831	5,078
Equity of joint venture partner	831	(2,522)
Total liabilities and members' equity	$ 2,094	$ 2,877

Summarized financial performance of our equity method investment entity is as follows:

	Year Ended December 31,		
	2020	2019	2018
Operating Data			
Revenue	$ 6,012	$ 9,354	$ 11,076
Net income	$ 2,569	$ 4,590	$ 4,813
The Company's share of net income	$ 1,284	$ 2,295	$ 2,407

The following table reflects our proportional ownership activity in our investment account:

	Year Ended December 31,		
	2020	2019	2018
Opening balance	$ 5,078	$ 5,060	$ 5,006
Distributions	(1,731)	(2,277)	(2,353)
Share of net income	1,284	2,295	2,407
Impairment	(3,800)	—	—
Closing balance	$ 831	$ 5,078	$ 5,060

7. Distributions to Stockholders, Receivable from Affiliates, and Related Party Transactions

Before the Company's June 18, 2018 corporate reorganization, the Company made distributions of $686 to stockholders and members to cover their tax liabilities. As of December 31, 2020 and 2019, the receivable from affiliates associated with these distributions were $0 and $294, respectively.

ATC Group Services LLC ("ATC"), an entity owned by BCP, our majority stockholder, provided environmental consulting and engineering services at certain service sites. Expenses to ATC were $288, $184, $0, during the years ended December 31, 2020, 2019, and 2018. The Company had no receivables outstanding from ATC at December 31, 2020 and 2019. The Company had payables and accrued expenses, net of credit memos, due to ATC of $29 and $62 at December 31, 2020 and 2019, respectively.

Brown & Root Industrial Services, LLC ("B&R"), an entity 50% owned by BCP, our majority stockholder, provided subcontracted construction services at one of our remediation and compliance service sites. Expenses to B&R were $0, $1,565, and $19,401 during the years ended December 31, 2020, 2019, and 2018. The Company had no receivables outstanding from B&R at December 31, 2020 and 2019. The Company had payables and accrued liabilities, net of credit memos, due to B&R of $0 and $254 at December 31, 2020 and 2019, respectively.

The Company rented its corporate office through October 2019 through a triple net lease and rented housing at work sites and a condo through March 2020 from Price Real Estate, LLC ("Price Real Estate"), an entity owned by a stockholder of the Company. Rental expense associated with Price Real Estate of $0, $391, and $459 was incurred during the years ended December 31, 2020, 2019, and 2018, respectively. The Company had no receivables outstanding from Price Real Estate at December 31, 2020 and 2019. The Company had a payable due to Price Real Estate of $0 and $2 at December 31, 2020 and 2019, respectively.

PriceFlight, LLC ("PriceFlight"), an entity owned by a stockholder of the Company, previously provided flight services to the Company. Expenses to PriceFlight for flight services amounted to $0, $85, and $1,208 during the years ended December 31, 2020, 2019, and 2018, respectively.

Management determined that Price Real Estate and PriceFlight are variable interest entities. The Company has variable interests in them through the common ownership and contractual agreements discussed above. The Company is not considered to be the primary beneficiary. Management considers the likelihood to be remote that the Company will be required to make future funds available to Price Real Estate and PriceFlight. However, were the Company required to make funds available the maximum exposure to the Company would be any excess of the debt obligations of Price Real Estate and PriceFlight over the fair value of their respective assets.

As further discussed in Note 3, in November 2020, the Company sold its Allied subsidiary to an affiliate of BCP.

As further discussed in Note 12, in March 2020, the Company entered into an agreement with an investment fund affiliated with BCP to sell 26,000 shares of Preferred Stock.

8. Goodwill and Intangible Assets

Goodwill and indefinite-lived intangible assets are not amortized, but instead are tested for impairment annually or more often if events or changes in circumstances indicate that the fair value of the asset may have decreased below its carrying value. We perform our impairment test effective October 1st of each year and evaluate for impairment indicators between annual impairment tests.

Goodwill

The Company performed quantitative assessments of its ES and M&TS reporting units as of October 1, 2020. The ES and M&TS reporting units' fair values, as calculated, were approximately 15.1% and 7.2%, respectively, greater than their book values as of October 1, 2020. As previously discussed in Note 3, we allocated $12,020 of goodwill to discontinued operations on a relative fair value basis.

After the Allied Transaction, we concluded that the Company has two components: (i) sales and operations, and (ii) construction. Each component constitutes a business as defined by ASC 805, has discrete financial information and segment management reviews the operating results during monthly meetings. Based on a review of the relevant qualitative and quantitative factors, we concluded that these components were aggregated to be a single reporting unit as they were deemed to have similar economic characteristics. The Company performed a quantitative assessment of its single reporting unit's fair value immediately following the completion of the Allied Transaction and the reporting unit's fair value was approximately 7.3% greater than the book value as of November 30, 2020. As of December 31, 2020 and 2019, goodwill was $62,193.

The valuation used to test goodwill for impairment depends on several significant estimates and assumptions, including macroeconomic conditions, growth rates, competitive activities, cost containment, margin expansion and the Company's business plans. We believe these estimates and assumptions are reasonable. However, future changes in the judgments, assumptions and estimates that are used in our impairment testing for goodwill, including discount and tax rates or future cash flow projections, could result in significantly different estimates of the fair values.

The most significant assumptions utilized in determining the Company's estimated fair value are the net sales and earnings growth rates (including residual growth rates) and the discount rate. The residual growth rate represents the rate at which the reporting unit is expected to grow beyond the shorter-term business planning period. The residual growth rate utilized in our fair value estimate is consistent with the reporting unit operating plans and approximates expected long-term category market growth rates and inflation. The discount rate, which is consistent with a weighted average cost of capital that is likely to be expected by a market participant, is based upon industry required rates of return, including consideration of both debt and equity components of the capital structure. Our discount rate may be affected by adverse changes in the macroeconomic environment, volatility in the equity and debt markets or other factors.

While management can and has implemented strategies to address these events, changes in operating plans or adverse changes in the future could reduce the underlying cash flows used to estimate fair values and could result in a decline in fair value that would trigger future impairment charges of the reporting unit's goodwill balance. The table below provides a sensitivity analysis, utilizing reasonably possible changes in the assumptions for the shorter-term revenue and residual growth rates and the discount rate, to demonstrate the potential impacts to the estimated fair values. The table below provides, in isolation, the estimated fair value impacts related to (i) a 75-basis point increase to the discount rate assumption and (ii) a 75-basis point decrease to our shorter-term revenue and residual growth rates assumptions, both of which would result in impairment charges.

	Approximate Percent Decrease in Estimated Fair Value	
	+75 bps Discount Rate	**-75 bps Growth Rate**
Estimated fair value impacts	9.3 %	9.2 %

Indefinite-Lived Intangible Asset

Our intangible assets, net include a trade name that is considered to have an indefinite life. The Charah trade name fair value is based upon the income approach, primarily utilizing the relief-from-royalty methodology. This methodology assumes that, in lieu of ownership, a third party would be willing to pay a royalty in order to obtain the rights to use the comparable asset. An impairment loss is recognized when the estimated fair value of the intangible asset is less than the carrying value. Fair value calculation requires significant judgments in determining both the assets’ estimated cash flows as well as the appropriate discount and royalty rates applied to those cash flows to determine fair value. Variations in economic conditions or a change in general consumer demands, operating results estimates or the application of alternative assumptions could produce significantly different results.

During the year ended December 31, 2020, we recorded an impairment of our Charah trade name intangible asset of $21,014. As part of the October 1, 2020 annual impairment test, we identified a decrease in the royalty rate used in the valuation that was primarily attributable to the recent performance of the Company.

Definite-Lived Intangible Assets

Definite-lived intangible assets included customer relationships, technology, non-compete and other agreements, SCB trade name, and a rail easement. Amortization expense of definite-lived intangible assets was $8,582, $8,400, and $8,304 for the years ended December 31, 2020, 2019, and 2018, respectively.

Long-lived assets, including definite-lived intangible assets are reviewed for impairment whenever certain triggering events may indicate impairment.

During the year ended December 31, 2020, as discussed in Note 5, the Company determined that certain technology-related equipment and construction in progress assets were no longer viable and recognized an impairment charge associated with those assets. As a result of this impairment, we concluded that a triggering event had occurred that indicated that the technology intangible asset group may not be recoverable. We determined that the technology intangible asset had no value since we will no longer be attempting to use the technology in construction equipment. The Company recognized an impairment charge of $1,452.

The Company's intangible assets consist of the following as of:

	December 31, 2020			December 31, 2019		
	Gross Carrying Amount	Accumulated Amortization and Impairment	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization and Impairment	Net Carrying Amount
Definite-lived intangibles						
Customer relationships	$ 78,942	$ (30,832)	$ 48,110	$ 78,942	$ (22,938)	$ 56,004
Technology	2,003	(2,003)	—	2,003	(351)	1,652
Non-compete and other agreements	289	(289)	—	289	(253)	36
SCB trade name	694	(694)	—	694	(243)	451
Rail easement	110	(110)	—	110	(110)	—
Total	$ 82,038	$ (33,928)	$ 48,110	$ 82,038	$ (23,895)	$ 58,143
Indefinite-lived intangibles						
Charah trade name	34,330	21,014	13,316	34,330	—	34,330
Total			$ 61,426			$ 92,473

As of December 31, 2020, the total estimated amortization expense of the Company's definite-lived intangible assets for each of the next five years and thereafter is as follows:

For the Year Ending December 31,	
2021	$ 7,894
2022	7,894
2023	7,894
2024	7,894
2025	7,894
Thereafter	8,640
Total	$ 48,110

9. Credit Agreement

On September 21, 2018, we entered into a credit agreement (the "Credit Facility") by and among us, the lenders party thereto from time to time and Bank of America, N.A., as administrative agent (the "Administrative Agent"). The Credit Facility includes:

- A revolving loan not to exceed $50,000 (the "Revolving Loan");
- A term loan of $205,000 (the "Closing Date Term Loan"); and
- A commitment to loan up to a further $25,000 in term loans, which expires in March 2020 (the "Delayed Draw Commitment" and the term loans funded under such Delayed Draw Commitment, the "Delayed Draw Term Loan," together with the Closing Date Term Loan, the "Term Loan").

After the Fourth Amendment, all amounts associated with the Revolving Loan and the Term Loan under the Credit Facility will mature in July 2022 as discussed more fully below. The interest rates per annum applicable to the loans under the Credit Facility are based on a fluctuating rate of interest measured by reference to, at our election, either (i) the Eurodollar rate, currently the London Inter-bank Offered Rate ("LIBOR"), or (ii) an alternative base rate. Various margins are added to the interest rate based upon our consolidated net leverage ratio (as defined in the Credit Facility). Customary fees are payable regarding the Credit Facility and include (i) commitment fees for the unused portions of the Credit Facility and (ii) fees on outstanding letters of credit. Amounts borrowed under the Credit Facility are secured by substantially all of the assets of the Company.

The Credit Facility contains various customary representations and warranties and restrictive covenants that, among other things and subject to specified exceptions, restrict the ability of us and our restricted subsidiaries to grant liens, incur indebtedness (including guarantees), make investments, engage in mergers and acquisitions, make dispositions of assets, make restricted payments or change the nature of our or our subsidiaries' business. The Credit Facility contains financial covenants related to the consolidated net leverage ratio and the fixed charge coverage ratio (as defined in the Credit Facility) that have been modified as described below.

The Credit Facility also contains certain affirmative covenants, including reporting requirements, such as delivering financial statements, certificates and notices of certain events, maintaining insurance and providing additional guarantees and collateral in certain circumstances.

The Credit Facility includes customary events of default, including non-payment of principal, interest or fees as they come due, violation of covenants, inaccuracy of representations or warranties, cross-default to certain other material indebtedness, bankruptcy and insolvency events, invalidity or impairment of guarantees or security interests, material judgments and change of control.

The Revolving Loan provides a principal amount of up to $50,000, reduced by outstanding letters of credit. As of December 31, 2020, $12,003 was outstanding on the Revolving Loan and $11,079 in letters of credit were outstanding.

But for Amendment No. 2 to Credit Agreement and Waiver (the “Second Amendment”), as of June 30, 2019, we would not have complied with the requirement to maintain a consolidated net leverage ratio of 3.75 to 1.00 under the Credit Facility. On August 13, 2019, we entered into the Second Amendment, under which, among other things, the required lenders agreed to waive such non-compliance.

Also, according to the terms of the Second Amendment, the Credit Facility was amended to revise the required financial covenant ratios, which have been modified as described below. As consideration for these accommodations, we agreed that amounts borrowed under the Delayed Draw Commitment would not exceed $15,000 at any one time outstanding (without reducing the overall Delayed Draw Commitment amount). Further, the margin of interest charged on all outstanding loans was increased to 4.00% for loans based on LIBOR and 3.00% for loans based on the alternative base rate. The Second Amendment revised the amount of (i) the commitment fees to 0.35% at all times for the unused portions of the Credit Facility and (ii) fees on outstanding letters of credit to 3.35% at all times. The Second Amendment also added a requirement to make two additional scheduled prepayments of outstanding loans under the Credit Facility, including a payment of $50,000 on or before September 13, 2019 and an additional payment of $40,000 on or before March 31, 2020. The $50,000 payment was made before September 13, 2019, using proceeds of the Brickhaven deemed termination payment. The Second Amendment required the Company to pay the Administrative Agent an amendment fee in an amount equal to 1.00% of the total credit exposure under the Credit Facility immediately before the effectiveness of the Second Amendment and this fee was paid on August 16, 2020.

The Second Amendment also included revisions to the restrictive covenants, including removing certain exceptions to the restrictions on our ability to make acquisitions, make investments and make dividends or other distributions. After giving effect to the Second Amendment, we will not be permitted to make any distributions or dividends to our stockholders without the required lenders' consent.

In March 2020, the Company entered into Amendment No. 3 to Credit Agreement (the “Third Amendment”).

Under the terms of the Third Amendment, the Credit Facility was amended to waive the mandatory $40,000 prepayment due on or before March 31, 2020, and to revise the required financial covenant ratios such that, after giving effect to the Third Amendment, we were not required to comply with any financial covenants through December 30, 2020. After December 30, 2020, we were required to comply with a maximum consolidated net leverage ratio of 6.50 to 1.00 from December 31, 2020 through June 29, 2021, decreasing to 6.00 to 1.00 from June 30, 2021 through December 30, 2021, and to 3.50 to 1.00 as of December 31, 2021 and thereafter. After giving effect to the Third Amendment, we were also required to comply with a minimum fixed charge coverage ratio of 1.00 to 1.00 as of December 31, 2020, increasing to 1.20 to 1.00 as of March 31, 2021 and thereafter. In the event that we were unable to comply in the future with such financial covenants upon delivery of our financial statements pursuant to the terms of the Credit Facility, an Event of Default (as defined in the Credit Facility) will have occurred and the Administrative Agent can then, following a specified cure period, declare the unpaid principal amount of all outstanding loans, all interest accrued and unpaid thereon, and all other amounts payable to be immediately due and payable by the Company.

The Third Amendment increased the maximum amount available to be borrowed under the Delayed Draw Commitment from $15,000 to $25,000, subject to certain quarterly amortization payments. The Third Amendment also included revisions to the restrictive covenants, including increasing the amount of indebtedness that the Company may incur regarding certain capitalized leases from $50,000 to $75,000.

Under the Third Amendment, the Company has agreed to make monthly amortization payments in respect of term loans beginning in April 2020, and move the maturity date for all loans under the Credit Agreement to July 31, 2022 (the "Maturity Date"). Also, if at any time after August 13, 2019, the outstanding principal amount of the Delayed Draw Term Loans exceeds $10,000, we will incur additional interest at a rate equal to 10.0% per annum on all daily average amounts exceeding $10,000 payable at March 31, 2020 and the Maturity Date. Further, the Third Amendment requires mandatory prepayments of revolving loans with any cash held by the Company over $10,000, which excludes the amount of proceeds received in respect of the Preferred Stock Offering (as defined below) to the extent such funds are used for liquidity and general corporate purposes. The Company has also agreed to an increase of four percent (4%) to the interest rate applicable to the Closing Date Term Loan compounded monthly and paid in kind by adding such portion to the outstanding principal amount.

As a condition to entering into the Second Amendment, we were required to pay the Administrative Agent an amendment fee (the "Second Amendment Fee") in an amount equal to 1.50% of the total credit exposure under the Credit Agreement, immediately before the effectiveness of the Second Amendment. Of the Second Amendment Fee, 0.50% was due and paid on October 15, 2019 and 1.00% of such Second Amendment Fee was paid on August 16, 2020. We were also required to pay the Administrative Agent an amendment fee associated with the Third Amendment (the "Third Amendment Fee") in an amount equal to 0.20% of the total credit exposure under the Credit Agreement, immediately before the effectiveness of the Third Amendment, with such Third Amendment Fee paid on June 30, 2020. Finally, we will also pay an additional fee with respect to the Third Amendment in the amount of $2,000, with such fee being due and payable on the Maturity Date.

In November 2020, the Company entered into Amendment No. 4 to Credit Agreement (the "Fourth Amendment").

Under the terms of the Fourth Amendment, the Credit Facility was amended to revise the required financial covenant ratios such that, after giving effect to the Fourth Amendment, for the periods ending December 31, 2020 through March 30, 2021, we will be required to comply with a maximum consolidated leverage of 5.50 to 1.00, decreasing to 4.80 to 1.00 for the periods ended March 31, 2021 through September 29, 2021, to 4.50 to 1.00 for the periods ending September 30, 2021 through December 30, 2021, and to 3.50 to 1.00 as of December 31, 2021 and thereafter. After giving effect to the Fourth Amendment, we will also be required to comply with a minimum fixed charge coverage ratio of 1.00 to 1.00 as of March 31, 2021, increasing to 1.20 to 1.00 as of June 30, 2021 and thereafter.

Our ability to comply with such financial covenants depends on the Company's forecasted leverage and adjusted EBITDA for the applicable periods, which could be adversely impacted by the effects of COVID-19 or other unforeseen factors. Our financial forecasts, which we believe are reasonable given current market conditions, indicate that the Company will be in compliance with all financial covenants through the one-year period following the issuance of these financial statements. Those financial forecasts are highly dependent upon the demand for our byproduct sales, timing in new contract awards and completion of existing work. The current pandemic is making it more difficult to forecast future results, and as a result, it may have a significant impact on the Company's results of operations, financial position, liquidity or capital resources. These significant risks may also have an adverse impact and cause us not to comply with our financial covenants. If we are not in compliance with our financial covenants, the Company could be required to seek waivers, forbearance or amendments from the Administrative Agent. There can be no assurance that we could obtain such waivers, forbearance, or amendments as any future agreements with the Administrative Agent are not considered in the Company's control. If we are unable to comply in the future with such financial covenants upon delivery of our financial statements according to the terms of the Credit Facility, an Event of Default (as defined in the Credit Facility) will have occurred. The Administrative Agent can then, following a specified cure period, declare the unpaid principal amount of all outstanding loans, all interest accrued and unpaid thereon, and all other amounts payable to be immediately due and payable by the Company.

In accordance with ASC 470, *Debt*, the Company calculated the present value of the cash flows for purposes of applying the 10% cash flow test for the Third Amendment and concluded that the original and new debt instruments were substantially different, necessitating that the Third Amendment be accounted for as an extinguishment. The Company capitalized third-party fees of $1,623 that will be amortized prospectively through interest expense, net in the Consolidated and Combined Statement of Operations using the effective interest method through the Maturity Date. Fees payable to the lenders (as discussed above) of $5,162 were associated with the extinguishment of the old debt instrument and included in loss on extinguishment of debt in the accompanying Consolidated and Combined Statements of Operations. The Company wrote-off unamortized debt issuance costs of $3,441, which is included in loss on extinguishment of debt in the accompanying Consolidated and Combined Statements of Operations. Also, the Company calculated the present value of the cash flows for purposes of applying the 10% cash flow test for the Fourth Amendment and concluded that the original and new debt instruments were not substantially different, necessitating that the Fourth Amendment be accounted for as a modification.

10. Notes Payable

The following table summarizes the significant components of debt at each balance sheet date and provides maturities and interest rate ranges for each major category as of December 31, 2020 and 2019:

	December 31, 2020	December 31, 2019
Various equipment notes entered into in November 2017, payable in monthly installments ranging from $6 to $24, including interest at 5.2%, maturing in December 2022 through December 2023. The notes are secured by equipment with a net book value of $2,162 as of December 31, 2020.	$ 2,871	$ 3,937
Various equipment notes entered into in 2018, payable in monthly installments ranging from $1 to $39, including interest ranging from 5.6% to 6.8%, maturing in March 2023 through May 2025. The notes are secured by equipment with a net book value of $7,745 as of December 31, 2020.	8,446	10,429
Various equipment notes entered into in 2019, payable in monthly installments ranging from $2 to $23, including interest ranging from 3.9% to 6.4%, maturing in April 2021 through December 2024. The notes are secured by equipment with a net book value of $2,976 as of December 31, 2020.	3,490	4,333
Various equipment notes entered in 2020, payable in monthly installments ranging from $9 to $10, including interest of 5.4%, maturing in August and September 2025. The notes are secured by equipment with a net book value of $2,237 as of December 31, 2020.	2,011	—
In June 2018, the Company entered into a $12,000 convertible non-revolving credit note with a bank. The credit note converted to a term loan on April 10, 2019 and was amended in November 2019, December 2019, and April 2020. Pursuant to the terms of the amendment, this loan was amended to require a maturity date of December 31, 2020 and interest on borrowings to be calculated at a fixed rate per annum equal to 5.9%. The note was repaid in November, 2020.	—	9,900
In July 2019, the Company entered into a commercial insurance premium financing agreement, payable in monthly installments of $169, including interest of 4.4%, that matured in March 2020.	—	506
Various commercial insurance premium financing agreements entered into 2020, payable in monthly installments ranging from $22 to $126, including interest ranging from 3.4% to 3.8%, maturing in February and March 2021.	453	—
A $10,000 equipment line with a bank, entered into in December 2017, secured by all equipment purchased with the proceeds of the loan. Interest is calculated on any outstanding amounts using a fixed rate of 4.5%. The equipment line converted to a term loan in September 2018, with a maturity date of June 22, 2023. The term loan is secured by equipment with a net book value of $4,333 as of December 31, 2020.	5,791	7,719
Pursuant to the terms of the Third Amendment, the Closing Date Term Loan and the Delayed Draw Term Loan entered into in September 2018 as part of the Syndicated Credit Facility (see also Note 9), maturing July 2022. The interest rate applicable to the Closing Date Term Loan and the Delayed Draw Term Loan is based on a fluctuating rate of interest measured by reference to, at the Company's election, either (i) the Eurodollar rate, currently the LIBOR rate, or (ii) an alternative base rate. With respect to the Closing Date Term Loan, principal payments required are $1,280 monthly from January 2021 through December 2021, and $1,500 monthly thereafter. The Delayed Draw Term Loan was repaid in November 2020 with proceeds from the Allied Transaction. The term loan is secured by substantially all the assets of the Company and is subject to certain financial covenants.	125,239	152,188
Total	148,301	189,012
Less debt issuance costs	(1,024)	(3,441)
	147,277	185,571
Less current maturities	(22,308)	(34,873)
Notes payable due after one year	$ 124,969	$ 150,698

Future maturities of notes payable at December 31 are as follows:

For the Year Ending December 31,		
2021	$	22,308
2022		116,711
2023		5,648
2024		2,927
2025		707
Thereafter		—
Total	$	148,301

11. Sale-leaseback Transaction

In November 2020, we entered into a sale-leaseback transaction whereby we sold and leased back plant, machinery and equipment and vehicles. The transaction met the requirements of a sale in accordance with ASC 606 and the lease is classified as a capital lease. Proceeds from the sale were $7,000 and the cost and related accumulated depreciation of the plant, machinery and equipment and vehicles of $9,841 and $3,302, respectively were removed from the Consolidated Balance Sheet at the time of the sale. The $461 gain realized on the sale and $88 in loan origination fees incurred at the time of the sale were included in the capital lease asset that will be depreciated over the life of the lease or three years. The lease obligation of $2,199 and $4,485 has been recorded within current and long-term liabilities, respectively, in the Consolidated Balance Sheet as of December 31, 2020. The proceeds from the sale were recorded within investing activities in the Consolidated and Combined Cash Flow Statements.

The Company's depreciation of capital lease assets is included with depreciation expense disclosed in Note 5, Balance Sheet Items. The following table shows the components of capital lease assets, net:

	December 31,			
	2020		**2019**	
Capital lease assets	$	6,627	$	—
Less: accumulated depreciation		(368)		—
Capital lease assets, net	$	6,259	$	—

Future minimum lease payments are as follows:

For the Year Ending December 31,		
2021	$	2,594
2022		2,594
2023		2,197
		7,385
Amount representing interest		701
Present value of lease payments	$	6,684

12. Mezzanine Equity

As a condition to the Third Amendment in March 2020, the Company entered into an agreement with an investment fund affiliated with BCP to sell 26 (twenty-six thousand) shares of Series A Preferred Stock, par value $0.01 per share (the “Preferred Stock”), with an initial aggregate liquidation preference of $26,000, net of a 3% Original Issue Discount (“OID”) of $780 for net proceeds of $25,220 in a private placement (the “Preferred Stock Offering”). Proceeds from the Preferred Stock Offering will be used for liquidity and general corporate purposes. In connection with the issuance of the Preferred Stock, the Company incurred direct expenses of $966, including financial advisory fees, closing costs, legal expenses and other offering-related expenses. The Preferred Stock was initially recorded net of OID and direct expenses, which will be accreted through paid-in-capital as a deemed dividend from the date of issuance through the first possible known redemption date, March 16, 2023. As of December 31, 2020, the Company had accrued dividends of $906 associated with the Preferred Stock, which was recorded at a fair value of $1,356 using unobservable information for similar items and is classified as a level 3 fair value measurement.

Dividend Rights The Preferred Stock ranks senior to the Company's common stock, with respect to dividend rights and rights on the distribution of assets in any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company. The Preferred Stock had an initial liquidation preference of $1 (one thousand dollars) per share.

The holders of the Preferred Stock are entitled to a cumulative dividend paid in cash at the rate of 10.0% per annum, payable on a quarterly basis. If we do not declare and pay a dividend to the holders of the Preferred Stock, the dividend rate will increase to 13.0% per annum and the dividends are paid-in-kind by adding such amount to the liquidation preference. The Company's intention is to pay dividends in-kind for the foreseeable future. The dividend rate will increase to 16.0% per annum upon the occurrence and during the continuance of an event of default. As of December 31, 2020, the liquidation preference of the Preferred Stock was $28,783.

Conversion Features The Preferred Stock is convertible at the option of the holders at any time on and subsequent to the three-month anniversary of the date of issuance into shares of common stock at a conversion price of $2.77 per share (the "Conversion Price"), which represents a 30% premium to the 20-day volume-weighted average price ended March 4, 2020. As of December 31, 2020, the maximum number of common shares that could be required to be issued if converted is 10,391 (ten million, three hundred ninety one thousand). The conversion rate is subject to the following customary anti-dilution and other adjustments:

- the issuance of common stock as a dividend or the subdivision, combination, or reclassification of common stock into a greater or lesser number of shares of common stock;
- the dividend, distribution or other issuance of rights, options or warrants to holders of common stock entitling them to subscribe for or purchase shares of common stock at a price per share that is less than the market value for such issuance;
- the issuance of a dividend or similar distribution in-kind, which can include shares of any class of capital stock, evidences of the Company's indebtedness, assets or other property or securities, to holders of common stock;
- a transaction in which a subsidiary of the Company ceases to be a subsidiary of the Company as a result of the distribution of the equity interests of the subsidiary to the holders of the Company's common stock; and
- the payment of a cash dividend to the holders of common stock.

On or subsequent to the three-year anniversary of the date of issuance, if the holders have not elected to convert all their shares of Preferred Stock, the Company may give 30 days' notice to the holders giving the holders the option to choose, in their sole discretion, to have all outstanding shares of Preferred Stock converted into shares of common stock or redeemed in cash at the then applicable Redemption Price (as defined below). The Company may not issue this conversion notice unless (i) the average volume-weighted average price per share of the Company's common stock during each of the 20 consecutive trading days before the conversion is greater than 120% of the conversion price; (ii) the Company's common stock is listed on a national securities exchange; (iii) a registration statement for the re-sale of the common stock is then effective; and (iv) the Company is not then in possession of material non-public information as determined by Regulation FD promulgated under the Exchange Act.

The Preferred Stock and the associated dividends during the year ended December 31, 2020 did not generate a beneficial conversion feature ("BCF") upon issuance as the fair value of the Company's common stock was less than the conversion price at the dividend dates. The Company will determine and, if required, measure a BCF based on the fair value of our stock price on the date dividends are declared for each subsequent dividend. If a BCF is recognized, a reduction to paid-in capital and the Preferred Stock will be recorded, and then subsequently accreted through the first redemption date.

Additionally, the Company determined that the nature of the Preferred Stock was more akin to an equity instrument and that the economic characteristics and risks of the embedded conversion options were clearly and closely related to the Preferred Stock. As such, the conversion options were not required to be bifurcated from the host under ASC 815, *Derivatives and Hedging*.

Redemption Rights If the Company undergoes certain change of control transactions, the Company will be required to immediately make an offer to repurchase all of the then-outstanding shares of Preferred Stock for cash consideration per share equal to the greater of (i) 100% of the Liquidation Preference, plus accrued and unpaid dividends, if any, plus, if applicable for a transaction occurring before the third anniversary of the closing, a make-whole premium determined pursuant to a calculation of the present value of the dividends that would have accrued through such anniversary, discounted at a rate equal to the applicable treasury rate plus 0.50% (the "Make-Whole Premium"); provided that if the transaction occurs before the first anniversary of the closing, the Make-Whole Premium shall be no greater than $4,000 and (ii) the closing sale price of the common stock on the date of such redemption multiplied by the number of shares of common stock issuable upon conversion of the outstanding Preferred Stock.

On or subsequent to the three-year anniversary of the issuance of the Preferred Stock, the Company may redeem the Preferred Stock, in whole or in part, for an amount in cash equal to the greater of (i) the closing sale price of the common stock on the date the Company delivers such notice multiplied by the number of shares of common stock issuable upon conversion of the outstanding Preferred Stock and (ii) (x) if the redemption occurs before the fourth anniversary of the date of the closing, 103% of the Liquidation Preference, plus accrued and unpaid dividends, or (y) if the redemption occurs on or after the fourth anniversary of the date of the closing, the Liquidation Preference plus accrued and unpaid dividends (the foregoing clauses (i) or (ii), as applicable, the "Redemption Price").

On or subsequent to the seven-year anniversary of the date of issuance, the holders have the right, subject to applicable law, to require the Company to redeem the Preferred Stock, in whole or in part, into cash consideration equal to the liquidation preference, plus all accrued and unpaid dividends, from any source of funds legally available for such purpose.

Since the redemption of the Preferred Stock is contingently or optionally redeemable, and therefore not certain to occur, the Preferred Stock is not required to be classified as a liability under ASC 480, *Distinguishing Liabilities from Equity*. As the Preferred Stock is redeemable in certain circumstances at the option of the holder and is redeemable in certain circumstances upon the occurrence of an event that is not solely within our control, we have classified the Preferred Stock in mezzanine equity in the accompanying Consolidated Balance Sheets.

Liquidation Rights In the event of any liquidation, winding-up or dissolution of the Company, whether voluntary or involuntary, the holders of the Preferred Stock will receive an amount in cash equal to the greater of (i) 100% of the liquidation preference plus a Make-Whole Premium and (ii) the amount such holders would be entitled to receive at such time if the Preferred Stock were converted into Company common stock immediately before the liquidation event. The Make-Whole Premium is removed from the calculation for a liquidation event occurring subsequent to the third anniversary of the issuance date.

Voting Rights The holders of the Preferred Stock are entitled to vote with the holders of the common stock on an as-converted basis in addition to voting as a separate class as provided by applicable Delaware law and the Company's organizational documents. The holders, acting exclusively and as a separate class, shall have the right to appoint either a non-voting observer to the Company's Board of Directors or one director to the Company's Board of Directors.

Registration Rights The holders of the Preferred Stock have certain customary registration rights with respect to the Preferred Stock and the shares of common stock into which they are converted, pursuant to the terms of a registration rights agreement.

13. Interest Rate Swap

To manage interest rate risk in a cost-efficient manner, the Company entered into an interest rate swap in December 2017 whereby the Company agreed to exchange with the counterparty, at specified intervals, the difference between fixed and variable interest amounts calculated by reference to a notional amount. The interest rate swap is not designated for hedge accounting. The change in fair value of the interest rate swap is immediately recognized in earnings, within interest expense, net.

As of both December 31, 2020 and 2019, the notional amount of the interest rate swap was $150,000. A fair value liability of $935 and $1,116 was recorded in the Consolidated Balance Sheets within other liabilities as of December 31, 2020 and 2019, respectively. The total amount of gain (loss) included in interest expense, net in the Consolidated and Combined Statements of Operations for the years ended December 31, 2020, 2019 and 2018 was $181, $(2,007) and $1,089, respectively.

14. Contract Assets and Liabilities

The timing of revenue recognition, billings and cash collections results in accounts receivable, contract assets, and contract liabilities on the Consolidated Balance Sheets.

Our contract assets are as follows:

	December 31, 2020	December 31, 2019
Costs and estimated earnings in excess of billings	$ 12,196	$ 19,256
Retainage	6,133	1,385
Total contract assets	$ 18,329	$ 20,641

The decrease in contract assets in 2020 was primarily attributable to an increase in billings associated with projects that are nearing completion partially offset by an increase in retainage from those billings.

Our contract liabilities are as follows:

	December 31, 2020	December 31, 2019
Deferred revenue	$ 128	$ 505
Billings in excess of costs and estimated earnings	6,167	77
Total contract liabilities	$ 6,295	$ 582

The increase in contract liabilities in 2020 was primarily due to an increase in billings in excess of costs and estimated earnings associated with a specific remediation and compliance project.

We recognized revenue of $582 for the year ended December 31, 2020 that was previously included in the contract liability balance at December 31, 2019.

The following table sets forth the costs and estimated earnings on uncompleted contracts as of:

	December 31, 2020	December 31, 2019
Costs incurred on uncompleted contracts	$ 123,339	$ 65,343
Estimated earnings	18,425	9,618
Total costs and earnings	141,764	74,961
Less billings to date	(135,735)	(55,782)
Costs and estimated earnings in excess of billings	$ 6,029	$ 19,179

The net balance in process is classified on the Consolidated Balance Sheets as of:

	December 31, 2020	December 31, 2019
Costs and estimated earnings in excess of billings	$ 12,196	$ 19,256
Billings in excess of costs and estimated earnings	(6,167)	(77)
Net balance in process	$ 6,029	$ 19,179

Anticipated losses on long-term contracts are recognized when such losses become evident. As of December 31, 2020 and 2019, accruals for anticipated losses on long-term contracts were $155 and $322, respectively.

15. Stock/Unit-Based Compensation

The Limited Liability Company Agreement for Charah Management provided for the issuance of up to 1 Series C profits interests (the "Charah Series C Profits Interests"). In 2017, Charah Management adopted the Charah Series C Profits Interest Plan and issued 1 of such units to employees. The Charah Series C Profits Interests participated in distributions to Charah members based on specified rates of return being realized to the Charah Series A and Charah Series B membership interests. The Charah Series C Profits Interest Plan is no longer in place following our corporate reorganization and the IPO. The Charah Series C Profits Interests would have vested ratably in each of the first five anniversaries of their grant date with vesting accelerated upon a change of control. There were 1 Charah Series C Profits Interests unvested at June 18, 2018, which were canceled as a result of the corporate reorganization that occurred upon the closing of the IPO (see further discussion below). The Charah Series C Profits Interests were valued based upon a contingent claims analysis to allocate the total implied equity value as of the valuation date amongst the various equity securities classes, with breakpoints estimated considering relative seniority, liquidation preferences, and conversion features. An assumed volatility of 30% based upon a comparable public company analysis was used in the determination of fair value. The weighted–average grant date fair value of the Charah Series C Profits Interests granted during 2017 was $3,198 per unit, resulting in $2,100 of total compensation costs, which was expected to vest over five years.

The Limited Liability Company Agreement for Allied provided for the issuance of up to 1,000 Allied Series C profits interests (the "Allied Series C Profits Interests"). In 2017, Allied adopted the Allied Series C Profits Interest Plan and issued 550 of such units to employees. The Allied Series C Profits Interest Plan is no longer in place following our corporate reorganization and the IPO. The Allied Series C Profits Interests participated in distributions to Allied members based upon specified rates of return being realized to the Allied Series A and Allied Series B membership interests. The Allied Series C Profits Interests vested immediately upon grant. The Allied Series C Profits Interests were valued based upon a contingent claims analysis to allocate the total implied equity value as of the valuation date amongst the various equity securities classes, with breakpoints estimated considering relative seniority, liquidation preferences, and conversion features. An assumed volatility of 32.5% based upon a comparable public company analysis was used in the determination of fair value. The weighted average grant date fair value of the Allied Series C Profits Interests granted during 2017 was $69 per unit.

In connection with the corporate reorganization that occurred upon the closing of the IPO, the holders of Charah Series C Profits Interests and Allied Series C Profits Interests received 1,216 shares of common stock (the "Management Reorganization Consideration") in exchange for the contribution to the Company of their Charah Series C Profits Interests and Allied Series C Profits Interests. Of these shares, 304 vested immediately and 912 shares are subject to time-based vesting conditions, as well as performance vesting conditions, based on specified EBITDA targets and achievement of certain safety metrics, which will be determined at future dates. In addition, 273 shares of common stock were issued under the Charah Solutions, Inc. 2018 Omnibus Incentive Plan (see further discussion below). Of these shares, 68 shares vested immediately and 205 shares are subject to the same time-based vesting conditions and performance vesting conditions as the shares issued in accordance with the Management Reorganization Consideration. The fair value of the awards was calculated initially as $12 per share, and will be updated thereafter for changes at each reporting period until the performance targets are approved by the Company's board of directors. The fair value of the awards is recognized over the required service period for each grant. As of December 31, 2020, 685 of the shares subject to time-based and performance vesting conditions were vested and 255 had been forfeited.

Upon the closing of the IPO, the board of directors of the Company adopted the Charah Solutions, Inc. 2018 Omnibus Incentive Plan (the "2018 Plan"), pursuant to which employees, consultants, and directors of the Company and its affiliates, including named executive officers, are eligible to receive awards. The 2018 Plan provides for the grant of stock options, stock appreciation rights, restricted stock, restricted stock units, bonus stock, dividend equivalents, other stock-based awards, substitute awards, annual incentive awards, and performance awards intended to align the interests of participants with those of Company stockholders. The Company has reserved 3,007 shares of common stock for issuance under the 2018 Plan, and all future equity awards described above will be issued pursuant to the 2018 Plan. During the year ended December 31, 2018, the Company issued 89 restricted stock units ("RSUs") under the 2018 Plan that had time-based vesting requirements after one year. The fair value of these RSUs was based on the market price of the Company's shares on the grant date. As of December 31, 2020, 68 of the shares were vested and 21 had been forfeited.

During the year ended December 31, 2019, the Company granted 769 RSUs under the 2018 Plan that are time-based. Of these RSUs, 2 vested immediately, 128 vest after one year, 550 vest in equal installments over three years, and 89 vest in equal installments over four years. The fair value of these RSUs is based on the market price of the Company's shares on the grant date. As of December 31, 2020, 332 of the shares were vested and 97 had been forfeited.

During the year ended December 31, 2019, we also granted 331 performance share units ("PSUs") under the 2018 Plan that cliff vest after three years. The vesting of these PSUs is dependent upon the Company's achievement of certain stock price metrics. The fair value of the PSUs was determined using a binomial lattice model based upon the grant date stock price, a risk-free interest rate of 2.29% based upon the U.S. Treasury yield curve in effect at the time of the grants, and an assumed volatility rate of 30% based upon a comparable public company analysis. As of December 31, 2020, none of the shares were vested and 44 had been forfeited.

During the year ended December 31, 2020, the Company granted 542 RSUs under the 2018 Plan that have time-based vesting requirements. Of the RSUs granted during the year ended December 31, 2020, 15 vest at the end of an eleven-month period, 90 vest at the end of a one-year period, and 437 vest in equal annual installments over three years. The fair value of these RSUs is based on the market price of the Company's shares on the grant date. As of December 31, 2020, 26 of the shares were vested and 52 had been forfeited.

During the year ended December 31, 2020, the Company granted 228 PSUs, under the 2018 Plan that cliff vest after three years. The vesting of these PSUs is dependent upon the following performance goals during the period January 1, 2020 through December 31, 2022 (the "Performance Period"): (i) the relative total stockholder return ("TSR") percentile ranking of the Company as compared to the specified performance peer group and (ii) cumulative revenue. Each performance goal is weighted at 50% in determining the number of PSUs that become earned PSUs. The maximum number of earned PSUs for the Performance Period is 200% of the target number of PSUs. The total compensation cost we will recognize under the PSUs will be determined using the Monte Carlo valuation methodology, which factors in the value of the TSR market condition when determining the grant date fair value of the PSU. Compensation cost for each PSU is recognized during the Performance Period based on the probable achievement of the two performance criteria. The PSUs are converted into shares of our common stock at the time the PSU award value is finalized. As of December 31, 2020, none of the shares were vested and 31 had been forfeited.

A summary of the Company's non-vested share activity for the year ended December 31, 2020 is as follows:

	Restricted Stock		Performance Stock		Total	
	Shares	Weighted-Average Grant Date Fair Value	Shares	Weighted-Average Grant Date Fair Value	Shares	Weighted-Average Grant Date Fair Value
Balance as of December 31, 2019	1,120	$ 6.87	301	$ 6.14	1,421	$ 6.72
Granted	542	1.74	228	1.28	770	1.60
Forfeited	(141)	5.88	(76)	4.17	(217)	5.28
Vested	(540)	4.46	—	—	(540)	4.46
Balance as of December 31, 2020	981	$ 5.08	453	$ 4.02	1,434	$ 4.74

	Restricted Stock		Performance Stock		Total	
	Weighted Average Remaining Contractual Terms (Years)	Aggregate Intrinsic Value	Weighted Average Remaining Contractual Terms (Years)	Aggregate Intrinsic Value	Weighted Average Remaining Contractual Terms (Years)	Aggregate Intrinsic Value
Balance as of December 31, 2019	0.99	$ 2,731	2.25	$ 733	1.26	$ 3,464
Balance as of December 31, 2020	0.79	$ 2,817	1.68	$ 1,299	1.07	$ 4,116

Stock-based compensation expense related to the restricted stock issued was $1,839, $2,069 and $1,471 during the years ended December 31, 2020, 2019, and 2018, respectively. As of December 31, 2020, total unrecognized stock-based compensation expense related to non-vested awards of restricted stock, net of estimated forfeitures, was $996, and is expected to be recognized over a weighted-average period of 1.23 years. The total fair value of awards vested for the year ended December 31, 2020 was $2,407.

Stock-based compensation expense related to the performance stock issued was $555, $345, and $0 during the years ended December 31, 2020, 2019, and 2018, respectively. As of December 31, 2020, total unrecognized stock-based compensation expense related to non-vested awards of performance stock, net of estimated forfeitures, was $806, and is expected to be recognized over a weighted-average period of 1.49 years.

16. Defined Contribution Retirement Plan

Charah and its operating subsidiary, Ash Management Services ("AMS"), provide a defined contribution employee benefit plan (the "Charah and AMS 401(k) Plan") qualified under Section 401(k) of the Code to employees who have completed 90 days of service and have attained age 18. Participants may contribute up to the lesser of 90% of eligible compensation or the maximum allowed under the Code. Charah and AMS make safe harbor contributions to participant accounts equal to 3% of the participant's annual compensation, commencing the quarter after the employee completes one year of service. Charah and AMS may also make discretionary contributions, and the contributions may vary from year to year, for employees who have met one year of employment. Participants are immediately vested in their elective contributions and safe harbor contributions. Participants are vested in discretionary contributions after completing six years of service. During the year ended December 31, 2020, 2019 and 2018, Charah and AMS contributed $393, $1,014 and $932, respectively to the Charah and AMS 401(k) Plan.

17. Commitments and Contingencies

We were party to a lawsuit filed against North Carolina by an environmental advocacy group alleging that the issuance by the state of certain permits associated with our Brickhaven clay mine reclamation site exceeded the state's power. In December 2020, the Company, the environmental advocacy group and the state settled, resolved and dismissed all matters. Before the settlement, all customer related work at the Brickhaven site had been completed. The settlement allows for all completed work to remain unchanged. Per the settlement, the Company will not place any additional material at the site, will place a deed restriction requiring engineering oversight for the future development of the site and will continue its groundwater monitoring at the site. The Company will continue its work with the state to modify its permit to conform to the work as completed and complete site closure operations.

Allied Power Services, LLC and its affiliate, Allied Power Resources, LLC, have been named in a collective action lawsuit filed in the U.S. District Court for the Northern District of Illinois, alleging violations of the Fair Labor Standards Act. The lawsuit includes related class claims alleging violations of the Illinois Minimum Wage Law and the Pennsylvania Minimum Wage Act for failure to pay overtime. This case is one of a series filed against companies in the oil, gas and energy industries in Illinois and Texas. The parties mediated this case in November 2018 and reached a settlement. As part of the Allied Transaction, the Company assumed the remaining settlement liability. On July 15, 2020, the court granted final approval of the settlement and the final settlement payments will occur in 2021.

In addition to the above matters, we are from time to time party to various lawsuits, claims and other legal proceedings that arise in the ordinary course of our business. For all such lawsuits, claims and proceedings, we record reserves when it is probable a liability has been incurred, and the amount of loss can be reasonably estimated. Although it is difficult to predict the ultimate outcome of these lawsuits, claims and proceedings, we do not believe that the ultimate disposition of any of these matters, individually or in the aggregate, would have a material adverse effect on our results of operations, financial position or cash flows. We maintain liability insurance for certain risks that is subject to certain self-insurance limits.

18. Multiemployer Pension Plan

AMS contributes to union-sponsored multiemployer retirement defined benefit pension plans (the "multiemployer plans") under the terms of collective bargaining agreements that cover its union-represented employees. The risks of participating in the multiemployer plans are different from single-employer plans in the following aspects:

- Assets contributed to the multiemployer plans by one employer may be used to provide benefits to employees of other participating employers.
- If a participating employer stops contributing to the multiemployer plans, the unfunded obligations of the multiemployer plans may be borne by the remaining participating employers.
- If AMS chooses to stop participating in the multiemployer plans, AMS may be required to pay the multiemployer plans an amount based on the underfunded status of the multiemployer plans, referred to as a withdrawal liability.

The primary multiemployer plan to which AMS made contributions for the year ended December 31, 2020, 2019 and 2018 is outlined in the table below. The "EIN/Pension Plan Number" column provides the Employer Identification Number ("EIN"). The most recent Pension Protection Act zone status available in 2020 is for the respective multiemployer plan's year-end within those years, unless otherwise noted. The zone status is based on information that AMS received from the multiemployer plans and is certified by the respective multiemployer plan's actuary. Among other factors, multiemployer plans in the red zone (critical) are generally less than 65% funded, multiemployer plans in the yellow zone (endangered) are less than 80% funded, and multiemployer plans in the green zone (neither critical and declining, critical, or endangered) are at least 80% funded. The "FIP/RP Status Pending/Implemented" column indicates multiemployer plans for which a financial improvement plan ("FIP") or a rehabilitation plan ("RP") is either pending or has been implemented. The last column lists the expiration dates of the collective bargaining agreements to which the multiemployer plans are subject.

				Year ended December 31, 2020	Year ended December 31, 2019	Year ended December 31, 2018		
Pension Fund	**EIN/Pension Plan Number**	**Pension Protection Act Zone Status**	**FIP/RP Status Pending/ Implemented**	**Contributions to Funds by AMS**	**Contributions to Funds by AMS**	**Contributions to Funds by AMS**	**Surcharge Imposed**	**Expiration Date of Collective Bargaining Agreement**
Central states, southeast and southwest areas pension plan	36-6044243	Red - Critical and declining	Progress under FIP or RP	$ 55	$ 47	$ 34	No	Continuous with notice period by either party
Operating Engineers Local 324 Pension Fund	38-1900637	Red - Critical	Progress under FIP or RP	$ 27	$ —	$ —	Yes	2021
Employer Teamsters Locals 175 & 505 pension trust fund	55-6021850	Red - Critical	Progress under FIP or RP	$ 74	$ 112	$ 92	Yes	2021

19. Income Taxes

The Company is a “C” Corporation under the Code and, as a result, is subject to U.S. federal, state, and local income taxes. The Company’s subsidiaries previously operated as partnerships for income tax purposes. Before the contribution of assets and liabilities to the Company on June 18, 2018, the subsidiaries passed through their taxable income to their owners for U.S federal and other state and local income tax purposes and, thus, the subsidiaries were not subject to U.S. federal income taxes or other state or local income taxes, except for franchise tax at the state level. Accordingly, the financial data attributable before the contribution on June 18, 2018 contains no provision for U.S. federal income taxes or income taxes in any state or locality other than franchise taxes.

The Company has determined its opening balance for deferred income tax assets and liabilities to be a net deferred tax liability of $1,508 based on the future tax effects of temporary differences between the financial statement value and tax basis of assets and liabilities contributed to the Company upon conversion as a taxable corporation on June 18, 2018. In accordance with ASC 740, the tax effects have been recorded as a separate item of income tax expense.

The total income tax (benefit) expense on (loss) income before income taxes was allocated as follows:

	Year Ended December 31,		
	2020	**2019**	**2018**
Continuing operations	$ (914)	$ 4,190	$ 4,022
Discontinued operations	94	—	(6,449)
Total	$ (820)	$ 4,190	$ (2,427)

The components of the provision for income taxes attributable to continuing operations for the year ended December 31, 2020, 2019, and 2018 is as follows:

	Year Ended December 31,		
	2020	2019	2018
Current income tax (benefit) expense:			
Federal	$ —	$ —	$ 2,176
State	(80)	(169)	1,163
	(80)	(169)	3,339
Deferred income tax (benefit) expense:			
Federal	(843)	2,389	1,747
State	9	1,970	(1,064)
	(834)	4,359	683
Total income tax (benefit) expense	$ (914)	$ 4,190	$ 4,022

The items accounting for differences between income taxes computed at the federal statutory rate and the (benefit) provision recorded for income taxes for continuing operations were as follows:

	Year Ended December 31,		
	2020	2019	2018
Income tax (benefit) expense at the federal statutory rate (21%)	$ (13,537)	$ (8,849)	$ 3,754
State income tax (benefit) expense, net of federal tax benefit	(70)	1,180	109
Income tax expense upon conversion to corporation	—	—	2,463
Non-controlling interest	(251)	(595)	(522)
Stock compensation	277	78	201
Income before conversion	—	—	(2,091)
Valuation allowance	12,328	12,190	—
Permanent items	339	186	108
Total income tax (benefit) expense	$ (914)	$ 4,190	$ 4,022

The Company accounts for income taxes in accordance with ASC 740, which requires an asset and liability approach for measuring deferred taxes based on temporary differences between the financial statement and tax basis of assets and liabilities existing at each balance sheet date using enacted tax rates for the years in which taxes are expected to be paid or recovered.

The components of the Company's deferred tax assets and liabilities as of December 31, 2020 and 2019 are as follows:

	As of December 31, 2020	As of December 31, 2019
Deferred tax assets:		
Loss carryovers	$ 5,505	$ 13,780
Intangible assets	4,315	—
Other accrued expenses and reserves	3,987	3,329
Loan modification costs	1,828	460
Capital lease	1,646	—
Deferred asset sale	1,440	—
Accrued bonus	1,278	722
Asset retirement obligation	1,253	3,810
Purchase option liability	—	1,790
Deferred tax assets	21,252	23,891
Valuation allowance	(17,158)	(12,908)
Net deferred tax asset	4,094	10,983
Deferred tax liabilities:		
Fixed assets, including land	4,345	10,434
Intangible assets	—	1,492
Prepaid expenses	117	549
Deferred tax liabilities	4,462	12,475
Net deferred tax liability	$ 368	$ 1,492

The Company has net operating loss carryforwards of approximately $22,793 for federal income tax purposes as of December 31, 2020. Net operating losses have unlimited carryover periods. Net operating losses and deferred interest expense for state tax purposes vary by state due mainly to apportionment. Most states allow net operating loss carryovers for a limited number of years.

Net deferred tax liabilities were $368 and $1,492 at December 31, 2020 and 2019, respectively. We consider both positive and negative evidence when measuring the need for a valuation allowance. The weight given to the evidence is commensurate with the extent to which it may be objectively verified. Current and cumulative financial reporting results are a source of objectively verifiable evidence. We give operating results during the most recent three-year period a significant weight in our analysis. We typically only consider forecasts of future profitability when positive cumulative operating results exist in the most recent three-year period. We perform scheduling exercises to determine if sufficient taxable income of the appropriate character exists in the periods required in order to realize our deferred tax assets with limited lives before their expiration. Realization of net operating losses and other carryforwards is dependent upon generating sufficient taxable income in the appropriate jurisdiction before the expiration of the carryforward periods, which involves business plans, planning opportunities and expectations about future outcomes.

Furthermore, we consider tax planning strategies available to accelerate taxable amounts if required to utilize expiring deferred tax assets. A valuation allowance is not required to the extent that, in our judgment, positive evidence exists with a magnitude and duration sufficient to result in a conclusion that it is more likely than not that our deferred tax assets will be realized. A valuation allowance is recorded if it is more likely than not that a portion of our deferred tax assets will not be realized.

The change in the valuation allowance for deferred tax assets is as follows:

	As of December 31,	
	2020	2019
Beginning balance	$ (12,908)	$ —
Current additions recorded in income tax (benefit) or expense	(14,204)	(12,908)
Current reductions recorded in income tax (benefit) or expense	3,264	—
Other adjustments	6,690	—
Ending balance	$ (17,158)	$ (12,908)

Based on the available evidence as of December 31, 2020 and 2019 we were not able to conclude it was more likely than not certain deferred tax assets will be realized. Therefore, a valuation allowance of $17,158 and $12,908 was recorded respectively, against our deferred tax assets. We will continue to evaluate the need for a valuation allowance on our deferred tax assets in future periods.

The Company classifies any interest and penalties related to income taxes assessed as part of income tax expense. The Company has concluded that there are no significant uncertain tax positions requiring recognition in the financial statements, nor has the Company been assessed interest or penalties by any major tax jurisdiction to any open tax periods.

The Company's income tax returns for the year ended December 31, 2019 and 2018 have been timely filed with the U.S. federal, state and local governments. The statute of limitations is open for the federal income tax return and certain state returns through October 15, 2023 and 2022, respectively, and for most of the remaining state returns through October 15, 2024 and 2023, respectively. The examination of prior period tax returns filed for partnerships, the interests of which were contributed to the Company in the reorganization, could impact the Company's tax expense and balance sheet tax accounts.

The Company acquired a foreign subsidiary at reorganization, and the subsidiary is subject to examination in its local country for 2019 and prior calendar years. The Company is not aware of any potential adjustments for 2019 or prior years and any potential adjustment is not expected to be material to the financial statements.

20. Operating Leases

The Company leases buildings, vehicles and equipment under various non-cancellable agreements classified as operating leases, which expire through December 2026 and require various minimum annual rentals.

Future minimum lease payments are as follows:

For the Years Ending December 31,	Operating Leases
2021	$ 9,128
2022	8,032
2023	7,337
2024	4,009
2025	1,204
Thereafter	643
Total	$ 30,353

The total rent expense included in the Consolidated and Combined Statements of Operations for the years ended December 31, 2020, 2019, and 2018 was $19,406, $18,613 and $5,981, respectively.

21. Loss Per Share

Basic loss per share is computed by dividing loss income attributable to the Company's stockholders by the weighted average number of shares outstanding during the period. Diluted loss per share reflects all potential dilutive ordinary shares outstanding during the period and is computed by dividing loss available to the Company's stockholders by the weighted average number of shares outstanding during the period increased by the number of additional shares that would have been outstanding as dilutive securities.

Basic and diluted loss per share is determined using the following information:

	Year Ended December 31,		
	2020	2019	2018
Numerator:			
Net (loss) income from continuing operations	$ (64,746)	$ (49,163)	$ 11,366
Deemed and imputed dividends on Series A Preferred Stock	(461)	—	—
Series A Preferred Stock dividends	(4,064)	—	—
Net (loss) income from continuing operations attributable to common stockholders	(69,271)	(49,163)	11,366
Net income (loss) from discontinued operations	8,883	7,105	(20,268)
Net loss attributable to common stockholders	$ (60,388)	$ (42,058)	$ (8,902)
Denominator:			
Weighted average shares outstanding	29,897	29,495	26,610
Dilutive share-based awards	—	—	1,020
Total weighted average shares outstanding, including dilutive shares	29,897	29,495	27,630
Net (loss) income from continuing operations per common share			
Basic	$ (2.32)	$ (1.67)	$ 0.43
Diluted	$ (2.32)	$ (1.67)	$ 0.41
Net income (loss) from discontinued operations per common share			
Basic	$ 0.30	$ 0.24	$ (0.76)
Diluted	$ 0.30	$ 0.24	$ (0.73)
Net loss attributable to common stockholders per common share			
Basic	$ (2.02)	$ (1.43)	$ (0.33)
Diluted	$ (2.02)	$ (1.43)	$ (0.32)

The holders of the Preferred Stock have nonforfeitable rights to common stock dividends or common stock dividend equivalents. Accordingly, the Preferred Stock qualifies as participating securities.

As a result of the net loss from continuing operations per share for the years ended December 31, 2020 and 2019, the inclusion of all potentially dilutive shares would be anti-dilutive. Therefore, dilutive shares (in thousands) of 9,250 and 1,329, were excluded from the computation of the weighted average shares for diluted net loss per share for the years ended December 31, 2020 and 2019, respectively. For the year ended December 31, 2018, since there was income from continuing operations per share, dilutive shares (in thousands) of 1,020 were include in the above calculations.

A summary of securities excluded from the computation of diluted earnings per share is presented below:

	Year Ended December 31,	
	2020	2019
Diluted earnings per share:		
Anti-dilutive restricted and performance stock units	1,510	1,329
Anti-dilutive Series A Preferred Stock convertible into common stock	7,740	—
Potentially dilutive securities, excluded as anti-dilutive	9,250	1,329

22. Major Customers

No customers accounted for greater than 10% of consolidated revenue during the year ended December 31, 2020. The Company derived approximately 19% and 61% of its consolidated revenue from one customer during the years ended December 31, 2019 and 2018, respectively. Accounts receivable from this one customer at December 31, 2019 was $5,227.

23. Subsequent Events

On December 31, 2020, the Company executed an agreement (the "Lease Agreement") with Sanford, LLC (the "Tenant"), an unrelated third party, for the lease of one of the Company's structural fill assets. The lease term is for a period of 30 years with fixed rent to be paid monthly commencing on the lease's commencement date of $294 annually through the year ending December 31, 2025 and $354 annually for all years ending thereafter. Pursuant to the terms of the Lease Agreement, the Tenant has the option to purchase the asset (the "Tenant Expiration Purchase Option"). If the Tenant has not elected or is deemed to have not exercised the Tenant Expiration Purchase Option, the Company shall have the option to require the Tenant to purchase the asset. During the first quarter of 2021, the lease was amended and will be accounted for as a sales-type lease.

On February 10, 2021, the Company purchased the Texas Municipal Power Agency's ("TMPA") Gibbons Creek Steam Electric Station and Reservoir's related assets in Grimes County, Texas ("the Gibbons Creek Transaction"). The Company acquired the 6,166-acre area, including the closed power station, a 3,500-acre reservoir, dam and spillway and other property. The Company will be responsible for the shutdown and decommissioning of the coal power plant, and as part of the acquisition, the Company will be assuming an asset retirement obligation for the site landfill and ash pond environmental remediation work. The closing date of the Gibbons Creek Transaction occurred subsequent to the end of the reporting period and the preliminary allocation of the purchase price to the net assets has not yet been completed.

24. Quarterly Financial Data (Unaudited)

The following table summarizes the unaudited quarterly results of operations for the year ended December 31, 2020 and 2019:

	First Quarter	Second Quarter	Third Quarter [(a)]	Fourth Quarter [(b)]
2020				
Revenue	$ 51,277	$ 52,304	$ 63,116	$ 65,680
Operating loss	(5,773)	(3,451)	(108)	(30,237)
Loss from continuing operations, net of tax and non-controlling interest	(17,293)	(7,313)	(4,335)	(35,805)
Deemed and imputed dividends on Series A Preferred Stock	—	(167)	(147)	(147)
Series A Preferred Stock dividends	(111)	(858)	(877)	(2,218)
Net loss from continuing operations attributable to common stockholders	(17,404)	(8,338)	(5,359)	(38,170)
Income from discontinued operations, net of tax	3,043	3,777	119	1,944
Net loss attributable to common stockholders	(14,361)	(4,561)	(5,240)	(36,226)
Net loss from continuing operations per common share				
Basic	$ (0.59)	$ (0.28)	$ (0.18)	$ (1.27)
Diluted	$ (0.59)	$ (0.28)	$ (0.18)	$ (1.27)
Net income from discontinued operations per common share				
Basic	$ 0.10	$ 0.13	$ —	$ 0.06
Diluted	$ 0.10	$ 0.13	$ —	$ 0.06
Net loss attributable to common stockholders per common share				
Basic	$ (0.48)	$ (0.15)	$ (0.17)	$ (1.21)
Diluted	$ (0.48)	$ (0.15)	$ (0.17)	$ (1.21)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter [c]
2019				
Revenue	$ 73,144	$ 53,010	$ 63,553	$ 54,954
Operating loss	(2,823)	(19,964)	(2,751)	(4,272)
Loss from continuing operations, net of tax and non-controlling interest	(6,483)	(17,973)	(5,274)	(19,433)
Income (loss) from discontinued operations, net of tax	3,664	(53)	1,961	1,533
Net loss attributable to common stockholders	(2,819)	(18,026)	(3,313)	(17,900)
Net loss from continuing operations per common share				
Basic	$ (0.22)	$ (0.61)	$ (0.18)	$ (0.66)
Diluted	$ (0.22)	$ (0.61)	$ (0.18)	$ (0.66)
Net income from discontinued operations per common share				
Basic	$ 0.13	$ —	$ 0.07	$ 0.05
Diluted	$ 0.13	$ —	$ 0.07	$ 0.05
Net loss attributable to common stockholders per common share				
Basic	$ (0.10)	$ (0.61)	$ (0.11)	$ (0.60)
Diluted	$ (0.10)	$ (0.61)	$ (0.11)	$ (0.60)

(a) Third quarter of 2020 includes a $6,399 impairment of a structural fill asset and a $7,110 reduction in general and administrative expenses from the expiration of a purchase option liability.

(b) Fourth quarter of 2020 includes a $35,415 impairment of tangible, intangible assets and equity method investments and a $9,702 gain on change in contingent payment liability.

(c) Fourth quarter of 2019 includes a $12,908 valuation allowance recorded against deferred tax assets.

Basic and diluted (loss) earnings per common share for each of the quarters presented above is based on the respective weighted average number of common and dilutive potential common shares outstanding for each quarter, and the sum of the quarters may not necessarily be equal to the full year basic and diluted earnings per common share amounts.

Schedule II. Valuation and Qualifying Accounts

The table below presents valuation and qualifying accounts:

	Balance at Beginning of Period	Charged to Expense	Deductions	Balance at End of Period
Year ended December 31, 2020:				
Allowance for doubtful accounts	$ 146	$ 354	$ (33)	$ 467
Valuation allowance for deferred taxes	12,908	14,204	(9,954)	17,158
Year ended December 31, 2019:				
Allowance for doubtful accounts	$ —	$ 146	$ —	$ 146
Valuation allowance for deferred taxes	—	12,908	—	12,908

Exhibit 21.1

Subsidiaries of Charah Solutions, Inc.

Entity	State or Other Jurisdiction of Incorporation or Organization
Charah Sole Member LLC	Delaware
Charah, LLC	Kentucky
Ash Management Services, LLC	Kentucky
Green Meadow, LLC	North Carolina
Ash Venture LLC	North Carolina
CV Ash, LLC	Texas
Charah Management LLC	Delaware
SCB International Holdings, LLC	Delaware
Mercury Capture Intellectual Property, LLC	Delaware
SCB Trading, LLC	Connecticut
Mercury Capture Beneficiation, LLC	Delaware
Nutek Micro-Grinding, LLC	Connecticut
Oreco Trading, Inc.	Panama
SCB Europe S.R.L.	Italy
Charah Environmental Redevelopment Group, LLC	Kentucky
Muskegon Environmental Redevelopment Group, LLC	Michigan
Gibbons Creek Environmental Redevelopment Group, LLC	Texas

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-225717 on Form S-8 of our report dated March 24, 2021, relating to the financial statements of Charah Solutions, Inc. appearing in this Annual Report on Form 10-K for the year ended December 31, 2020.

/s/ Deloitte & Touche LLP

Louisville, Kentucky
March 24, 2021

Exhibit 31.1

CERTIFICATION

I, Scott A. Sewell, certify that:

1. I have reviewed this Annual Report on Form 10-K of Charah Solutions, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:
    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 24, 2021

/s/ Scott A. Sewell

Scott A. Sewell

President and Chief Executive Officer

(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION

I, Roger D. Shannon, certify that:

1. I have reviewed this Annual Report on Form 10-K of Charah Solutions, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:
    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 24, 2021

/s/ Roger D. Shannon

Roger D. Shannon

Chief Financial Officer and Treasurer

(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of Charah Solutions, Inc. (the "Company") for the fiscal year ended December 31, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Scott A. Sewell, President and9 Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 24, 2021

/s/ Scott A. Sewell

Scott A. Sewell

President and Chief Executive Officer

(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of Charah Solutions, Inc. (the “Company”) for the fiscal year ended December 31, 2020, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Roger D. Shannon, Chief Financial Officer and Treasurer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 24, 2021

/s/ Roger D. Shannon

Roger D. Shannon

Chief Financial Officer and Treasurer

(Principal Financial Officer)

Charah®
Solutions

MISSION

Charah Solutions is a total solutions company providing unparalleled service and innovation.

VISION

Charah Solutions is and will continue to be the leader in customer service, safety, and innovation. We do this by hiring and developing great talent and working together to challenge and inspire each other to be the very best.

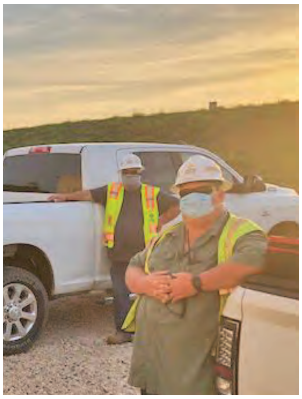
VALUES

We focus daily on the following core values:

Customer	**Exceed Expectations**
Safety	**Never Compromise**
Innovation	**Rethink Routine, Identify New Solutions**
Sustainability	**Take Responsibility And Take Action**
Teamwork	**Accountable To Each Other**
Integrity	**Always Do The Right Thing**








SERVICE ABOVE ALL.

TOLL-FREE: 877-314-7724
PHONE: 502-245-1353
WEBSITE: charah.com

Charah Solutions, Inc.
12601 Plantside Drive
Louisville, KY 40299

Charah® Solutions