

2021 ANNUAL REPORT



POWERFUL SERVICES. SUSTAINABLE SOLUTIONS.



2021 ESG AT A GLANCE

11.81 MILLION
TONS OF CCRs HANDLED

2.79 MILLION
TONS OF CCRs
BENEFICIATED AND RECYCLED

.97 MILLION
TONS OF CO₂ REDUCED PER YEAR
WITH THE SHUTDOWN OF THE
GIBBONS CREEK STEAM STATION

1.58 MILLION
TONS OF CO₂ SAVED FROM
ENTERING THE ATMOSPHERE
BY RECYCLING CCRs



2.79 MILLION
TONS OF MATERIALS DIVERTED
FROM LANDFILL DISPOSAL

750,324 TONS
OF GYPSUM RECYCLED

14 PONDS
CLEANED AND
CLOSED AND 1
MINE RECLAIMED
SINCE THE EPA 2015 CCR RULE
TOOK EFFECT

APPROXIMATELY
4,818 ACRES
OF LAND RECLAIMED SINCE THE EPA
2015 CCR RULE TOOK EFFECT

294 MILLION
GALLONS OF WASTEWATER TREATED

0.32 TOTAL
RECORDABLE
INCIDENT RATE
(INDUSTRY AVERAGE IS 2.8)

A THREE-YEAR AVERAGE
EXPERIENCE MODIFICATION
RATE (EMR) OF
LESS THAN 0.62

ZERO LOST TIME
INJURIES

10,654 SAFETY
INSPECTIONS
PERFORMED; 663,686 SAFETY
OBSERVATIONS PERFORMED; 219
COMPLIANCE AUDITS; 324 FINDINGS

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



20%
DIVERSE WORKFORCE
(PEOPLE OF COLOR AND FEMALE)

5%
MILITARY VETERAN
WORKFORCE

OVER
\$800,000
IN CHARITABLE DOLLARS DONATED
OVER THE LAST 5 YEARS

27
CHARITABLE
ORGANIZATIONS
SUPPORTED

7
EMPLOYEES
PROVIDED
GRANTS
THROUGH THE
CHARAH CARES PROGRAM

Letter from Jack A. Blossman, Jr. | Chairman of the Board of Directors

FELLOW SHAREHOLDERS



2021 was an incredible year of growth for Charah Solutions with strong year-over-year revenue increases, expanded partnerships with new and existing utility customers, and a third straight year of record new business awards. The Charah Solutions Board is very

pleased with the significant accomplishments achieved in our fourth year as a public company and even more excited about the growth that is in store for the Company in the near term. The expansion in our customer base of utility and power generation customers around the country and of our integrated services embedded at the customer level, combined with recent positive legislative and regulatory action at the state and federal levels, position the Company very well for accelerated growth and continued industry leadership resulting in increased financial performance for many years to come.

As the newly elected Board Chairman, I am confident in the growth strategy being led by President and CEO Scott Sewell and CFO and Treasurer Roger Shannon, and I am very proud of the implementation and hard work of our field employees and management teams across the country. Charah Solutions is truly one of America's best examples of resource conservation and recovery. Through the environmental remediation of coal-fired power plants, land, and ash pond impoundments, we are able to recycle coal ash used in the production of green concrete that would otherwise be sent to landfills while also redeveloping land to benefit the community. We continue to grow our core Remediation and Compliance Services business while making successful and significant inroads into new business segments with our Environmental Risk Transfer (ERT) services business, which has proven to be a very important asset for the future of our industry and the Company.

Industry-leading innovation and technology are key drivers for the Company, as they have been since our inception, with our proprietary EnviroSource™ fly ash beneficiation technology providing a superior product to the market at a lower cost while preserving our natural resources, and reducing CO₂ emissions.

Charah Solutions continues to take a leadership role in fulfilling our Environmental, Social and Governance (ESG) commitments for the betterment of our planet, our communities, our customers, our employees, and our shareholders. These priorities will only increase in relevance for all companies as regulatory agencies work to standardize climate-related disclosures for investors. We strive to be at the forefront of this reporting while providing services that truly benefit the environment as well as actions and goals that improve the lives of our employees and provide opportunities for increased diversity in our industry. Our recent 2021 ESG Report shows our true commitment with 1-year goals results that are driving real change and benefits for not only the environment but for our employees and the communities in which we work.

2021 saw many successes for Charah Solutions from a business and financial perspective that will allow the Company to continue to capitalize on its industry leadership position as well as current market conditions into the future. Our deep Board experience across the power generation industry, combined with our management team's unparalleled knowledge of operations, our diversified customer base, our broad spectrum of service offerings, and our industry-leading safety record position us well for increased financial and market share growth. We remain committed to creating exceptional and sustainable value for all of our shareholders today and for years to come. Thank you for your investment in Charah Solutions.

Jack A. Blossman, Jr.
Chairman of the Board of Directors
Charah Solutions, Inc.



*CO₂ savings are generated for lifecycle GHG calculations using the EPA WARM Model: MTCO₂e = Metric Tonnes of CO₂e Greenhouse Gas (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.

DEAR INVESTORS



2022 will mark the 35th Anniversary of Charah Solutions and a major milestone in our Company's history as we celebrate our commitment to living the Charah Solutions mission, vision and values each day our team comes to work:

holding each other accountable, exceeding customer expectations, never compromising, rethinking the routine, and taking action. As we reflect on 2021, I want to start by thanking our leadership team and employees for their dedication as they deliver Service Above All for our customers to improve the environment, enhance our communities, and make Charah Solutions a great place to work.

2021 was a highly successful year for Charah Solutions not only in terms of financial results as we achieved strong year-over-year growth in revenues, but also in the manner in which the entire Charah Solutions team came together to fully overcome pandemic challenges while growing our business to record-setting levels. It was yet another incredible year for us with \$840 million in new business awards, a 17.5% increase from our previous record of \$715 million in 2020. We won more new business in 2021 than ever before while expanding our customer base to include new customers such as NV Energy, Mosaic, Associated Electric Cooperative, NIPSCO, and OG&E, as well as expanding our service footprint with new projects in Nevada and Oklahoma. We expect these new awards to result in double-digit revenue growth in 2022.

We also saw significant legislative and regulatory action in 2021 and early 2022. We believe these actions provide enhanced opportunities for us to continue to grow our core business. The U.S. rejoined the Paris Climate Agreement and is making commitments to 100% clean electricity by 2035. In November 2021, the Infrastructure Investment and Jobs Act became law, which provides increased opportunities for fly ash to be recycled and beneficially used in the production of green concrete to meet the growing infrastructure demand.

Most recently, in January 2022, the U.S. Environmental Protection Agency (EPA) acted to expand and strengthen the regulation for coal ash and groundwater management of regulatorily mandated surface impoundments and landfills, marking the first time the EPA has enforced the 2015 Coal Combustion Residuals Regulation from coal-fired power plants for the management of ash impoundments and landfills.

All of this progress comes with an enhanced focus on ESG as we strive to be the best possible employer to our team members, be vigilant stewards of the environment, deliver value to our shareholders, and give back to the communities in which we work and live. We recently published our second annual 2021 ESG report, and I am very proud to state that we substantially achieved all our 1-year ESG goals, and are well on our way to meeting our 3-year and 5-year goals due to the hard work and dedication of our employees at our sites across the country. Sustainability is integral to what we do and has been part of our DNA since the start. We support the SEC's push to establish uniform ESG reporting standards and believe that all corporations should do their part and be held accountable to ESG measures.

We also made major progress in 2021 by "doubling down" on our sustainability commitments through the dramatic growth of our ERT business. We announced the acquisition of GenOn Energy's Avon Lake and Cheswick Generating Stations, where we plan to shutter these plants and perform sustainable environmental remediation and redevelopment. We expect to place thousands of acres of land back into public and private use. Importantly, we completed the sale of 80% of the real property acreage at our Gibbons Creek ERT project in late 2021, and we announced the sale of the remaining 20% of the acreage in March 2022.

These business wins and favorable market conditions provide additional growth opportunities to expand our already broad platform of services, which creates efficiencies at the customer level by sourcing multiple services from a single trusted partner, a key Charah Solutions differentiator. This includes opportunities for the installation of our EnviroSource fly ash beneficiation technology, where we expect to complete our first commercial agreement in the first half of 2022, providing a significantly lower cost profile technology to the market versus competing technologies. We currently have more than \$3.1 billion of pending proposals, and we have identified nearly \$7.5 billion of

opportunities across all of our businesses, providing additional growth opportunities well into the future.

I am proud to lead an incredibly talented team of industry experts at our sites across the country. They continue to deliver for our customers and grow our business while always making safety our first priority. Some of our other notable achievements include:

Remediation & Compliance Services and Byproduct Services Contract Wins:

- Two long-term ash pond closure by removal contracts by a Southeastern utility; the first project includes excavation of approximately 16.5 million cubic yards of ash from two ponds and construction of three new onsite CCR-lined landfills over 16 years, and the second project includes excavation of approximately 5.5 million cubic yards of ponded ash and construction of a new 43-acre onsite CCR lined landfill over 8 years.
- Two ash pond closure contracts and one ash pond stabilization contract by a long-term Southeastern utility partner that includes basin excavation work at each site, as well as site clearing, ash stabilization, ash excavation, and ash relocation into existing lined landfill cells.
- Long-term marketing contract by Dominion Energy for the beneficiation and utilization of up to 8.1 million tons of reclaimed ponded coal ash at the Chesterfield Power Station in Chester, VA.
- Five-year ash marketing contract by NV Energy for the utilization of fly ash from the North Valmy Generating Station located near Valmy, NV.
- Three-year contract extension with Luminant for fly ash marketing and material handling operations at the Miami Fort Power Plant and Zimmer Power Plant in Ohio through 2027, and continuation of the management of the onsite landfill and impoundment operations.
- Seven-year contract extension for operations and maintenance of the flue gas desulfurization (FGD) plant at Luminant's Miami Fort Power Plant in North Bend, OH.
- Five-year sales and marketing contract for the beneficial recycling of fly ash from the Gavin Power Plant in Cheshire, OH.
- Five-year marketing contract from Associated Electric Cooperative for the sustainable recycling of fly ash, bottom ash and boiler slag from the Thomas Hill Energy Center near Clifton Hill, MO.

Environmental Risk Transfer (ERT) Services Project Wins:


- In less than one year since the acquisition, we executed contracts to sell 100% of the real property at the former TMPA Gibbons Creek Steam Station and Reservoir in Grimes County, TX.
 - The acquisition of GenOn's Avon Lake Generating Station in Avon Lake, OH, where we plan to fully remediate the property for sustainable redevelopment while creating jobs, supporting the tax base, and expanding economic activity.
 - The acquisition of GenOn's Cheswick Generating Station and related properties in Springdale, PA, for sustainable environmental remediation and redevelopment of these properties to include options for renewable energy and utilization of the existing transmission system and river shipping assets.
- ### Continual Focus On Safety Leadership:
- 0.32 Total Recordable Incident Rate (TRIR) in 2021 with no Lost Time Injuries.
 - Three-year average Experience Modification Rate (EMR) of less than 0.62.
 - No Lost Time Injury in more than 2,962,000 work hours.
 - Winner of Associated General Contractors of America (AGC) Willis Towers Watson Construction Safety Excellence Award for the fifth consecutive year.
 - Southern Company Technical & Project Solutions (T&PS) Triangle Safety Award for outstanding safety performance.
 - Seven Gold-level Certificate of Safety Achievement Awards from the North Carolina Department of Labor (NCDOL) for an outstanding record of employee safety.

As the partner of choice for solving our customers' most complex environmental challenges and as an industry leader in quality, safety, and compliance, Charah Solutions is ideally positioned to help utilities and independent power producers deliver on their EPA and state regulatory requirements and needs. Working together with our Board of Directors, our leadership team, and our exceptional teams around the country, we look forward to our continued new business and financial performance success as we capitalize upon increasing demand and business conditions. Thank you for your ongoing support and your investment.


Scott Sewell
President
Chief Executive Officer
Charah Solutions, Inc.

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.




DECREASES LANDFILL DISPOSAL



REDUCES GREENHOUSE GAS EMISSIONS



CONSERVES AND PROTECTS WATER

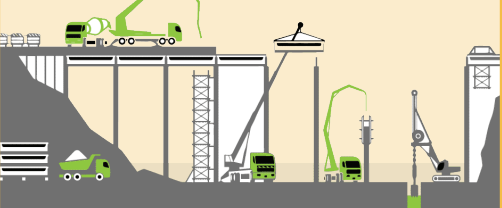


CONSERVES VIRGIN RESOURCES



REMEDiates LAND FOR USE

SINCE 2020, WE HAVE SAVED 4.79 MILLION TONS OF CO₂ FROM ENTERING THE ATMOSPHERE.



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

ROADS

BRIDGES

CONCRETE PIPE

PRECAST PRODUCTS

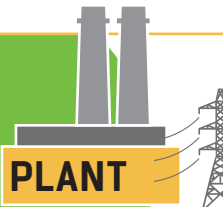
DAMS

BUILDINGS

CONCRETE BLOCK

READY MIX CONCRETE

FOR EVERY TON OF FLY ASH USED TO REPLACE TRADITIONAL CEMENT, .87 TONS OF CO₂ IS SAVED FROM ENTERING THE ATMOSPHERE.



POWER PLANT

CCRs are generated by burning pulverized coal in a boiler furnace which creates both bottom ash and fly ash. Bottom ash is mechanically collected at the bottom of the boiler furnace, whereas fly ash is captured by routing flue gas through electrostatic precipitators. The final process is flue gas desulfurization (FGD), creating synthetic gypsum. All processes create byproducts which are managed by Charah Solutions and can be beneficially used through sustainable processes.

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 2.79 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


SINCE 2020, WE HAVE BENEFICIALLY RECYCLED MORE THAN 5.4 MILLION TONS OF CCPs.

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.

ASH POND MANAGEMENT

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

BENEFICIATED ASH – ENVIROSOURCE

CONDITIONED FLY ASH FOR STRUCTURAL FILL

REMEDIATED POND LAND REUSE

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.

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.

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

LAND REMEDIATION/ REDEVELOPMENT

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.

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 4,818 acres of land for community use.

SINCE 2020, CHARAH SOLUTIONS HAS DIVERTED 5.4 MILLION TONS OF MATERIAL FROM LANDFILLS.

COMMITMENT TO ESG

Sustainability is central to everything we do at Charah Solutions. It 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 this commitment daily. Our commitment to sustainable practices is showcased in our 2021 ESG Report.

DOWNLOAD OUR 2021 ESG REPORT
AT CHARAH.COM/SUSTAINABILITY



The Charah Solutions 2021 ESG Report is prepared using internationally recognized Sustainability Accounting Standards Board (SASB) and United Nations 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 environmental and remediation services, the recycling of ash, and our ERT services for the betterment of the planet, the communities in which we operate, and our customers. Our sustainability efforts conserve virgin resources and water, reduce greenhouse gases, and decrease landfill disposal, all while providing essential recycled products that contribute to the growth of our economy and land remediation.

Our commitment to environmental stewardship, employee well-being, 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 always 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.

Charah Solutions set aggressive 1-year ESG goals, and we are pleased to report that we sustainably met or exceeded all 1-year ESG goals.

Key 2021 ESG achievements meeting 1-year ESG goals include:

ENVIRONMENTAL

- Sustainably redeveloped 4,456 acres at our Gibbons Creek Steam Station ERT project and returned 62.8 acres at our B.C. Cobb ERT project to natural wetlands, exceeding 1-year goal that 90% of land owned will be remediated and returned to its natural habitat or sustainably redeveloped.
- Improved the number and quality of site inspections and audits performed by our safety professionals and site team members in 2021, marking an all-time high with more than 10,654 inspections and 663,686 observations.
- No Notices of Violation or Notices of Deficiency in 2021.

DATA ACQUISITION AND REPORTING CAPABILITIES

- Developed methods to track actual electrical energy usage by site to refine Scope 2 Emission estimates, fuel usage by site to refine and validate fuel consumption calculations with field data, and waste disposal, including domestic waste, recycling, and industrial waste.



DIVERSITY AND INCLUSION

- Increased the diversity of our Board of Directors from 14% in 2020 to 22% in 2021; the Board now includes one minority female and one minority male.
 - Instituted new apprenticeship program that provides an opportunity for new diverse hires to train and acquire the skills needed for trade/craft careers at our sites around the country.
 - Instituted scholarship programs at five national and regional organizations to support our diversity and inclusion goals, including the Charah Solutions Women in Construction Award for construction trades students implemented by the National Association of Women in Construction (NAWIC) Founders Scholarship Foundation as well as Heavy Equipment Operator Diversity Scholarships at heavy equipment training schools in multiple regions across the country.
 - Significantly increased our veteran workforce from 3.8% in 2020 to 5% in 2021, which represents a 41% increase year-over-year.
 - Established and implemented methods to track all diverse suppliers.
- ### SAFETY
- 0.32 Total Recordable Incident Rate (TRIR) – well below the industry average of 2.8.
 - More than 2.9 million work hours in 2021 without a Lost Time Injury.
 - 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.

Key 2021 ESG results include:

- 2.79 million tons of coal combustion residuals (CCRs) recycled for beneficial use
- 1.58 million tons of CO₂ saved from entering the atmosphere by recycling CCRs
- 2.79 million tons of materials diverted from landfill disposal
- 750,324 tons of gypsum recycled
- Approximately 4,818 acres of land reclaimed since 2015
- 14 ponds cleaned and closed and 1 mine reclaimed since 2015
- 294 million gallons of wastewater treated
- 0 incidents of noncompliance associated with air emissions
- A three-year average Experience Modification Rate (EMR) of less than 0.62
- 0 Lost Time Injuries
- 20% diverse workforce (people of color and female)
- 5% military veteran workforce
- Over \$800,000 in charitable dollars donated over the last 5 years
- 27 charitable organizations supported
- 7 employees provided grants through the Charah Cares program

We strive to be the best possible employer to our people and vigilant stewards of the environment, as these are fundamental values that we work to accomplish every day. We know that we must keep improving, and we continue to set goals across the Company to make sure we are innovating, providing our employees with opportunities to grow, and benefiting the environment at every step.

**SINCE 2020, WE HAVE PREVENTED
OVER 4.79 MILLION TONS OF CO₂
FROM ENTERING THE ATMOSPHERE**

*through beneficial use of ash and shutdown
of coal-fired power plants.*



THE FUTURE OF OUR BUSINESS – SCENARIO PLANNING

There have been several major legislative and regulatory announcements at the federal and state levels in the last year that we believe accelerate our business opportunities and position Charah Solutions to leverage existing capabilities, technologies, and customer relationships to provide vertically integrated offerings to some of the largest utilities and concrete producers in the country.

- In November 2021, the Infrastructure Investment and Jobs Act was signed into law, which provides increased opportunity for fly ash to be recycled and beneficially used in the production of green concrete to meet the growing infrastructure demand in the ready mix concrete market, providing an environmentally-conscious replacement for Portland cement in the production of ready mix concrete and concrete products.
- Most recently, in January 2022, the EPA took action, expanding and strengthening the regulation for coal ash and groundwater management of regulatorily mandated surface impoundments and landfills, marking the first time the EPA has enforced the 2015 Coal Combustion Residuals Regulation from coal-fired power plants for the management of ash impoundments and landfills.

These are major steps that impact the full remediation of approximately 1,000 regulatorily mandated coal ash surface impoundments and landfills, protecting groundwater and providing the opportunity for these remediated lands to benefit both the communities and the environment. Utilities are under increasing pressure to manage coal plant byproducts in ways that do not harm the environment and to close legacy ash ponds that present a significant environmental burden.

According to the Energy Information Administration (EIA), between 2010 and the first quarter of 2019, U.S. power companies announced the retirement of more than 546 coal-fired power plants, totaling approximately 102 GW of generating capacity. There are plans to retire another 17 GW of coal-fired capacity by 2025.

**Estimated 1,000
Ash Ponds and
Landfills Require
EPA-Mandated
Closure or
Remediation**

10%

Closed or remediated
in the last 5 years

90%+

Still require closure
or remediation

Charah Solutions is well-positioned to continue to thrive, and we believe these recent announcements will accelerate services growth under multiple scenarios for the future of coal-fired power plants. While the long-term future of coal-fired power plants remains to be fully seen, we now have clear direction at both the federal and state levels, which seem to indicate coal-fired power plants being decommissioned at the expected steady rate as well as an acceleration of remediation for the approximately 1,000 regulatorily mandated coal ash surface impoundments and landfills. We believe that 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.

Accelerated Decommission Scenario

Under the scenario where the approximately 240 currently existing coal-fired power plants in the U.S. are decommissioned at an accelerated 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 an overall increase in our routine ash management remediation opportunities as well as an increase in demand for many of our other services, including:

- Increased demand for our ERT services, where we provide innovative turnkey solutions for these large-scale, complex environmental projects, including the acquisition of the property, shutdown, decommissioning, and the demolition of the coal-fired power plant, remediation of the onsite ash ponds and landfills, and restoration of the land. A typical ERT project is 2 to 5 years in duration.

- Recent EPA announcements regarding enforcement of the 2015 Coal Combustion Residuals Regulation from coal-fired power plants for the management of ash impoundments and landfills mean increased demand for remediation of the more than 1,000 regulatorily mandated surface impoundments in the U.S., potentially accelerating our business growth vs. current expectations. As a result, we expect to see remediation and compliance activity greatly increase.

- The November 2021 Infrastructure Investment and Jobs Act will accelerate our byproducts recycling business and continue to drive a much needed influx for:

- The byproducts and fly ash we market to concrete and cement producers around the country for beneficial use in the production of Portland cement and green concrete, as there is currently a shortage in the market today.
- 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.

- Expected high 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 that we would sell to concrete producers for green concrete.

Base Decommission Scenario

Under a base scenario where the life of existing coal-fired power plants in the U.S. remains 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 remediation, ERT, and byproduct recycling 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 would be expected to 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, likely led by independent power producer closures and shutdown of less efficient plants in the near term.
- An ongoing stream of additional business in the marketing of byproducts and supplementary cementitious materials (SCMs) as plants remain open for the predicted or longer time.
- Potential high 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 and 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 need 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 recycling to the power generation industry makes us well positioned to expand our services outside of the U.S. and to take advantage of these markets where coal-fired power plants are expanding.



2022 KEY GROWTH AND PROFIT DRIVERS



For 2022 and beyond, we see continued strong and growing interest among our existing and potential power generation customers for the environmental solutions we provide, particularly within our Remediation and Compliance Services, Byproduct Services, and ERT business lines. We are optimistic that we will reach our first commercial agreement for the use of our EnviroSource fly ash beneficiation technology in the first half of 2022. We continue to have a substantial amount of pending and anticipated bids for new business across all of our business lines as our utility customers work to address their federally and state-mandated remediation requirements. We currently have more than \$3.1 billion in pending proposals, and we have identified nearly \$7.5 billion of opportunities across all of our businesses, providing additional growth well into the future.

Throughout 2021 and into 2022, there have been several significant legislative and regulatory changes that continue to create positive benefits for the environment while providing significant business opportunities for our core service offerings. These include the U.S. rejoining the Paris Climate Agreement and making commitments to 100% clean electricity by 2035. In November 2021, the Infrastructure Investment and Jobs Act became law, which provides increased opportunity for fly ash to be recycled and beneficially used in the production of green concrete to meet the growing infrastructure demand, providing an environmentally conscious replacement for Portland cement in the production of ready mix concrete and concrete products. Most recently, in January 2022, the EPA acted to expand and strengthen the regulation for coal ash and groundwater management of regulatorily mandated surface impoundments and landfills, marking the first time the EPA has enforced the 2015 Coal Combustion Residuals Regulation from coal-fired power plants for the management of ash impoundments and landfills, which we view as positive for our business as it should increase the amount of remediation work required by power plant owners.

Charah Solutions is well positioned to capitalize on these growing needs across the industry by virtue of our single-source solution and an expanding market for our ERT services. 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

Our Remediation and Compliance Services continue to be the highest potential growth engine of our Company. The EPA has estimated that there are more than 1,000 active and inactive onsite landfill and surface impoundments, including 500 that have groundwater contact issues, substantially all of which will require remediation or closure. These sites will require significant capital expenditures from the utilities and specialized environmental expertise to monitor them on an ongoing basis, remediate and relocate the waste, or completely close the impoundment. We believe that the January 2022 EPA announcement that expands and strengthens regulations affecting coal ash and groundwater management of mandated surface impoundments and landfills is very positive for our addressable market over the next several years, as it significantly expands the amount of remediation work utilities will be required to perform. We continue to see significant growth opportunities in our Remediation and Compliance Services business as we believe we are a partner of choice for our customers due to our reputation as a leader in quality and safety, domain experience, and compliance record, all of which are key criteria for our customers.

We expect our competitive advantage in strategically bundling our services and core strengths of ash remediation and byproduct services with our proprietary EnviroSource technology to be unmatched in the industry. We are well-positioned to provide cost-effective solutions to meet the ongoing demands of our customers while preserving our natural resources in an environmentally conscious manner.

Byproduct Services Growth

According to the American Coal Ash Association's (ACAA's) 2020 Production and Use Survey, the rate of coal ash recycling overall in the U.S. increased in 2020 by 7%, reversing two years of declines. With the increasing focus on CO₂ emissions, more states, regulatory authorities, and concrete producers are realizing the environmental benefit of substituting fly ash for Portland cement which also provides cost savings for ready mix producers and lower rates for utility customers as the utility generates revenues from the sales. This increased rate of ash recycling is also expected to increase as a result of the Infrastructure Investment and Jobs Act, as this provides increased opportunity for fly ash to be recycled and beneficially used in the production of green concrete to meet the growing infrastructure demand, providing an environmentally conscious replacement for Portland cement in the production of ready mix concrete and concrete products. With this expectation for more significant infrastructure spend and already increased market demand, we expect higher demand for our ash byproducts and raw materials in 2022 and beyond.

We also continue to strategically expand our byproducts network reach to customers around the country by adding additional terminals to ensure the supply is available in areas of highest demand. Our MultiSource® materials network includes nearly 40 nationwide locations with international sourcing and distribution as well as a national network of barge, rail and truck services for quick and reliable material across the country, giving us a competitive advantage over other suppliers in meeting the expanding needs of this market for quality fly ash and other SCMs.



2022 KEY GROWTH AND PROFIT DRIVERS

EnviroSource Ash Beneficiation Technology

There is also the reality of more coal-fired power generation plants going offline at a steady pace, which can lead to less fly ash and other byproducts being produced for marketing to ready mix producers. Plus, state and local legislation continue to drive regulations for the beneficial use of ponded ash in large ash pond remediation projects where this ash may not meet specification grade for use in the production of green concrete. This is where the embedded nature of our operations and our investment in technology pays off to provide higher margin offerings to our customers while also improving the environment at the same time. Our proprietary EnviroSource fly ash beneficiation 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.

Our EnviroSource beneficiation 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, and are optimistic that we will reach our first commercial agreement for the use of our EnviroSource fly ash beneficiation technology in the first half of 2022.

We expect this innovative technology will allow us to optimize our traditional fly ash marketing and distribution, and enter new markets for our products while providing cleaner, environmentally-friendly solutions to our customers.



Environmental Risk Transfer (ERT) Services Growth

According to the EIA, between 2010 and the first quarter of 2019, U.S. power companies announced the retirement of more than 546 coal-fired power plants, totaling approximately 102 GW of generating capacity. There are plans to retire another 17 GW of coal-fired capacity by 2025. These retired coal-fired power plants represent a massive opportunity for our growing ERT services where the utilities have the need to retire and decommission their older generating assets while minimizing their costs and improving the environment in the process.

Through our ERT services, we acquire the coal-fired power plant and land from the utility partner and take on the environmental liabilities associated with these properties. Charah Solutions performs all services to remediate the land, which involves shutting down the plant, decommissioning and demolishing the existing coal-fired power plant, remediating onsite ash ponds and landfills, and restoring the land for community or business use. This ERT approach not only benefits the utility but also the environment while providing economic benefits as it creates local professional and trade jobs, contributes to local business activity, supports the tax base, and lowers the costs for the utility and its ratepayers. Few companies can combine the environmental expertise and the financial scale to provide utilities with our level of ERT services.

We made major progress in 2021 to build on the success of our growing ERT business with the acquisition of GenOn Energy's Avon Lake and Cheswick Generating Stations and, more importantly, we completed the sale of 100% of the real property acreage at our Gibbons Creek ERT project in less than a year since acquisition. The increasing needs for ERT projects play a leading role in our nearly \$7.5 billion of opportunities across all of our business, and we expect it to provide substantial growth well into the future. We believe we have a distinct competitive advantage through our integrated ERT services in the marketplace, and we are dedicating additional resources to expand our ERT opportunities.

Proven Safety Leadership

Keeping our employees safe will always remain our top priority, as it is a core value that we live every day. As noted in our recent 2021 ESG Report, our impressive safety record is a highlight of our Company's performance. We also know that safety is something that we can never take for granted. Safety is never done. It demands daily focus and extensive training every day on the job so that our employees will be able to leave every one of our job sites the way they arrived. We always strive to meet the highest safety standards and implement ongoing 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



Remediation & Compliance Services		Byproduct Services			Raw Material Sales	Environmental Risk Transfer Services
Ash/Gypsum Pond Management	Landfill Construction & Management	SCMs Management & Marketing	CCR Landfill Operations	Utility Support	Sales & Logistics	Power Plant Remediation & Redevelopment
<ul style="list-style-type: none">ENVIRONMENTAL MANAGEMENTDESIGNCONSTRUCTIONEXCAVATIONCLOSURE BY REMOVALCAP IN PLACEPOND CONVERSIONSENVIRODITCH®	<ul style="list-style-type: none">ENVIRONMENTAL MANAGEMENTSITE STUDIESDESIGNPERMITTINGCONSTRUCTIONCERTIFICATIONCLOSUREENGINEERED FILLS (OFFSITE)	<ul style="list-style-type: none">FLY ASH MARKETINGENVIROSOURCE ASH BENEFICIATIONMULTIPOZZ™ POZZOLANBOTTOM ASH MARKETINGGYPSUM MARKETINGIGCC SLAG MARKETINGTERMINAL OPERATIONSKILN FEED PRODUCT MARKETINGDELIVERYLOGISTICSMULTISOURCE® MATERIALS NETWORK	<ul style="list-style-type: none">FLY ASH DISPOSALBOTTOM ASH DISPOSALFGD GYPSUM DISPOSALFSS/POZATEC DISPOSALFBC ASH DISPOSAL	<ul style="list-style-type: none">LIMESTONE GRINDINGSILLO O&MASH TRANSPORTATIONFGD AND WWTS O&MLEACHATE DISPOSALOTR HAULINGDBO PROJECTSCOAL HANDLING	<ul style="list-style-type: none">INDUSTRIAL RAW MATERIALSCEMENT MANUFACTURING MATERIALSTRANSPORTATION & LOGISTICS MANAGEMENTINVENTORY MANAGEMENTMATERIALS HANDLING	<ul style="list-style-type: none">INSURED RISK TRANSFERDECOMMISSION ASSETSSITE REMEDIATIONSCMS SALES & MARKETINGSITE REDEVELOPMENT

Remediation And Compliance Services

Our Remediation and Compliance Services offerings primarily include environmental management of landfills for coal-fired power generation facilities and new and existing ash and gypsum 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 environmental 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 (offsite), and other related services.

Byproduct Services

Our Byproduct Services offerings include recycling recurring and contracted volumes of coal-fired power generation byproducts, such as fly ash, bottom ash, IGCC slag, and gypsum. These byproducts are used for various industrial purposes, including as a replacement for Portland cement in the production of green concrete. Our dedicated Byproduct Services marketing team has a national presence and works with many of the nation's largest power generators to identify opportunities to improve each customer's long-term position for the marketing of their 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.

The fly ash and other byproducts we market 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.

Our 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 marketing, and concrete producers count on it for a consistently reliable supply of high-quality SCMs – all supported by our Charah Solutions team.

Coal ash management is mission-critical to power plants' daily operations as they generally only have onsite storage capacity for three to four days of CCR accumulation. Through our utility support services, we focus on recurring and daily onsite 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, onsite 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.

Raw Materials Sales

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



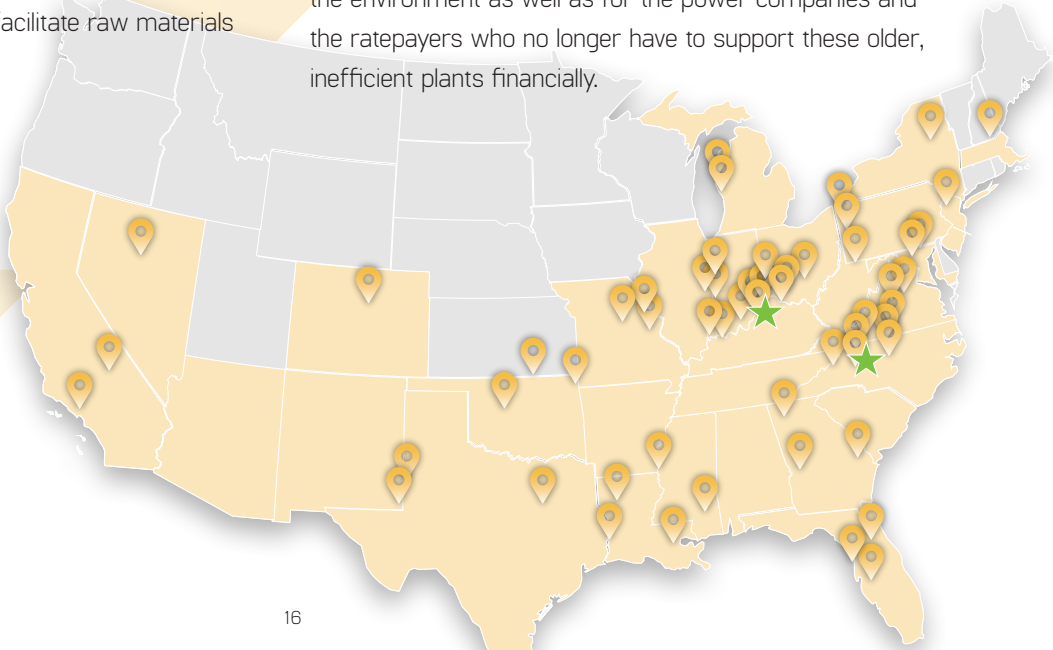
Environmental Risk Transfer (ERT) Services

Through our ERT services, we provide innovative solutions to large-scale, complex environmental issues facing utilities. With the growing shutdown of coal-fired power plants around the country, many utilities have an increased need to retire and decommission older generating assets while minimizing their costs and improving the environment in the process. As part of our ERT services, Charah Solutions acquires the coal-fired power plant and land from the utility partner and takes on the environmental liabilities associated with these properties. Charah Solutions performs all services to remediate the land, which involves shutting down the plant, decommissioning and demolishing the existing coal-fired power plant, remediating onsite ash ponds and landfills to meet all local, state and federal regulations, and redeveloping the land for community use, business use or natural habitat restoration.

This ERT approach not only benefits the environment but also provides economic benefits as it creates local professional and trade jobs, contributes to local business activity, supports the tax base, and lowers the costs for the utility and its ratepayers. Few companies can combine the environmental expertise and the financial scale to provide utilities with ERT services, but this turnkey service is designed to pay big dividends for the environment as well as for the power companies and the ratepayers who no longer have to support these older, inefficient plants financially.

Charah Solutions' nationwide service coverage with more than 50 locations in 27 states.

- Charah Solutions Location
- Corporate Offices
- Service Area



BOARD OF DIRECTORS



Jack A. Blossman, Jr.
Chairman of the Board



Mignon Clyburn
Director



Robert Flexon
Director



Tim Poché
Director



Scott Sewell
*Director, President and
Chief Executive Officer*



Timothy Alan Simon
Director



Mark Spender
Director



Dennis Whalen
Director



Kenny Young
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 except as required by law.

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, 2021

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

State or other jurisdiction of
incorporation or organization

82-4228671

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:

<u>Title of each class</u>	<u>Trading symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common Stock, par value \$0.01 per share	CHRA	New York Stock Exchange
8.50% Senior Notes due 2026	CHRB	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 ☐

Non-accelerated filer ☒

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, 2021, the aggregate market value of the registrant's voting common stock held by non-affiliates of the registrant was \$65,945,742. The registrant has no non-voting stock.

As of March 21, 2022, the registrant had 33,407,806 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 2022 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, 2021

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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;
- 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;
- our ability to obtain additional financing on favorable terms, if required, to fund the operations and growth of our business;
- timely review and approval of permits, permit renewals, extensions and amendments by regulatory authorities;
- our ability to comply with certain debt covenants;
- our expectations relating to dividend payments and our ability to make such payments, if any; 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 recycling to the power generation industry. We offer a suite of remediation and compliance services, byproduct services, raw material sales 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 marketing 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 2021, 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 a 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 discontinued operations in the accompanying consolidated financial statements and related notes.

We operate as a single operating segment, reflecting 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 services, raw material sales 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 services consist of recurring and mission-critical coal ash management and operations for coal-fired power generation facilities while also supporting 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 supplemental cementitious materials (“SCMs”) that provide a sustainable, environmentally-friendly substitute for Portland cement in concrete. Our raw materials sales provide customers with the raw materials that are essential to their business while also providing the sourcing, logistics, and management needed to facilitate these raw materials transactions around the globe. ERT services represent an innovative solution designed to meet utility customers’ evolving and increasingly complex plant closure and environmental remediation needs. 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’ costs.

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 more than 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 is 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 more than 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, the 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, approximately 70 million tons of coal ash were produced in 2020, 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 plant personnel.

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, utilities disposed of approximately 41% of coal ash produced in the United States during 2020. According to EPA data published, of the CCRs generated that were not beneficially used, approximately 80% were disposed in on-site disposals units, with the balance 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 that there are more than 1,000 active and inactive on-site landfill and surface impoundments, substantially all of which will require 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.

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 lower greenhouse gas (“GHG”) emissions, reduced use of other natural resources and improved strength and durability of materials.

According to the American Coal Ash Association, approximately 41 million tons, or 59%, of coal ash produced in the United States was beneficially used in 2020. The leading beneficial use of coal ash is as a direct and more economical substitute for cement during the production of concrete (approximately 11 million tons of CCRs production and use in 2020). 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 approximately 12 million tons of greenhouse gas emissions reductions each year. An economic analysis by the American Road and Transportation Builders Association estimates that coal fly ash used in roads and bridges saves approximately \$5.2 billion per year in U.S. construction costs. Additionally, technologies currently available, including our EnviroSource™ 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 energy and natural gas sources 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. In 2020, coal power generation accounted for approximately 20% of domestic U.S. energy generation. Coal power generation is projected to increase to 23% between 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. From 2021 to 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 is 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, after substantial retirements of U.S. coal-fired electric generating capacity from 2015 to 2020 that averaged 11.0 GW a year, coal capacity retirement slowed to less than 5.0 GW in 2021. However, we expect the retirement of coal-fired generators to increase again this year; 12.6 GW of coal capacity is scheduled to retire in 2022, or 6% of the coal-fired generating capacity.

U.S. coal plants are retiring as the coal fleet ages and as coal-fired generators face increasing competition from natural gas and renewables. According to the EIA, power plant owners and operators have reported that they plan to retire 28%, or approximately 59.0 GW, of the coal-fired capacity currently operating in the United States by 2035. Since 2002, around 100 GW of coal capacity has retired in the United States, and the capacity-weighted average age at retirement was 50 years. As of September 2021, 212 GW of utility-scale coal-fired electric-generating capacity was operating in the United States, most of which was built in the 1970s and 1980s.

After a coal-fired plant is retired, the site will undergo 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 services, raw material sales 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 a 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 are difficult to replicate. 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.

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 more than 20 years. For example, LG&E and KU Energy LLC, which PPL Corporation currently owns, have been customers 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 services 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.

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 the 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.

For 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 to support 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 site's post-closure regulation requirements and sustainability objectives. 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, provide remediation of the ponds and repurpose the site to natural wetlands.

We further demonstrated our innovative approach to customer's environmental challenges through our turnkey ERT services in acquiring the Texas Municipal Power Agency's Gibbons Creek Steam Electric Station and Reservoir in Grimes County, Texas. As part of the asset purchase agreement, the Company, through one of its subsidiaries, acquired the 6,166-acre area that included the closed power station and adjacent property, the 3,500-acre reservoir, dam and spillway and assumed responsibility for the shutdown and decommissioning of the coal power plant as well as the performance of all environmental remediation work for the site landfills and ash ponds. As a sustainability leader in utility services, the Company is redeveloping the property in an environmentally conscious manner designed to expand economic activity and benefit the surrounding communities through job creation, promotion of industry, support of the tax base, as well as restoring the property to a state that will enable it to be put to its best potential use.

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 customer relevance 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 staff large-scale projects rapidly 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 levels), and work to meet consumer standards for environmental sustainability. We believe there are \$75 billion in coal ash remediation opportunities in the United States, driving a need for creative remediation solutions, including the beneficiation of ash. We estimate there are more than 1,000 active and inactive landfills and surface impoundments, substantially all of which will require remediation or closure. 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 significant opportunities exist in remediation and compliance services and byproduct services across our platform. 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 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™ ash beneficiation technology provides an innovative new proprietary thermal process for fly ash beneficiation. 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. 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 services, raw material sales and ERT services. Our remediation and compliance services primarily include environmental management of landfills for coal-fired power generation facilities and 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 landfill development, construction, and management. 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 services offerings include recycling recurring and contracted volumes of coal-fired power generation waste byproducts, such as bottom ash, fly ash, and gypsum byproducts, as sustainable and environmentally-friendly construction materials. These byproducts can be used for various industrial purposes, including producing concrete products as a replacement for Portland cement. Our dedicated 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 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. Our byproduct services offerings also include coal ash management, which 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. These services offerings focus on recurring and daily onsite 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 byproducts 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 raw materials sales provide customers with the raw materials that are essential to their business while also providing the sourcing, logistics, and management needed to facilitate these raw materials transactions around the globe.

Our ERT services represent an innovative solution designed to meet the utility customers' evolving and increasingly complex plant closure and environmental remediation needs. 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 locations serving the United States, 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. Logistics support must include an established network of transportation options, including truck, rail, and barge, as well as sufficient storage and supply capabilities to meet the on-time delivery requirements of customers. By combining the strengths of our EnviroSource™ ash beneficiation technology, the proven MultiSource® network, and strategic investment in logistics infrastructure, we can meet demand in regions not previously attainable while maintaining a competitive price, consistent quality and supply for concrete producers.

Our dedicated sales and marketing 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 teams 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 within 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 2021, we performed work at more than 40 plants for more than 20 "blue-chip" entities, including Ameren Corporation, Big Rivers Electric Corporation, Consumers Energy, Dominion Energy, Inc., Duke Energy Corporation, Hoosier Energy Rural Electric Cooperative, Inc., NRG Energy, Inc., PPL Corporation, The Southern Company and Vistra Corp. The majority of our power generation clients have investment-grade credit ratings. During the year ended December 31, 2021, three customers accounted for 36% of total consolidated revenue. As of December 31, 2021, these three customers accounted for 18% of total consolidated trade accounts receivable, net. 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 2021, we won approximately \$840 million in contracted new awards, the largest in the Company's history, as compared to \$715 million and \$430 million in 2020 and 2019, respectively. 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 byproduct services was 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%. During the year ended December 31, 2021, the agreement to provide ash management and marketing services with the third-party utility partner came to its conclusion, and the joint venture began settling its remaining current assets and liabilities through the normal course of business.

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, and the joint venture began settling its remaining current assets and liabilities through the normal course of business.

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. Our competitors consist of a mix 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 remediation and compliance and byproduct service offerings 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 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 the 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 WIIN Act’s objectives by allowing states or the EPA to incorporate flexibilities into their coal ash permit programs.
- *Groundwater Protection.* On January 11, 2022, the EPA took action to enforce the CCR Rule to expand and strengthen the regulation for coal ash and groundwater management of regulatory mandated surface impoundments and landfills for CCRs. The announced plans re-state the EPA’s consistently held position that surface impoundments or landfills cannot be closed with coal ash in contact with groundwater and provide for enforcement mechanisms for the regulation. The EPA rule provided remediation and closure criteria for leaking ash ponds, criteria for the location of new ash ponds, and water regulations on power plant discharges, resulting in approximately 1,000 regulatory mandated surface impoundments that needed to be remediated or closed. In addition, the EPA announced proposed decisions on requests for extensions to the current deadline for initiating closure of unlined CCR surface impoundments and accelerating plans to close coal ash ponds at plants in four states. This new rule will continue the increase in environmental management costs for many industry participants.

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 23, 2022 on three proposals and until March 25, 2022 on a fourth proposal.

Regulations Affecting the Coal Industry

The 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 SO_x, NO_x, particulate matter (“PM”), and ozone. The EPA finalized more stringent ambient air quality standards for fine PM in January 2013 and ozone in October 2015 and issued a final policy assessment for NO_x in April 2017 and a draft policy assessment for SO_x in August 2017. The EPA concluded that the current primary NO_x standard is adequate, but has not taken additional steps concerning the SO_x 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 filed its final recommendations on January 25, 2022, with the public comment period ending on February 15, 2022. The recommendations are currently undergoing external scientific peer review managed by a contractor of the EPA. 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. On October 29, 2020,
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the EPA determined that California, Connecticut, New York, Pennsylvania, and Texas did not submit a State Implementation Plan (SIP) revision which satisfied the CAA's reasonably available control technology (RACT) requirements with regard to ozone standards. The EPA's findings trigger a 24-month deadline for the EPA approve the respective SIP or finalize a Federal Implementation plan which addresses the deficiencies.

- *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 NO_x 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 summertime (May-September) transport of ozone pollution (the "CSAPR Update"). The CSAPR Update, which commenced in May 2017, sets stricter NO_x ozone season emission budgets in 22 states and could affect up to 886 coal-fired facilities. For both NO_x 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 March 15, 2021, the EPA finalized its Revised CSAPR Update Rule to address 21 states' outstanding interstate pollution transport obligations for the 2008 NAAQS. Starting in the 2021 ozone season, the rule requires additional emissions reductions of NO_x from power plants in 12 states. The CSAPR Update Rule will 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 the 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 a 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.
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On June 19, 2019, the EPA finalized the Affordable Clean Energy ("ACE") rule to replace 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 February 19, 2021, the current administration rejoined the Paris Agreement. 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.

In December 2015, 195 nations (including the 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 groups, 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
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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 regulations of coal-fired power plants and coal mining operations could increase the costs 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, will generally 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 that 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, 2021, we had approximately 693 employees. Approximately 90 of our employees were covered by collective bargaining agreements. We believe we have good relations with our employees. We have 56 employees (more than 8.0% 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.

Charah Solutions recently passed a one-year safety milestone with 1.25 million person-hours of work without an Occupational Safety and Health Administration ("OSHA") recordable incident. Another significant milestone is that Charah has worked without a lost-time event since April 17, 2019 and logged more than 3 million person-hours. These significant achievements are a result of the commitment of all personnel to put safety first.

Our record in safety excellence also includes the following achievements:

- We accomplished a 0.32 Recordable Incident Rate in 2021 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 8.8 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 five years, our team has completed over 40,000 inspections and 1.9 million observations, with more than 23,000 opportunities for improvement identified.

Recent award recognition for our focus on Safety Leadership includes:

- AGC Willis Towers Watson Construction Safety Excellence Award for the fifth straight year, including being named the winner of the award in 2022
- 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 skill sets 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 and follow 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 the 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 with 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 byproduct services 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 and any future major public health crisis could disrupt the Company's operations and adversely impact its business, results of operations and financial conditions.

The COVID-19 pandemic, including new and emerging strains and variants, continues to have adverse effects on the U.S. and global economies. This outbreak has adversely affected workforces, customers, economies, supply chains, and global transportation and financial markets. While the Company has not incurred significant disruptions thus far from the COVID-19 pandemic, the pandemic and any future major public health crisis could impact our business, consolidated results of operations and financial condition in the future. For example, our business and results of operations could be materially adversely affected if significant portions of our workforce are unable to work effectively, whether it is due to illness, quarantines, government actions or other restrictions in connection with the COVID-19 pandemic or any future major public health crisis. However, the significance of the impact on our operations going forward is not yet certain and depends on numerous evolving factors that the Company may not be able to accurately predict or effectively respond to, including, without limitation: the COVID-19 pandemic or any future major public health crisis, actions taken by governments, businesses and individuals in response, the effect on economic activity and actions taken in response, the effect on customers and their demand for the Company's products and services and the timing of such demand, the ability of our subcontractors to perform under their contracts due to their own financial or operational difficulties, the availability of subcontractors and other talent, the speed and effectiveness of responses to combat the COVID-19 virus or any future major public health crisis, including vaccine efficacy, distribution and widespread public acceptance, and the Company's ability to continue operations, including without limitation as a result of supply chain challenges, facility closures, social distancing, restrictions on travel, fear or anxiety by the populace and shelter-in-place orders.

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 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 the 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 23, 2022 on three proposals and until March 25, 2022 on a fourth proposal.

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 services and raw material 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.

If we are unable to accurately estimate the overall risks, revenues or costs on our projects, we may incur contract losses or achieve lower profits than anticipated.

Pricing on fixed unit price contracts is based on approved quantities irrespective of our actual costs, and contracts with a fixed total price require that the work be performed for an agreed-upon price irrespective of our actual costs. We only generate profits on fixed unit price and fixed total price contracts when our revenues exceed our actual costs, which requires us to estimate our costs accurately, control our actual costs and avoid cost overruns. If our cost estimates are too low or we do not perform the contract within our cost estimates, then cost overruns may cause us to incur a loss or cause the contract not to be as profitable as we expected. As a result, these types of contracts could negatively affect our cash flow, earnings and financial position.

The costs incurred and profit realized, if any, on our contracts can vary, sometimes substantially, from our original projections due to a variety of factors, including, but not limited to:

- onsite conditions that differ from those assumed in the original bid or contract;
- failure to include required materials or work in a bid, or the failure to estimate properly the quantities or costs needed to complete a lump sum contract;
- delays caused by weather conditions or otherwise failing to meet scheduled acceptance dates;
- contract or project modifications creating unanticipated costs not covered by change orders or contract price adjustments;
- changes in availability, proximity and costs of materials, including steel, concrete, aggregates and other construction materials (such as stone, gravel, sand and oil for asphalt paving), as well as fuel and lubricants for our equipment;
- higher than anticipated costs to lease, acquire and maintain equipment;
- availability and skill level of workers in the geographic location of a project;
- rapidly increasing labor costs;
- the failure of our suppliers, subcontractors, designers, engineers or customers to perform their obligations;
- fraud, theft or other improper activities by our suppliers, subcontractors, designers, engineers, customers or our personnel;
- mechanical problems with our machinery or equipment;
- citations issued by a government authority, including OSHA;
- difficulties in obtaining required government permits or approvals;
- changes in applicable laws and regulations;
- uninsured claims or demands from third parties for alleged damages arising from the design, construction or use and operation of a project of which our work is part; and
- delays in quickly identifying and taking measures to address issues that arise during the execution of a project.

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. Labor is a primary component of operating our business. A number of factors may adversely affect the labor force available to us or increase labor costs from time to time, including high employment levels, federal unemployment subsidies, including unemployment benefits offered in response to the COVID-19 pandemic, and other government regulations.

Although we have not experienced any material disruptions due to labor shortages to date, we have observed an overall tightening and increasingly competitive labor market. A sustained labor shortage or increased turnover rates within our employee base, whether caused by COVID-19 or as a result of general macroeconomic factors, could lead to increased costs, such as increased overtime to meet demand and increased wage rates to attract and retain employees, and could negatively

affect our ability to complete our construction projects according to the required schedule or otherwise efficiently operate our business. If we are unable to hire and retain employees capable of performing at a high level, or if mitigation measures we may take to respond to a decrease in labor availability, such as overtime and third-party outsourcing, have unintended negative effects, our business could be adversely affected. In addition, we dispose of CCRs and distribute our raw material sales offerings to customers primarily by truck. Reduced availability of trucking capacity due to shortages of drivers, primarily as a result of the COVID-19 pandemic, has caused an increase in the cost of transportation for us and our suppliers. An overall labor shortage, lack of skilled labor, increased turnover or labor inflation, caused by COVID-19 or as a result of general macroeconomic factors, could have a material adverse impact on our operations, results of operations, liquidity or cash flows.

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.

We service a significant portion of our contracts with our own construction equipment rather than leased or rented equipment. To the extent that we are unable to buy construction equipment necessary for our needs, either due to a lack of available funding or equipment shortages in the marketplace, we may be forced to rent equipment on a short-term basis, which could increase the costs of performing our contracts.

The property, plants and equipment needed to produce our products and provide our services can be very expensive. We must spend a substantial amount of capital to purchase and maintain such assets. Although we believe our current cash balance, along with our projected internal cash flows and available financing sources, will provide sufficient cash to support our currently anticipated operating and capital needs, if we are unable to generate sufficient cash to purchase and maintain the property, plants and equipment necessary to operate our business, or if the timing of payments on our receivables is delayed, we may be required to reduce or delay planned capital expenditures or to incur additional indebtedness. In addition, due to the level of fixed and semi-fixed costs associated with our business, volume decreases could have a material adverse effect on our financial condition, results of operations or liquidity.

Supply chain issues, including shortages of equipment, vehicles and construction supplies, could increase our costs or cause delays in our ability to complete our projects, which could have an adverse impact on our business and our relationships with customers.

We rely on our supply chain for equipment, vehicles and construction supplies in order to complete our projects. A reduction or interruption in supply, including disruptions due to the COVID-19 pandemic, a significant natural disaster, shortages in global freight capacity, significant increases in the price of critical components, a failure to appropriately forecast or adjust our requirements based on our business needs, or volatility in demand for our products and services could materially adversely affect our business, operating results, and financial condition and could materially damage customer relationships. Our vendors and subcontractors also may be unable to meet our demand, significantly increase lead times for deliveries or impose significant price increases that we are unable to offset through alternate sources of supply, price increases to our customers or increased productivity in our operations. In some cases, we procure certain inputs and services from single or limited suppliers or subcontractors. In the event of supply disruptions from these suppliers or subcontractors, we may not be able to diversify our resources for such materials or services in a timely manner or may experience quality issues with alternate sources. Our growth and ability to meet customer demand depend in large part on our ability to obtain timely deliveries of equipment and vehicles from our suppliers, and significant disruptions in their supply could materially adversely affect our business, operating results, and financial condition and could materially damage customer relationships.

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.

Our byproduct services and raw material sales 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, the roll-out of our technology initiatives, including our EnviroSourceTM ash beneficiation 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. 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.

We may be unable to obtain or maintain sufficient bonding capacity, which could preclude us from bidding on certain projects.

A significant number of our contracts require performance and payment bonds. Sureties typically issue or continue bonds on a project-by-project basis, and they can decline to do so at any time or require the posting of additional collateral as a condition thereto. Our ability to obtain performance and payment bonds primarily depends on our capitalization, working capital, past performance, management expertise, reputation and certain external factors, including the overall capacity of the surety market. Events that adversely affect the insurance and bonding markets generally may result in bonding becoming more difficult or costly to obtain in the future. If we are unable to obtain or renew a sufficient level of bonding, or if bonding costs were to increase, we may be precluded from bidding on certain projects or successfully contracting with certain customers, which could limit the aggregate dollar amount of contracts that we are able to pursue. In addition, even if we are able to successfully renew or obtain performance or payment bonds, we may be required to post letters of credit in connection with such bonds, which could negatively affect our liquidity and results of operations.

Our substantial indebtedness could adversely affect our financial condition and prevent us from fulfilling our obligations.

Our debt consists primarily of our borrowings under the Company's 8.50% Senior Notes due 2026 (the "Notes") and for equipment financing through notes payables and capital lease obligations. As of December 31, 2021, the Company had total indebtedness of \$199.7 million, excluding debt issuance costs of \$11.4 million. A significant portion of our cash flow is required to pay interest and principal on our outstanding indebtedness, and we may be unable to generate sufficient cash flow from operations or have future borrowings available to enable us to repay our indebtedness or to fund other liquidity needs.

Our indebtedness could have significant consequences, including the following:

- require us to use a significant percentage of our cash flow from operations for debt service and the satisfaction of repayment obligations, and not for other purposes;
 - limit our ability to borrow money or issue equity to fund our working capital, capital expenditures, acquisitions and debt service requirements;
 - limit our flexibility in planning for, and reacting to, changes in our business;
 - place us at a competitive disadvantage if we are more leveraged than our competitors;
 - limit our ability to deduct our interest expense;
 - make us more vulnerable to adverse economic and industry conditions; and
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- limit our ability to exploit business opportunities.

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

Our variable rate indebtedness related to borrowings under our Asset-Based Lending Credit Agreement subjects us to interest rate risk, and the transition away from the London Interbank Offered Rate (“LIBOR”) could have an adverse impact on us.

On November 30, 2020, the Federal Reserve announced that LIBOR would be phased out and eventually replaced by June 2023. In the same announcement, banks were instructed to stop writing contracts using LIBOR by the end of 2021, and all contracts using LIBOR should wrap up by June 30, 2023. We expect that the Secured Overnight Financing Rate (or “SOFR”), published by the Federal Reserve Bank of New York will replace U.S. Dollar LIBOR as the principal reference rate for U.S. Dollar-denominated floating rate instruments. However, the manner and timing of this shift are currently unknown. SOFR is an overnight rate instead of a term rate, making SOFR an inexact replacement for LIBOR.

Borrowings under our Asset-Based Lending Credit Agreement (the “Credit Agreement”) are at variable rates of interest and expose us to interest rate risk. As interest rates increase, our debt service obligations on the variable rate indebtedness will increase even if the amount borrowed remains the same, and our results of operations and cash flows, including cash available for servicing our indebtedness, will correspondingly decrease. Our Credit Agreement contains LIBOR benchmark replacement provisions and has identified the SOFR as its preferred alternative rate for the U.S. LIBOR. However, at this time, there can be no assurance as to whether this alternative benchmark or resulting interest rates may be more or less favorable than LIBOR or any other unforeseen impacts of the discontinuation of LIBOR. As a result, the proposals or consequences related to this transition could have a material adverse effect on our debt service obligations, financing costs, liquidity, financial condition, results of operations or cash flows and could impair our access to the capital markets.

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 investigate and remediate any vulnerability to cyber incidents. Additionally, 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 and our trade name and customer relationship 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, 2021, we had approximately \$62.2 million of goodwill and \$53.5 million of our trade name and customer relationship intangibles on our balance sheet, which together represent 34% of our total assets. No impairment charges to our goodwill and intangible assets were identified during the year ended December 31, 2021. However, changes in our operations' future outlook could result in 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.
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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") beneficially own approximately 45% of the total voting power of our outstanding shares of common stock and all of the outstanding Series A Preferred Stock ("Preferred Stock"). The Preferred Stock is convertible at BCP's option at any time 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;
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- 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. 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 on common stock. 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 an 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.

We have identified a material weakness in our internal control over financial reporting. If we fail to remediate the material weakness, or if we experience additional material weaknesses in the future or otherwise fail to maintain an effective system of internal controls, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect investor confidence in us and, as a result, the value of our common stock.

Effective internal control over financial reporting is necessary for us to provide reliable financial reports and, together with adequate disclosure controls and procedures, is designed to prevent fraud. Any failure to implement required new or improved controls, or difficulties encountered in the implementation, could cause us to fail to meet our reporting obligations. In addition, any testing by us, as and when required, our independent registered public accounting firm may reveal deficiencies in our internal control over financial reporting that are deemed to be material weaknesses or that may require prospective or retroactive changes to our financial statements or identify other areas for further attention or improvement. Inferior internal controls could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our common stock.

Management identified a material weakness in our internal control over financial reporting in connection with our assessment as of and for the year ended December 31, 2021. A material weakness is a deficiency, or combination of

deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. Specifically, these control deficiencies constitute a material weakness, in the aggregate, relating to: (i) the lack of a sufficient number of trained resources with assigned responsibilities and accountability for the design and operation of internal controls over financial reporting; (ii) the lack of formal and effective controls over certain financial statement account balances, (iii) the lack of user profiles to ensure adequate restriction of users to perform only transactions that are consistent with their function; and (iv) the lack of appropriate segregation of duties within the accounting and finance functions, including order to cash, process to pay and payroll business processes.

Although we have begun to implement measures to address the material weakness, the implementation of these measures may not fully address the material weakness and deficiencies in our internal control over financial reporting, and we cannot conclude that these matters have been fully remedied. As we continue to evaluate, and work to improve, our internal control over financial reporting, management may determine that additional or different measures to address control deficiencies or modifications to the remediation plan are necessary. Further, in the future, we may determine that we have additional material weaknesses. Our failure to remediate the material weakness or failure to identify and address any other material weaknesses or control deficiencies could result in inaccuracies in our financial statements and could also impair our ability to comply with applicable financial reporting requirements and related regulatory filings on a timely basis, which could cause investors to lose confidence in our reported financial information, which may result in volatility in and a decline in the market price of our common stock.

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, 2021, 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 are from time-to-time party to various lawsuits, claims and other legal proceedings that arise in the ordinary course of our business. With respect to 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 31, 2022.

<u>Name</u>	<u>Age</u>	<u>Positions with Charah Solutions</u>
Scott A. Sewell	42	President, Chief Executive Officer and Director
Roger D. Shannon	57	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 shares and our Notes trade on the New York Stock Exchange under the symbols "CHRA" and "CHRB," respectively.

As of March 21, 2022, there were 2,523 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 on common stock and limit our ability to pay cash dividends on preferred equity. 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

There were no repurchases of our common stock during the three months ended December 31, 2021.

Item 6. [Reserved]

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, 2021 as compared to the year ended December 31, 2020 and 2019 ("2020 and 2019"). 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 a more limited scope.

Overview

We are a leading national service provider of mission-critical environmental services and byproduct recycling to the power generation industry. We offer a suite of remediation and compliance services, byproduct services, raw material sales 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 marketing 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 2021, 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 discontinued operations in the accompanying consolidated financial statements and related notes.

We operate as a single operating segment, reflecting 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 services, raw material sales 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 services consist of recurring and mission-critical coal ash management and operations for coal-fired power generation facilities while also supporting 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 supplemental cementitious materials ("SCMs") that provide a sustainable, environmentally-friendly substitute for Portland cement in concrete. Our raw materials sales provide customers with the raw materials that are essential to their business while also providing the sourcing, logistics, and management needed to facilitate these raw materials transactions around the globe. ERT services represent an innovative solution designed to meet utility customers' evolving and increasingly complex plant closure and environmental remediation needs. 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' costs

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. 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 implemented 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 recycling and marketing services if there is decreased demand for construction materials.

The COVID-19 pandemic presents potential new risks to the Company's business, including logistical, supply chain and other challenges that may continue to affect demand for services, which are driven by construction activity, and the timing of our remediation and compliance services projects, due to delays in new contract awards and increasing costs and declining availability for certain machinery and equipment.

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 important indicators 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 loss attributable to Charah Solutions, Inc. before income from discontinued operations, net of tax, interest expense, net, loss on extinguishment of debt, impairment expense, gain on change in contingent payment liability, income taxes, depreciation and amortization, equity-based compensation, 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 byproduct services offerings. Our byproduct services and raw material sales are also negatively affected during winter months when the use of cement and cement products is generally lower. 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.

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 services and raw material sales are 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 services. 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 services include recycling recurring and contracted volumes of coal-fired power generation waste byproducts, such as fly ash, bottom ash, IGCC slag and gypsum byproducts, each of which can be used for various industrial purposes. Byproduct services also include the management of coal ash which is mission-critical to power plants' daily operations including silo management, on-site ash transportation and capture, and disposal of combustion byproducts from coal-power operations. 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 raw materials sales provide customers with the raw materials that are essential to their business while also providing the sourcing, logistics, and management needed to facilitate these raw materials transactions around the globe.

Revenue from construction contracts is recognized using the cost-to-cost input method. 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. 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.

Overview of Financial Results

In 2021, we won approximately \$840 million in contracted new business awards compared to \$715 million in 2020 and \$430 million in 2019. The 2021 awards span all of our lines of business and included two ERT projects, two large and several mid-size and smaller remediation and compliance projects, several ash marketing agreements, and multiple renewals of existing contracts. Revenue contributions from these new awards will be recognized beginning in 2021 and 2022 and, for some awards, continue beyond 2022. We believe that our unique ability to provide a single-source solution for large-scale and complex environmental challenges continues to position us well to capture a significant portion of a large and growing addressable market, although the timing of future awards is uncertain. We believe that regulatory developments in several states as well as at the federal level will positively impact our business opportunities over time as state legislatures and the EPA become more prescriptive in their requirements to remediate ash ponds. In addition, customer interest in our ERT services and our EnviroSource™ ash beneficiation technology remains strong. We made significant progress on a major ERT project in

2021 and announced two additional ERT projects in 2021 and early 2022, with the acquisitions of both expected to close in the second quarter of 2022. We also have contracts for EnviroSourceTM under discussion with potential utility customers.

During the year ended December 31, 2021, we completed a significant refinancing, issuing \$135.0 million of unsecured senior notes and approximately 2.9 million shares of common stock for \$13.0 million. Proceeds from the refinancing were used to repay all loans and borrowings outstanding under our Credit Facility, which totaled \$126.5 million. We terminated the Credit Facility and replaced it with a new asset-based lending facility in November 2021, as discussed below in “—Liquidity and Capital Resources—Our Debt Agreements.” These transactions improved our financial flexibility, extended our debt maturity profile and reduced our debt service requirements. We believe they enhance our ability to grow our business.

Our primary ongoing sources of liquidity and capital resources are cash on the balance sheet, cash flows generated by operating activities and availability under our asset-based lending 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.

Results of Operations

A discussion of results of operations changes between the years ended December 31, 2021 and 2020 is included below. A discussion of changes between the years ended December 31, 2020 and 2019 can be found in Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations of our Annual Report on Form 10-K for the year ended December 31, 2020, which was filed with the SEC on March 24, 2021.

Year Ended December 31, 2021 Compared to Year Ended December 31, 2020

The table below sets forth our selected operating data for the years ended December 31, 2021 and 2020.

	Year Ended December 31,		Change	
	2021	2020	\$	%
	(in thousands)			
Revenue	\$ 293,219	\$ 232,377	60,842	26.2 %
Cost of sales	(267,321)	(209,570)	(57,751)	27.6 %
Gross profit	25,898	22,807	3,091	13.6 %
General and administrative expenses	(42,189)	(34,064)	(8,125)	23.9 %
Gain on sales-type lease	5,568	—	5,568	(100.0)%
Gains on sales of real estate, property and equipment, net	23,543	—	23,543	100.0 %
Gain on ARO settlement	3,623	—	3,623	100.0 %
Other operating expenses from ERT services	(5,078)	—	(5,078)	(100.0)%
Gain on change in contingent payment liability	—	9,702	(9,702)	(100.0)%
Impairment expense	(827)	(38,014)	37,187	(97.8)%
Operating income (loss)	10,538	(39,569)	50,107	126.6 %
Interest expense, net	(15,227)	(13,774)	(1,453)	10.5 %
Loss on extinguishment of debt	(638)	(8,603)	7,965	92.6 %
Income (loss) from equity method investment	191	(2,516)	2,707	(107.6)%
Loss from continuing operations before income taxes	(5,136)	(64,462)	59,326	92.0 %
Income tax (expense) benefit	(661)	914	(1,575)	(172.3)%
Loss from continuing operations, net of tax	(5,797)	(63,548)	60,901	(95.8)%
Income from discontinued operations, net of tax	—	8,883	(8,883)	(100.0)%
Net loss	(5,797)	(54,665)	48,868	(89.4)%
Less income attributable to non-controlling interest	17	1,198	(1,181)	(98.6)%
Net loss attributable to Charah Solutions, Inc.	\$ (5,814)	\$ (55,863)	\$ 50,049	(89.6)%

Revenue. Revenue increased \$60.8 million, or 26.2%, to \$293.2 million for the year ended December 31, 2021, as compared to \$232.4 million for the year ended December 31, 2020, primarily driven by an increase in remediation and compliance services revenue of \$79.8 million from the commencement of new project work. This increase was partially offset by (i) lower raw materials sales of \$13.6 million resulting from reduced supply from international sources due to supply chain constraints resulting from significantly higher ocean cargo rates that have led to a decrease in profitable imported fly ash sales opportunities and (ii) lower byproduct services revenue of \$5.3 million primarily due to the dissolution of our Ash Ventures LLC joint venture in the second quarter of 2021.

Gross Profit. Gross profit increased \$3.1 million, or 13.6%, to \$25.9 million for the year ended December 31, 2021 as compared to \$22.8 million for the year ended December 31, 2020. As a percentage of revenue, gross profit was 8.8% and 9.8% for the years ended December 31, 2021 and 2020, respectively. The increase in gross profit was primarily driven by an increase in revenue as discussed above, partially offset by a lower gross profit margin percentage. The decline in gross profit margin was primarily driven by issues at certain remediation and compliance projects, most of which are nearing completion, resulting from construction delays and supply chain issues, mostly affecting the fourth quarter of 2021.

General and Administrative Expenses. General and administrative expenses increased \$8.1 million, or 23.9%, to \$42.2 million for the year ended December 31, 2021, as compared to \$34.1 million for the year ended December 31, 2020. The increase was primarily attributable to the absence of a \$7.1 million reduction in expense from the expiration of our purchase option liability on our structural fill sites.

Gain on sales-type lease. Gain on sales-type lease increased \$5.6 million for the year ended December 31, 2021 due to the recognition of a parcel transferred under a sales-type lease at an ERT project as discussed in Note 6, Balance Sheet Items, to the accompanying consolidated financial statements.

Gains on sales of real estate, property and equipment, net. Gains on sales of real estate, property and equipment, net increased \$23.5 million for the year ended December 31, 2021 due to the commencement of operations on the Gibbons Creek ERT project in 2021 that led to sales of certain parcels of land acquired and increased scrap sales from the demolition of the power plant, as well as due to the sale of certain grinding-related assets.

Gain on ARO settlement. Gain on ARO settlement increased \$3.6 million for the year ended December 31, 2021 due to differences between the estimated costs used in the measurement of the fair value of the Company's AROs and the actual costs incurred for specific remediation tasks recognized on a proportionate basis.

Other operating expenses from ERT services. Other operating expenses from ERT services increased \$5.1 million for the year ended December 31, 2021 due to expenses associated with the commencement of operations on the Gibbons Creek ERT project in 2021.

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 and did not recur in 2021. We reduced the associated liability because we determined that certain performance sales levels using the grinding technology mentioned below would not be achieved.

Impairment Expense. Impairment expense decreased \$37.2 million to \$0.8 million for the year ended December 31, 2021, as compared to \$38.0 million for the year ended December 31, 2020 primarily driven by (i) the non-recurrence of a \$21.0 million impairment of the Charah Solutions trade name indefinite-lived intangible asset, (ii) a decrease of \$9.8 million of impairments of certain grinding technology equipment and construction in progress assets and intangible asset, and (iii) the non-recurrence of a \$6.4 million impairment related to our structural fill site asset resulting from the expiration of the purchase option liability.

Interest Expense, Net. Interest expense, net increased \$1.5 million, or 10.5%, to \$15.2 million for the year ended December 31, 2021, as compared to \$13.8 million for the year ended December 31, 2020. The increase was primarily attributable to higher debt balances, a higher weighted-average cost of capital associated with equipment financing and an increase in amortization of debt issuance costs.

Loss on Extinguishment of Debt. Loss on extinguishment of debt decreased \$8.0 million during the year ended December 31, 2020 due to the absence of the Company's Amendment No. 3 to Credit Agreement (the "Third Amendment") of our previous Credit Facility. The Company expensed \$5.2 million in amendment fees and wrote off \$3.4 million in previously capitalized debt issuance costs during the year ended December 31, 2020.

Income (Loss) from Equity Method Investment. Income (loss) from equity method investment increased \$2.7 million to \$0.2 million for the year ended December 31, 2021, as compared to a loss from equity investment of \$2.5 million for the year ended December 31, 2020. The increase period-over-period was primarily attributable to the absence of a \$3.8 million impairment of our investment in the joint venture that resulted from the fair value of our investment being less than its carrying value at December 31, 2020, partially offset by a decrease in operating income from our equity method investment due to the joint venture arrangement ending during the year ended December 31, 2021.

Income Tax (Expense) Benefit. Income tax (expense) benefit decreased by \$1.6 million to a \$0.7 million expense for the year ended December 31, 2021, as compared to a \$0.9 million benefit during the year ended December 31, 2020. The change in balance was primarily driven by an increase in the valuation allowance recorded during the year ended December 31, 2021 as compared to the year ended December 31, 2020 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, 2021 the income tax expense was attributed to the impact of accelerated tax depreciation and amortization of tax goodwill on the valuation allowance.

Income from Discontinued Operations, Net of Tax. Income from discontinued operations, net of tax, decreased \$2.7 million for the year ended December 31, 2021 due to the sale of our subsidiary through the Allied Transaction during the year ended December 31, 2020.

Net Loss. Net loss decreased \$48.9 million, or 89.4%, to \$5.8 million for the year ended December 31, 2021, as compared to \$54.7 million for the year ended December 31, 2020.

Consolidated Balance Sheet

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

	As of December 31,		Change
	2021	2020	\$
	(in thousands)		
Total assets	\$ 344,107	\$ 280,960	\$ 63,147
Total liabilities	287,778	233,221	54,557
Mezzanine equity	35,532	27,423	\$ 8,109
Total equity	20,797	20,316	481

Assets

Total assets increased \$63.1 million, driven primarily by:

- \$37.7 million in property and equipment additions, net of disposals, resulting from the Gibbons Creek Transaction and new capital leases entered into during the year ended December 31, 2021;
- \$30.0 million in cash and restricted cash due to \$10.2 million in cash used in operating activities, \$56.4 million in cash provided by investing activities and \$16.3 million in cash used in financing activities;
- \$8.5 million in increases to contract assets resulting from the commencement of new remediation and compliance services project work that has led to additional costs and estimated earnings in excess of billings and retainage;
- \$6.0 million in increases to other assets resulting from a lease receivable recognized during the year ended December 31, 2021 from the sales-type lease discussed in Note 6, Balance Sheet Items, to the accompanying consolidated financial statements; and
- \$2.7 million in increases to trade accounts receivable, net from the commencement of new remediation and compliance services and the timing of receipts of outstanding payments from customers.

These increases were partially offset by:

- \$16.7 million in property and equipment depreciation expense during the year ended December 31, 2021; and
- \$7.9 million in intangible asset amortization expense during the year ended December 31, 2021.

Liabilities

Total liabilities increased \$54.6 million, primarily driven by:

- \$156.3 million in proceeds from long-term debt;
- \$37.3 million in increases to current and non-current asset retirement obligations (“AROs”) resulting from the AROs acquired in Gibbons Creek Transaction and partially offset by ARO liabilities settled and gain on ARO settlement during the year ended December 31, 2021;
- \$24.5 million in new capital lease obligations entered into during the year ended December 31, 2021; and
- \$17.0 million in increases to accounts payables and accrued expenses from the commencement of new remediation and compliance services and the timing of payments to vendors.

These increases were partially offset by:

- \$154.8 million in principal payments of long-term debt;
- \$13.4 million in new debt issuance costs from our Notes offering and asset-based lending credit agreement;
- \$12.0 million in net payments on our line of credit under our previous Credit Facility;
- \$7.4 million in payments of the working capital adjustment and other items for the Allied Transaction; and
- \$4.8 million in principal payments on capital lease obligations.

Mezzanine Equity

Total mezzanine equity increased \$8.1 million primarily driven by paid-in-kind dividends and accretion associated with our Preferred Stock.

Total Equity

Total equity increased \$0.5 million, driven primarily by \$13.0 million from the issuance of common stock and \$2.7 million in share-based compensation, partially offset by \$8.7 million in paid in-kind and deemed dividends associated with our Preferred Stock, a \$5.8 million net loss and \$0.5 million in taxes paid related to the net settlement of shares.

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, borrowings under the Notes, proceeds from the issuance of common stock and availability under our asset-based lending credit agreement. 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, 2021, we had cash of \$24.3 million and borrowing capacity under our Asset Based Lending Credit Agreement of \$13.2 million, for total liquidity of \$37.5 million. 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.

Cash Flows

The following table is a summary of our cash flows for the years ended December 31, 2021 and 2020:

	Year Ended December 31,		Change
	2021	2020	\$
	(in thousands)		
Net cash and restricted cash (used in) provided by operating activities	\$ (10,166)	\$ 12,522	\$ (22,688)
Cash and restricted cash provided by investing activities	\$ 56,432	\$ 42,073	14,359
Cash and restricted cash used in financing activities	\$ (16,303)	\$ (31,512)	15,209

Year Ended December 31, 2021 Compared to Year Ended December 31, 2020

Operating Activities

Net cash and restricted cash (used in) provided by operating activities decreased \$22.7 million to \$10.2 million of net cash used in operating activities for the year ended December 31, 2021 as compared to \$12.5 million of net cash provided by operating activities. The change in cash flows provided by operating activities was primarily attributable to:

- a decrease in net loss of \$48.9 million.
- a decrease in non-working capital adjustments to net loss of \$71.3 million, primarily due to a decrease of \$39.9 million in impairment expense, an increase of \$24.1 million in (gain) loss on sale of property and equipment, a decrease of \$8.0 million in loss on extinguishment of debt, \$5.6 million in gain on a sales-type lease, \$3.6 million in gain on ARO settlements, an increase of \$2.7 million in (income) loss from equity method investment and a decrease of \$1.6 million in paid-in-kind interest on long-term debt. These changes were partially offset by the absence of \$9.7 million in gain on change in contingent payment liability and an increase of \$4.7 million in depreciation and amortization during the year ended December 31, 2021.
- a decrease of \$0.3 million from all other operating activities.

Investing Activities

Net cash and restricted cash provided by investing activities increased \$14.4 million to \$56.4 million for the year ended December 31, 2021, as compared to \$42.1 million for the year ended December 31, 2020. The change in cash flows provided by investing activities was primarily attributable to a \$37.2 increase in proceeds from the sales of real estate, property and equipment, primarily from real estate and scrap sales associated with the Gibbons Creek Transaction, \$34.9 million in cash and restricted cash received from the Gibbons Creek Transaction, and \$1.0 million of distributions received from our equity method investment. These increases were partially offset by the absence of \$34.9 million of proceeds from the sale of a subsidiary, net of subsidiary cash, \$7.0 million in proceeds received from a sales-leaseback transaction, payments of \$7.4 million of the working capital adjustment and other items resulting from the Allied Transaction and an increase in capital and land improvement expenditures of \$4.2 million.

Financing Activities

Net cash and restricted cash used in financing activities decreased \$15.2 million for the year ended December 31, 2021, to \$16.3 million as compared to \$31.5 million for the year ended December 31, 2020. The change in cash flows used in financing activities was primarily attributable to a \$156.3 million increase in proceeds received from long-term debt, \$13.0 million of proceeds received from the issuance of common stock and a decrease of \$1.4 million in distributions to our non-controlling interest. These changes were partially offset by an \$159.5 million increase in principal payments on long-term debt and capital lease obligations, the absence of \$24.3 million of proceeds received from Preferred Stock issuance, an \$11.8 million increase in payments of debt issuance costs and the change in net activity of \$5.0 million on the line of credit.

Working Capital

Our working capital, which we define as total current assets less total current liabilities, totaled \$31.5 million at December 31, 2021 as compared to \$21.5 million as of December 31, 2020. This increase in net working capital for the year ended December 31, 2021 was primarily due to:

- increases in restricted cash associated with the Gibbons Creek Transaction and the cash collateral deposits for our letters of credit;
- increases in contract assets and trade accounts receivable primarily due to an increase in the number of remediation and compliance projects and changes in the timing of the related billings and collections associated with these projects; and
- decreases in current maturities of capital lease obligations and notes payable due to the refinance of our previous Credit Facility into the Notes and our use of the proceeds from the Notes, along with cash from the sale of equity to B. Riley, to fully repay and terminate the Credit Facility as it became due and payable.

These changes were partially offset by:

- increases in the current portion of our asset retirement obligations primarily driven by the AROs acquired in the Gibbon Creek Transaction and the estimated timing of such remediation activities; and
- increases in accounts payable and accrued liabilities, primarily driven by an increase in the number of remediation and compliance projects and changes in the timing of the related payments to vendors associated with these projects.

Our Debt Agreements

Senior Notes

On August 25, 2021, the Company completed an offering of \$135.0 million, in the aggregate, of the Company's Notes, which amount includes the exercise by the underwriters of their option to purchase an additional \$5.0 million aggregate principal amount of Notes.

The Notes were sold pursuant to the Company's Registration Statement on Form S-1, as amended (File No. 333-258650), which was declared effective by the Securities and Exchange Commission on August 20, 2021. The Notes were issued pursuant to the First Supplemental Indenture (the "First Supplemental Indenture"), dated as of August 25, 2021, between the Company and Wilmington Savings Fund Society, FSB, as trustee (the "Trustee"). The First Supplemental Indenture supplements the Indenture entered into by and between the Company and the Trustee, dated as of August 25, 2021 (the "Base Indenture" and, together with the First Supplemental Indenture, the "Indenture").

The public offering price of the Notes was 100.0% of the principal amount. The Company received proceeds before payment of expenses and other fees of \$135.0 million. The Company used the proceeds, along with cash from the issuance of \$13.0 million of common stock, to fully repay and terminate the Company's Credit Facility, as defined below.

The Notes bear interest at the rate of 8.50% per annum. Interest on the Notes is payable quarterly in arrears on January 31, April 30, July 31 and October 31 of each year, commencing October 31, 2021. The Notes will mature on August 31, 2026.

The Company may redeem the Notes for cash in whole or in part at any time (i) on or after August 31, 2023 and prior to August 31, 2024, at a price equal to 103% of their principal amount, plus accrued and unpaid interest to, but excluding, the date of redemption, (ii) on or after August 31, 2024 and prior to August 31, 2025, at a price equal to 102% of their principal amount, plus accrued and unpaid interest to, but excluding, the date of redemption, and (iii) on or after August 31, 2025 and prior to maturity, at a price equal to 100% of their principal amount, plus accrued and unpaid interest to, but excluding, the date of redemption. On and after any redemption date, interest will cease to accrue on the redeemed Notes. If the Company is redeeming less than all of the Notes, the Trustee will select the Notes to be redeemed by such method as the Trustee deems fair and appropriate in accordance with methods generally used at the time of selection by fiduciaries in similar circumstances.

The Indenture also contains customary event of default and cure provisions. If an uncured default occurs and is continuing, the Trustee or the holders of not less than 25% in aggregate principal amount of the Notes may declare the Notes to be immediately due and payable.

The Notes are senior unsecured obligations of the Company and rank equal in right of payment with the Company's existing and future senior unsecured indebtedness.

As a result of the issuance of the Notes, \$12,116 of third-party fees were capitalized as debt issuance costs that will be amortized through interest expense, net in the accompanying consolidated statements of operations using the effective interest method through the maturity date of the Notes.

Asset-Based Lending Credit Agreement

On November 9, 2021, the Company entered into a new Credit Agreement with JPMorgan Chase Bank, N.A. ("JPMorgan"), as administrative agent, the lenders party thereto and certain subsidiary guarantors named therein. The Credit

Agreement provides for a four-year senior secured revolving credit facility with initial aggregate commitments from the lenders of \$30.0 million, which includes \$5.0 million available for swingline loans, plus an additional \$5.0 million of capacity available for the issuance of letters of credit if supported by cash collateral provided by the Company (with a right to increase such amount by up to an additional \$5.0 million) (“Aggregate Revolving Commitments”). Availability under the Credit Agreement is subject to a borrowing base calculated based on the value of certain eligible accounts receivable, inventory, and equipment of the Company and subject to redeterminations made in good faith and in the exercise of permitted discretion of JPMorgan. Proceeds of the Credit Agreements may be used for working capital and general corporate purposes.

The Credit Agreement provides for borrowings of either base rate loans or Eurodollar loans. Principal amounts borrowed are payable on the maturity date with such borrowings bearing interest that is payable (i) with respect to base rate loans, monthly and (ii) with respect to Eurodollar loans, the last day of each Interest Period (as defined below); provided that if any Interest Period for a Eurodollar loan exceeds three months, interest will be payable on the respective dates that fall every three months after the beginning of such Interest Period. Eurodollar Loans bear interest at a rate per annum equal to the Adjusted LIBOR for one, three or six months (the “Interest Period”), plus an applicable margin of 2.25%. Base rate loans bear interest at a rate per annum equal to the greatest of (i) the agent bank’s reference rate, (ii) the federal funds effective rate plus 50 basis points and (iii) the rate for one month Adjusted LIBOR loans plus 100 basis points, plus an applicable rate of 125 basis points. The Credit Agreement contains a provision for sustainability adjustments annually that will impact the applicable margin by between positive 0.05% and negative 0.05% based on the achievement, or lack thereof, of certain metrics agreed upon between JPMorgan and the Company and publicly reported through the Company’s annual non-financial sustainability report.

The Credit Agreement is guaranteed by certain of the Company’s subsidiaries and is secured by substantially all of the Company’s and such subsidiaries’ assets. The Credit Agreement contains customary restrictive covenants for asset-based loans that may limit the Company’s ability to, among other things: incur additional indebtedness, sell assets, make loans to others, make investments, pay cash dividends to common stockholders, limit or restrict payments of cash dividends on preferred equity, enter into mergers, make certain restricted payments, incur liens, and engage in certain other transactions without the prior consent of the lenders.

A covenant testing period (“Covenant Testing Period”) is a period in which excess availability (which is defined in the Credit Agreement as the sum of availability and an amount up to \$1.0 million) is less than the greater of (a) 12.5% of the lesser of the aggregate revolving commitments and the borrowing base, (b) the lesser of \$7.5 million and the PP&E Component as defined in the Credit Agreement, and (c) \$3.5 million, for three consecutive business days. During a Covenant Testing Period, the Credit Agreement requires the Company to maintain a fixed charge coverage ratio as defined in the Credit Agreement, determined for any period of twelve (12) consecutive months ending on the last day of each fiscal quarter, of at least 1.00 to 1.00.

As of December 31, 2021, the Company has not drawn on the Credit Agreement. Outstanding letters of credit under this Credit Agreement were \$19,027 as of December 31, 2021. As of December 31, 2021, the Company had \$13.4 million of outstanding letters of credit with JPMorgan and \$5.6 million with Bank of America, N.A.

As a result of entering into the Credit Agreement, \$1,366 of third-party fees were capitalized as debt issuance costs that will be amortized through interest expense, net in the accompanying consolidated statements of operations using the effective interest method through the maturity date of the Credit Agreement.

Letter of Credit Cash Collateralization Promissory Note

On August 25, 2021, Charah, LLC issued a Secured Promissory Note (the “Promissory Note”), as the borrower, in favor of B. Riley Commercial Capital, LLC, as the noteholder (the “Noteholder”), evidencing a loan in aggregate principal amount of \$17.9 million made by the Noteholder to Charah, LLC. The loan outstanding under the Promissory Note bore interest at a rate of eight percent (8%) per annum and was set to mature on the thirteen-month anniversary of the effective date of the Promissory Note. The proceeds of the Promissory Note were used by the Company and its subsidiaries to collateralize the Company’s existing letters of credit issued through Bank of America, N.A. The loan was repaid in full during the year ended December 31, 2021.

Previous 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 included:

- 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
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- A commitment to loan up to a further \$25.0 million in term loans, which expired 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”).

Pursuant to the terms of the Credit Facility and its related amendments, all amounts associated with the Revolving Loan and the Term Loan under the Credit Facility were set to mature in July 2022. The interest rates per annum applicable to the loans under the Credit Facility were 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 were added to the interest rate based on our consolidated net leverage ratio (as defined in the Credit Facility). Customary fees were payable regarding the Credit Facility and included (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 were secured by substantially all of the assets of the Company.

The Credit Facility contained various customary representations, warranties, restrictive covenants, certain affirmative covenants, including reporting requirements, and customary events of default.

Outstanding letters of credit under the previous Credit Facility were \$11.1 million as of December 31, 2020.

During the year ended December 31, 2021, using the proceeds from the Notes, along with cash from the sale of equity to B. Riley, to fully repay and terminate the Credit Facility, the Company paid \$114.1 million of outstanding principal on the Closing Date Loan and \$12.3 million of outstanding loans on the Revolver. Further, the Company paid \$2.0 million of previously accrued fees required as consideration for Amendment No. 3 to Credit Agreement that was otherwise due and payable on the maturity date. During the year ended December 31, 2021, the Company wrote off unamortized debt issuance costs of \$0.6 million as a result of this refinancing, which is included in loss on extinguishment of debt in the accompanying consolidated statements of operations.

Equipment Financing Facilities and Capital Lease Equipment Financing

We have entered into various equipment financing arrangements to finance the acquisition of certain equipment (the “Equipment Financing Facilities”). As of December 31, 2021, we had \$17.2 million of equipment notes outstanding. Each of the Equipment Financing Facilities includes non-financial covenants, and, as of December 31, 2021, we complied with all such covenants.

We have entered into various equipment capital lease financing arrangements to finance the acquisition of certain equipment. As of December 31, 2021, we had \$30.4 million of future minimum lease payments related to this equipment.

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. Upon meeting certain “specified payment conditions,” the Company has the ability under the Asset-Based Lending Credit Agreement to pay cash dividends on the Series A Preferred Stock. However, 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 financial statements included in Part II, Item 8. Financial Statements and Supplementary Data of this Annual Report on Form 10-K.

Common Stock Issuances

In August 2021, the Company executed a stock purchase agreement with a previously unrelated third party, B. Riley, and issued 2.9 million shares of common stock at \$4.50 per share in a private placement for total proceeds of \$13.0 million. Pursuant to the terms of the stock purchase agreement, B. Riley entered into an Investor Rights Agreement and appointed one director to the Company's board of directors.

Material Cash Requirements

The following table sets forth our material cash requirements from contractual obligations as of December 31, 2021.

	Total	2022	2023	2024	2025	2026	Thereafter
	(in thousands)						
Senior Notes	\$ 135,000	\$ —	\$ —	\$ —	\$ —	\$ 135,000	\$ —
Equipment Financing Facilities	17,205	7,100	5,545	3,226	1,122	212	—
Commercial insurance financing agreement	467	467	—	—	—	—	—
Interest on Outstanding Loans	54,932	12,243	11,893	11,640	11,512	7,644	—
Capital Lease Obligations	30,427	8,680	8,429	6,231	4,794	2,293	—
Interest on Capital Lease Obligations	3,802	1,631	1,147	685	273	66	—
Operating Lease Obligations ⁽¹⁾	29,106	10,216	9,271	5,646	2,151	1,003	819
Minimum Royalty and purchase obligations	49,620	14,101	13,644	15,914	5,961	—	—
Total ⁽²⁾	<u>\$ 320,559</u>	<u>\$ 54,438</u>	<u>\$ 49,929</u>	<u>\$ 43,342</u>	<u>\$ 25,813</u>	<u>\$ 146,218</u>	<u>\$ 819</u>

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

(2) 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 loss attributable to Charah Solutions, Inc. before income from discontinued operations, net of tax, interest expense, net, loss on extinguishment of debt, impairment expense, gain on change in contingent payment liability, income taxes, depreciation and amortization, equity-based compensation, 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, 2021, 2020 and 2019.

	Year Ended December 31,		
	2021	2020	2019
	(in thousands)		
Net loss attributable to Charah Solutions, Inc.	\$ (5,814)	\$ (55,863)	\$ (42,058)
Income from discontinued operations, net of tax	—	(8,883)	(7,105)
Interest expense, net ⁽¹⁾	15,227	13,774	14,624
Loss on extinguishment of debt ⁽¹⁾	638	8,603	—
Impairment expense ⁽¹⁾	827	44,572	—
Gain on change in contingent payment liability ⁽¹⁾	—	(9,702)	—
Income tax expense (benefit) ⁽¹⁾	661	(914)	4,190
Depreciation and amortization ⁽¹⁾	24,612	19,131	22,846
Equity-based compensation ⁽¹⁾	2,702	2,394	2,414
Brickhaven contract deemed termination revenue reversal ⁽¹⁾	—	—	10,000
Transaction-related expenses and other items ⁽¹⁾⁽²⁾	1,219	1,130	3,458
Adjusted EBITDA	\$ 40,072	\$ 14,242	\$ 8,369
Adjusted EBITDA margin ⁽³⁾	13.7 %	6.1 %	7.4 %

(1) Represents amounts for continuing operations only.

(2) Represents expenses associated with the Amendment to the Credit Facility, non-recurring legal costs and expenses and other miscellaneous items.

(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 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 financial statements. Regularly, management reviews the accounting policies, assumptions, estimates, and judgments to ensure that our consolidated 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 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 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 obligations 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 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.

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 of the Company as a whole since we concluded the Company was a single reporting unit. We may elect to perform a qualitative assessment of our reporting units to determine whether it is more likely than not that the reporting units’ fair value is greater than their 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. We performed a quantitative assessment of the Company using a market approach whereby the market capitalization of the Company was compared to its carrying value. The market capitalization was derived from the Company’s publicly traded stock price.

Indefinite-Lived Intangible Assets

We assess our trade name indefinite-lived intangible asset 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, 2021, we performed a quantitative assessment of our trade name indefinite-lived intangible asset and determined there was no impairment. For the period between the impairment testing date and year-end, there were no indicators of impairment. If actual future results are not consistent with our assumptions and estimates, we may be required to record impairment charges in the future. 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. 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.

Deferred Taxes, Valuation Allowance

As discussed in Note 21, Income Taxes, 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 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, 2021 and 2020, we could not conclude it is more likely than not certain deferred tax assets will be realized. Therefore, a valuation allowance of \$19.9 million and \$17.2 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.

Asset Retirement Obligations

The Company has land and structural fill assets with corresponding obligations to restore such assets at the end of their operation. Estimating the future closure and post-closure costs is difficult and requires management to make estimates and judgments because these obligations are over many years in the future. Asset retirement obligations (“ARO”) associated with retiring long-lived assets are recognized as a liability in the period in which a legal obligation is incurred and becomes determinable. The ARO liability reflects the estimated present value of the closure and post-closure activities associated with the Company’s land and structural fill assets. The Company utilizes current retirement costs to estimate the expected cash outflows for retirement obligations.

Inherent in the present value calculation are numerous assumptions and judgments, including the ultimate settlement amounts, inflation factors, credit-adjusted discount rates, timing of settlement, and changes in the legal, regulatory, environmental and political environments. To the extent future revisions to these assumptions impact the present value of the existing ARO liability, a corresponding adjustment is made to the land and/or structural fill balance. Accretion expense is recognized over time as the discounted liability is accreted to its expected settlement value. Gains and losses on ARO settlement are recognized as specific remediation tasks are performed. These gains and losses are determined based on the differences between the estimated costs used in the measurement of the fair value of the Company’s AROs and the actual costs incurred for specific remediation tasks recognized on a proportionate basis.

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, 2021 and 2020, 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

Our cash consists of cash in readily available checking accounts. Outstanding borrowing under our Credit Agreement bear interest at a variable rate; however, there were no outstanding borrowing on our Credit Agreement as of December 31, 2021. As a result, the fair value of our long-term debt is relatively insensitive to interest rate changes.

Credit Risk

While we are exposed to credit risk in the event of non-performance by counter parties, 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 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***

The Company maintains disclosure controls and procedures (as defined in Rule 13a-15(e) or Rule 15d-15(e) under the Exchange Act) that are designed to ensure that information required to be disclosed in the Company's reports under the Exchange Act is processed, recorded, summarized, and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure.

As required by SEC Rule 13a-15(b), the Company carried out an evaluation, under the supervision and with the participation of management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the disclosure controls and procedures. Based on the foregoing, the Company's Chief Executive Officer and Chief Financial Officer concluded, as of that time, the disclosure controls and procedures were not effective due to the material weakness in internal control over financial reporting described below.

Notwithstanding the identified material weakness, management, including our Chief Executive Officer and Chief Financial Officer, believes the consolidated financial statements included in this Annual Report fairly represent, in all material respects, our financial condition, results of operations and cash flows as of and for the periods presented in accordance with U.S. Generally Accepted Accounting Principles.

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.

Management evaluated the effectiveness of the Company's internal control over financial reporting as of December 31, 2021 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 evaluation, management, with the participation of the Chief Executive Officer and Chief Financial Officer, concluded that, as of December 31, 2021, the Company's internal control over financial reporting was not effective due to the material weakness described below.

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.

Material Weakness in Internal Control over Financial Reporting

Management identified a material weakness in our internal control over financial reporting in connection with our assessment as of and for the year ended December 31, 2021. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis.

We identified the following control deficiencies which aggregate to a material weakness: (i) lack of a sufficient number of trained resources with assigned responsibilities and accountability for the design and operation of internal controls over financial reporting; (ii) lack of formal and effective controls over certain financial statement account balances; (iii) lack of user profiles to ensure adequate restriction of users to perform only transactions that are consistent with their function; and (iv)

lack of appropriate segregation of duties within the accounting and finance functions, including order to cash, process to pay and payroll business processes.

Management's Remediation Plan

We have identified and implemented, and continue to implement, certain remediation efforts to improve the effectiveness of our internal control over financial reporting and disclosure controls and procedures. These remediation efforts are ongoing. The following remedial actions have been identified and initiated as of December 31, 2021:

- We have hired an external consultant to assist us in an evaluation of design and implementation of certain internal controls to address the identified deficiencies.
- We are in the process of hiring additional accounting resources with appropriate levels of experience and reallocating responsibilities across the finance organization. This measure will provide for appropriate segregation of duties and will ensure that the appropriate level of knowledge and experience will be applied based on the risk and complexity of transactions and tasks under review.
- We are revising user profiles within our accounting systems to ensure appropriate segregation of duties are in place.

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. In addition, 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. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. As we continue to evaluate and take actions to improve our internal control over financial reporting, we will further refine our remediation plan and take additional actions to address control deficiencies or modify certain of the remediation measures described above.

While progress has been made to enhance our internal control over financial reporting, we are still in the process of designing, implementing, documenting, and testing the effectiveness of these processes, procedures and controls. Additional time is required to complete the implementation and to assess and ensure the sustainability of these procedures. We will continue to devote time and attention to these remedial efforts. However, the material weakness cannot be considered remediated until the applicable remedial controls are fully implemented, have operated for a sufficient period of time and management has concluded that these controls are operating effectively through testing.

Changes in Internal Control Over Financial Reporting

Aside from the identification of the material weakness described above and the actions taken as described in Management's Remediation Plan above to improve the Company's 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 quarter ended December 31, 2021 that have materially affected or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Charah Solutions will file with the SEC a definitive proxy statement for its 2022 Annual Meeting of Stockholders (the “Proxy Statement”) no later than 120 days after the close of its fiscal year ended December 31, 2021. 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

Description	Page Number
Report of Independent Registered Public Accounting Firm PCAOB ID No. 34	F-1
Consolidated Balance Sheets as of December 31, 2021 and December 31, 2020	F-2
Consolidated Statements of Operations for the years ended December 31, 2021, 2020 and 2019	F-3
Consolidated Statements of Stockholders' Equity for the years ended December 31, 2021, 2020 and 2019	F-4
Consolidated Statements of Cash Flows for the years ended December 31, 2021, 2020 and 2019	F-6
Notes to Consolidated Financial Statements	F-8

2. Financial Statement Schedules

Schedule II—Schedule of Valuation and Qualifying Accounts	F-45
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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)).
4.6	Investor Rights Agreement, dated as of August 6, 2021, by and among Charah Solutions, Inc., B. Riley Securities, Inc. and B. Riley Financial, Inc. (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed on August 9, 2021 (File No. 001-38523)).

Exhibit Number	Description
<u>4.7</u>	<u>Indenture dated as of August 25, 2021, between Charah Solutions, Inc. and Wilmington Savings Fund Society, FSB, as trustee (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed on August 26, 2021 (File No. 001-38523)).</u>
<u>4.8</u>	<u>First Supplemental Indenture dated as of August 25, 2021, between Charah Solutions, Inc. and Wilmington Savings Fund Society, FSB, as trustee (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed on August 26, 2021 (File No. 001-38523)).</u>
<u>4.8.1</u>	<u>Form of 8.50% Senior Note due 2026 (included as Exhibit A to 4.7 above).</u>
<u>10.1</u>	<u>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)).</u>
<u>10.2</u>	<u>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)).</u>
<u>10.3</u>	<u>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)).</u>
<u>10.4†</u>	<u>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)).</u>
<u>10.5†</u>	<u>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)).</u>
<u>10.6†</u>	<u>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)).</u>
<u>10.7†</u>	<u>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)).</u>
<u>10.8†</u>	<u>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)).</u>
<u>10.9†</u>	<u>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)).</u>
<u>10.10†</u>	<u>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)).</u>
<u>10.11†</u>	<u>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)).</u>
<u>10.12†</u>	<u>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)).</u>
<u>10.13†</u>	<u>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)).</u>
<u>10.14†</u>	<u>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)).</u>
<u>10.15†</u>	<u>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)).</u>
<u>10.16†</u>	<u>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)).</u>
<u>10.17</u>	<u>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)).</u>

Exhibit Number	Description
<u>10.18†</u>	<u>Form of Performance Share Unit Grant Notice (form for grantee with employment agreement) 2018 Omnibus Incentive Plan. (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on April 29, 2021 (File No. 001-38523)).</u>
<u>10.19</u>	<u>Charah Solutions, Inc. 2018 Omnibus Incentive Plan, as amended by First Amendment approved by stockholders June 9, 2021 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed June 16, 2021 (File No. 001-38523)).</u>
<u>10.20</u>	<u>Credit Agreement dated as of November 9, 2021 among (i) Charah Solutions, Inc., Charah, LLC, SCB International Holdings, LLC, (ii) The Lenders Party thereto and JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on November 10, 2021 (File No. 001-38523)).</u>
<u>10.21</u>	<u>Promissory Note, dated as of August 25, 2021, between Charah, LLC and B. Riley Commercial Capital, LLC (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on August 26, 2021 (File No. 001-38523)).</u>
<u>21.1*</u>	<u>List of Subsidiaries of Charah Solutions, Inc.</u>
<u>23.1*</u>	<u>Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm.</u>
<u>31.1*</u>	<u>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.</u>
<u>31.2*</u>	<u>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.</u>
<u>32.1**</u>	<u>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.</u>
<u>32.2**</u>	<u>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.</u>
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(a)(5) 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 31, 2022

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/ Timothy Alan Simon

Timothy Alan Simon

Director

/s/ Robert C. Flexon

Robert C. Flexon

Director

/s/ Mark Spender

Mark Spender

Director

/s/ Dennis T. Whalen

Dennis T. Whalen

Director

/s/ Kenneth M. Young

Kenneth M. Young

Director

March 31, 2022

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors 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, 2021 and 2020, the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2021, 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, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

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 31, 2022

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

See notes to consolidated financial statements.

CHARAH SOLUTIONS, INC.

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

	December 31, 2021	December 31, 2020
Assets		
Current assets:		
Cash	\$ 24,266	\$ 24,787
Restricted cash	34,908	4,424
Trade accounts receivable, net	49,303	46,609
Receivable from affiliate	—	182
Contract assets	26,844	18,329
Inventory	6,289	5,917
Income tax receivable	—	260
Prepaid expenses and other current assets	6,113	5,287
Total current assets	147,723	105,795
Real estate, property and equipment, net	70,473	49,470
Goodwill	62,193	62,193
Intangible assets, net	53,531	61,426
Equity method investments	7	831
Other assets	10,180	1,245
Total assets	\$ 344,107	\$ 280,960
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 30,641	\$ 15,613
Contract liabilities	6,199	6,295
Capital lease obligations, current portion	6,979	2,199
Notes payable, current maturities	7,567	22,308
Asset retirement obligation	27,534	2,043
Accrued liabilities	36,874	34,937
Other liabilities	460	935
Total current liabilities	116,254	84,330
Deferred tax liabilities	949	368
Contingent payments for acquisitions	1,950	1,950
Asset retirement obligation	14,879	3,116
Line of credit	—	12,003
Capital lease obligations less current portion	19,444	4,485
Notes payable, less current maturities	133,661	124,969
Other liabilities	641	2,000
Total liabilities	287,778	233,221
Commitments and contingencies (see Note 19)		
Mezzanine equity		
Series A Preferred Stock — \$0.01 par value; 50 shares authorized, 26 shares issued and outstanding as of December 31, 2021; aggregate liquidation preference of \$32,712 and \$28,783 as of December 31, 2021 and 2020, respectively	35,532	27,423
Stockholders' equity		
Retained losses	(94,679)	(88,865)
Common Stock — \$0.01 par value; 200,000 shares authorized, 33,408 and 30,077 shares issued and outstanding as of December 31, 2021 and 2020, respectively	334	300
Additional paid-in capital	114,880	108,471
Total stockholders' equity	20,535	19,906
Non-controlling interest	262	410
Total equity	20,797	20,316
Total liabilities and equity	\$ 344,107	\$ 280,960

See notes to consolidated financial statements.

CHARAH SOLUTIONS, INC.

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

	Year Ended December 31,		
	December 31, 2021	December 31, 2020	December 31, 2019
Revenue	\$ 293,219	\$ 232,377	\$ 244,661
Cost of sales	(267,321)	(209,570)	(223,386)
Gross profit	25,898	22,807	21,275
General and administrative expenses	(42,189)	(34,064)	(51,085)
Gain on sales-type lease	5,568	—	—
Gains on sales of real estate, property and equipment, net	23,543	—	—
Gain on ARO settlement	3,623	—	—
Other operating expenses from ERT services	(5,078)	—	—
Gain on change in contingent payment liability	—	9,702	—
Impairment expense	(827)	(38,014)	—
Operating income (loss)	10,538	(39,569)	(29,810)
Interest expense, net	(15,227)	(13,774)	(14,624)
Loss on extinguishment of debt	(638)	(8,603)	—
Income (loss) from equity method investment	191	(2,516)	2,295
Loss from continuing operations before income taxes	(5,136)	(64,462)	(42,139)
Income tax (expense) benefit	(661)	914	(4,190)
Loss from continuing operations, net of tax	(5,797)	(63,548)	(46,329)
Income from discontinued operations, net of tax	—	8,883	7,105
Net loss	(5,797)	(54,665)	(39,224)
Less income attributable to non-controlling interest	17	1,198	2,834
Net loss attributable to Charah Solutions, Inc.	\$ (5,814)	\$ (55,863)	\$ (42,058)
Amounts attributable to Charah Solutions, Inc.			
Loss from continuing operations, net of tax and non-controlling interest	\$ (5,814)	\$ (64,746)	\$ (49,163)
Deemed and imputed dividends on Series A Preferred Stock	(592)	(461)	—
Series A Preferred Stock dividends	(8,156)	(4,064)	—
Net loss from continuing operations attributable to common stockholders	(14,562)	(69,271)	(49,163)
Net income from discontinued operations	—	8,883	7,105
Net loss attributable to common stockholders	\$ (14,562)	\$ (60,388)	\$ (42,058)
Net (loss) income from continuing operations per common share			
Basic	\$ (0.46)	\$ (2.32)	\$ (1.67)
Diluted	\$ (0.46)	\$ (2.32)	\$ (1.67)
Net income (loss) from discontinued operations per common share			
Basic	\$ —	\$ 0.30	\$ 0.24
Diluted	\$ —	\$ 0.30	\$ 0.24
Net loss attributable to common stockholders per common share			
Basic	\$ (0.46)	\$ (2.02)	\$ (1.43)
Diluted	\$ (0.46)	\$ (2.02)	\$ (1.43)
Weighted-average shares outstanding used in loss per common share:			
Basic	31,573	29,897	29,495
Diluted	31,573	29,897	29,495

See notes to consolidated financial statements.

CHARAH SOLUTIONS, INC.

Consolidated Statements of Stockholders' Equity
(dollars in thousands unless otherwise indicated)

Charah Solutions, Inc.								
	Common Stock (Shares)	Common Stock (Amount)	Additional Paid-In Capital	Retained Earnings (Losses)	Total	Non-Controlling Interest	Total	
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	

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 financial statements.

CHARAH SOLUTIONS, INC.

Consolidated Statements of Stockholders' Equity
(dollars in thousands unless otherwise indicated)

	For the Year Ended December 31, 2021									
	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, 2020	26,000	\$ 27,423	30,077,018	\$ 300	\$ 108,471	\$ (88,865)	\$ 19,906	\$ 410	\$ 20,316	
Net (loss) income	—	—	—	—	—	(5,814)	(5,814)	17	(5,797)	
Share based compensation expense	—	—	—	—	2,702	—	2,702	—	2,702	
Issuance of common stock	—	—	2,889	29	12,971	—	13,000	—	13,000	
Distributions	—	—	—	—	—	—	—	(165)	(165)	
Shares issued under share-based compensation plans	—	—	535,417	6	(5)	—	1	—	1	
Taxes paid related to the net settlement of shares	—	—	(93,518)	(1)	(511)	—	(512)	—	(512)	
Deemed and imputed dividends on Series A Preferred Stock	—	8,109	—	—	(592)	—	(592)	—	(592)	
Series A Preferred Stock Dividends	—	—	—	—	(8,156)	—	(8,156)	—	(8,156)	
Balance, December 31, 2021	26,000	\$ 35,532	33,407,806	\$ 334	\$ 114,880	\$ (94,679)	\$ 20,535	\$ 262	\$ 20,797	

See notes to consolidated financial statements.

CHARAH SOLUTIONS, INC.

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

	Year Ended December 31,		
	2021	2020	2019
Cash flows from operating activities:			
Net loss	\$ (5,797)	\$ (54,665)	\$ (39,224)
Adjustments to reconcile net loss to net cash and restricted cash (used in) provided by operating activities:			
Depreciation and amortization	24,612	19,886	23,437
Loss on extinguishment of debt	638	8,603	—
Paid-in-kind interest on long-term debt	2,844	4,448	—
Impairment expense	827	40,772	—
Amortization of debt issuance costs	1,086	599	1,206
Deferred income tax expense (benefit)	581	(834)	4,359
Gain on sales-type lease	(5,568)	—	—
(Gain) loss on sales of real estate, property and equipment	(23,436)	708	2,376
(Income) loss from equity method investment	(191)	2,516	(2,295)
Distributions received from equity investment	—	1,731	2,277
Non-cash share-based compensation	2,702	2,539	2,513
Loss (gain) on interest rate swap	270	(181)	2,006
Interest rate swap settlement	(745)	—	—
Gain on ARO settlement	(3,623)	—	—
Gain on change in contingent payment liability	—	(9,702)	—
Interest accreted on contingent payments for acquisition	—	171	267
Increase (decrease) in cash and restricted cash due to changes in:			
Trade accounts receivable	105	(21,791)	10,208
Contract assets and liabilities	(8,612)	8,025	65,299
Inventory	(803)	6,037	11,085
Accounts payable	13,636	(457)	(69)
Asset retirement obligation	(9,712)	(9,694)	(10,934)
Accrued expenses and other liabilities	1,020	13,811	(3,858)
Net cash and restricted cash (used in) provided by operating activities	(10,166)	12,522	68,653
Cash flows from investing activities:			
Proceeds from the sales of real estate, property and equipment	36,383	1,517	2,312
Purchases of property and equipment	(8,499)	(4,304)	(18,071)
Proceeds from sale-leaseback transaction	—	7,000	—
Cash and restricted cash received from ERT transaction	34,900	—	—
Payments of working capital adjustment and other items for the sale of subsidiary	(7,367)	—	—
Proceeds from the sale of subsidiary, net of subsidiary cash	—	37,860	—
Distributions received from equity method investment	1,015	—	—
Net cash and restricted cash provided by (used in) investing activities	56,432	42,073	(15,759)

See notes to consolidated financial statements.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

	Year Ended		
	2021	2020	2019
Cash flows from financing activities:			
Net payments on line of credit	(12,003)	(6,997)	(799)
Proceeds from senior unsecured notes	135,000	—	—
Proceeds from term loan	—	15,000	10,000
Proceeds from promissory note	17,852	—	—
Proceeds from equipment and other debt	3,449	3,897	10,843
Principal payments on term loan	(128,083)	(46,397)	(60,250)
Principal payments on promissory note	(17,852)	—	—
Principal payments on equipment and other debt	(8,841)	(17,599)	(9,018)
Payments of debt issuance costs	(13,380)	(1,623)	(1,394)
Principal payments on capital lease obligations	(4,768)	(316)	—
Taxes paid related to net settlement of shares	(512)	(150)	(201)
Net proceeds from issuance of convertible Series A Preferred Stock	—	24,253	—
Proceeds from issuance of common stock	13,000	—	—
Distributions to non-controlling interest	(165)	(1,580)	(2,847)
Net cash and restricted cash (used in) financing activities	(16,303)	(31,512)	(53,666)
Net increase (decrease) in cash and restricted cash	29,963	23,083	(772)
Cash and restricted cash, beginning of period	29,211	6,128	6,900
Cash and restricted cash, end of period	<u>\$ 59,174</u>	<u>\$ 29,211</u>	<u>\$ 6,128</u>

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		
	2021	2020	2019
Supplemental disclosures of cash flow information:			
Cash paid during the year for interest	\$ 12,579	\$ 13,331	\$ 12,044
Cash paid (refunded) during the year for taxes	884	(942)	(1,833)
Supplemental disclosures and non-cash investing and financing transactions:			
Gross proceeds from revolving loan included in line of credit	\$ 85,820	\$ 118,895	\$ 134,914
Gross payments on revolving loan included in line of credit	73,817	125,892	135,713
Equipment acquired through capital leases	24,508	—	—
Sale of structural fill asset through a sales-type lease	6,000	—	—
Deemed and imputed dividends on Series A Preferred Stock	8,109	3,169	—
Non-cash Series A Preferred Stock dividends included in accrued expenses	1,994	1,356	—
Proceeds from the sale of equipment in accounts receivable, net	1,313	—	—
Changes in property and equipment included in accounts payables and accrued expenses	1,187	205	1,245
Debt issuance costs included in accounts payable and accrued expenses	102	—	—
Property and equipment reduction due to sale-leaseback	—	7,000	—
Working capital owed related to sale of subsidiary included in accrued expenses	—	6,954	—
Sale of equipment through the issuance of a note receivable	—	1,450	—
Asset retirement obligation reduction through property and equipment	—	279	—
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
As reported within the Consolidated Balance Sheet:			
Cash from continuing operations	\$ 24,266	\$ 24,787	\$ 4,912
Restricted cash from continuing operations	34,908	4,424	1,000
Cash from discontinued operations	—	—	1
Restricted cash from discontinued operations	—	—	215
Total cash, cash equivalents and restricted cash as presented in the balance sheet	<u>\$ 59,174</u>	<u>\$ 29,211</u>	<u>\$ 6,128</u>

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued (amounts in thousands except per share data)

1. Nature of Business and Basis of Presentation

Organization

Charah Solutions, Inc. (together with its wholly-owned subsidiaries, “Charah Solutions,” the “Company,” “we,” “us,” or “our”), is a holding company formed in Delaware in January 2018. The Company's majority shareholder is Bernhard Capital Partners Management, LP and its affiliates (“BCP”). BCP owns 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.

Description of Business Operations

The Company is a leading national service provider of mission-critical environmental services and byproduct recycling 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 services, raw material sales 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.

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 include 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

After the Allied Transaction, the Company operates as one reportable segment, reflecting 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 the performance of the Company and allocates resources of the Company based on consolidated gross profit, general and administrative expenses, balance sheet,

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued (amounts in thousands except per share data)

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.

We provide the following services through our one segment: remediation and compliance services, byproduct services, raw material sales 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, power generation customer initiatives or consumer expectations and standards. Byproduct services consist of recurring and mission-critical coal ash management and operations for coal-fired power generation facilities while also supporting 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 supplemental cementitious materials (SCMs) that provide a sustainable, environmentally-friendly substitute for Portland cement in concrete. Our raw materials sales provide customers with the materials essential to their business while also providing the sourcing, logistics, and management needed to facilitate these raw materials transactions around the globe. ERT services represent an innovative solution designed to meet the evolving and increasingly complex needs of utility customers' evolving and increasingly complex plant closure and environmental remediation needs. 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' costs

Impact of the COVID-19 Pandemic

In March 2020, the World Health Organization categorized the disease caused by a novel coronavirus ("COVID-19") to be a pandemic. Management continues to evaluate the impact of the COVID-19 pandemic and has concluded that while it is reasonably possible that the virus could have a negative effect on the Company's financial position and results of its operations, the specific impact is not readily determinable as of the date of these financial statements. The financial statement does not include any adjustments that might result from the outcome of this uncertainty.

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 and paid 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.

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 non-interest bearing escrow accounts for specific remediation and compliance projects, cash collateral for letters of credit, and insurance-related items. This cash becomes unrestricted as project milestones are completed in accordance with each project's defined project schedule, or when credit agreements requiring cash collateral are terminated. As of December 31, 2021 and 2020, restricted cash in these accounts held \$34,908 and \$4,424, respectively.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued (amounts in thousands except per share data)

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 current economic conditions. An allowance for doubtful accounts of \$146 and \$467 was included in trade accounts receivable, net as of December 31, 2021 and 2020, 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 regard 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.

Asset Retirement Obligations

Asset retirement obligations ("ARO") associated with retiring long-lived assets are recognized as a liability in the period in which a legal obligation is incurred and becomes determinable. The ARO liability reflects the estimated present value of the closure and post-closure activities associated with the Company's land and structural fill assets. The Company utilizes current retirement costs to estimate the expected cash outflows for retirement obligations.

Inherent in the present value calculation are numerous assumptions and judgments, including the ultimate settlement amounts, inflation factors, credit-adjusted discount rates, timing of settlement, and changes in the legal, regulatory, environmental and political environments. To the extent future revisions to these assumptions impact the present value of the existing ARO liability, a corresponding adjustment is made to the land and/or structural fill balance. Accretion expense is recognized over time as the discounted liability is accreted to its expected settlement value. Gains and losses on ARO settlement are recognized as specific remediation tasks are performed. These gains and losses are determined based on the differences between the estimated costs used in the measurement of the fair value of the Company's AROs and the actual costs incurred for specific remediation tasks recognized on a proportionate basis.

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, 2021 and 2020 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.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

Goodwill is tested at the reporting unit level, which has been determined to be the Company. When performing its goodwill impairment test, the Company considers a qualitative assessment, when appropriate, and a quantitative assessment using the market approach and its market capitalization when determining the fair value of the reporting unit.

We evaluate the indefinite-lived trade name each reporting period to determine whether events and circumstances continue to support an indefinite useful life. When performing its indefinite-lived intangible asset impairment test, the Company considers a qualitative assessment, when appropriate, and a quantitative assessment using the relief-from-royalty method, an income approach, that estimates the present value of royalty income that could be hypothetically earned by licensing the brand name to a third party over the remaining useful life.

The assets will be written down to their implied fair value if the carrying value exceeds its fair value.

Definite-Lived Intangible Assets

Definite-lived intangible assets are comprised of our customer relationships. We evaluate our definite-lived intangible asset each reporting period to determine whether events and circumstances indicate that a triggering event has occurred that suggests that the fair value of the asset is below its 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

Fair Value Disclosure

The Company follows Accounting Standards Codification (“ASC”) 820, *Fair Value Measurements*, which provides a framework for measuring and disclosing fair value under generally accepted accounting principles. ASC 820 requires disclosures about the fair value of assets and liabilities recognized in the balance sheet in periods subsequent to initial recognition, whether the measurements are made on a recurring basis or on a nonrecurring basis.

ASC 820 defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820 also establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard describes three levels of inputs that may be used to measure fair value.

Fair Value Hierarchy

Level 1 - Valuation is based on quoted prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date. Level 1 assets and liabilities generally include debt and equity securities that are traded in an active exchange market. Valuations are obtained from readily available pricing sources for market transactions involving identical assets and liabilities.

Level 2 - Valuation is based on inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly. The valuation may be based on quoted prices for similar assets and liabilities; quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the asset or liability.

Level 3 - Valuation is based on unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. Level 3 assets and liabilities include financial instruments whose value is determined using pricing models, discounted cash flow methodologies, or similar techniques, as well as instruments for which determination of fair value requires significant management judgment or estimation.

In determining the appropriate levels, the Company performs a detailed analysis of assets and liabilities that are subject to ASC 820. The Company's contingent payments for acquisitions and interest rate swap are the only assets or liabilities subject to fair value measurements on a recurring basis. The Company may also be required, from time to time, to measure certain other financial and non-financial assets and liabilities at fair value on a non-recurring basis in accordance with GAAP. There have been no transfers between levels of the fair value hierarchy during the years ended December 31, 2021 and 2020.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

The fair value of the Company's 8.50% Senior Notes due 2026 (the "Notes") were estimated using quoted prices based on current transactions for similar debt, which are considered to be Level 2 measurements. The Notes had a fair value and carrying value of \$131,760 and \$135,000, respectively, as of December 31, 2021.

The book value of our outstanding equipment and other notes approximated fair value as December 31, 2021 based on consideration of recently executed transactions for similar debt, which are considered to be Level 2 measurements. The equipment notes had a fair value and carrying value of \$17,672 as of December 31, 2021.

Our outstanding debt as of December 31, 2020 primarily bore interest at variable rates and book value approximated fair value, which were considered to be Level 2 measurements.

The carrying amounts and fair values of the Company's recurring fair value measurements as of December 31, 2021 and 2020 are presented in the following table:

December 31, 2021	Level 1	Level 2	Level 3	Total Fair Value	Total Carrying Value
<u>Recurring:</u>					
Contingent payments for acquisitions ⁽¹⁾	\$ —	\$ —	\$ 1,950	\$ 1,950	\$ 1,950
December 31, 2020	Level 1	Level 2	Level 3	Total Fair Value	Total Carrying Value
<u>Recurring:</u>					
Interest rate swap ⁽²⁾	\$ —	\$ 935	\$ —	\$ 935	\$ 935
Contingent payments for acquisitions ⁽¹⁾	—	—	1,950	1,950	1,950

1. As of December 31, 2021 and 2020, the fair value of the contingent payments for acquisitions was estimated at the acquisition date using the present value of future payments and a discount rate in effect at the time of the acquisition. This analysis is updated at each reporting date to determine if any changes to the fair value are required and is considered to be a Level 3 measurement.
2. As of December 31, 2020, the fair value of the interest rate swap was measured based on observable market data, which were considered to be Level 2 measurements.

The Company's non-recurring level 3 fair value measurements consist of the measurement of AROs as described in Notes 5 and 7, the valuation of goodwill, intangible assets, and real estate, property and equipment, net as described in Notes 6 and 10 and the measurement of the preferred stock paid-in-kind dividends as described in Note 14.

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 related to the Notes are presented as a direct deduction from the carrying amount of the related liability in the Consolidated Balance Sheet. Debt issuance costs related to the Asset-Based Lending Credit Agreement (the "Credit Agreement") are included in other assets in the Consolidated Balance Sheet.

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 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.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

Income Taxes

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 largely depends 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 a 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-Based Compensation Plans

The Company accounts for its stock-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 Statements of Operations.

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

Revenue from Contracts with Customers

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 obligations 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).

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued (amounts in thousands except per share data)

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.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

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.

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 the 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, while we are still in the process of assessing the impact of this new standard on our consolidated financial position, results of operations and cash flows, we expect the adoption of this standard will have a material impact on our consolidated financial position due to the recognition of the right-of-use asset and lease liability related to operating leases. We had operating leases with remaining rental payments of approximately \$29,106 as of December 31, 2021. The discounted minimum remaining rental payments will be the starting point for determining the right-of-use asset and lease liability.

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

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

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 is currently evaluating the effect that the adoption of this ASU will have 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 provided Allied and the Purchaser with certain transition assistance services from the date of the Allied Transaction until April 30, 2021 in exchange for payment. The Transition Services Agreement was subsequently amended and extended with certain transition assistance services provided until August 30, 2021. In total, the Company received \$60 for its performance under the Transition Services Agreement during the year ended December 31, 2021. The Company had receivables outstanding from Allied of \$0 and \$120 at December 31, 2021 and December 31, 2020, respectively. 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.

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, 2021. All accruals recognized through the Allied Transaction were paid during the year ended December 31, 2021.

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Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

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 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 Statements of Operations:

	Year Ended December 31,	
	2020	2019
Revenue	\$ 314,251	\$ 310,207
Cost of sales	295,423	291,106
Gross profit	18,828	19,101
General and administrative expenses	7,106	9,785
Operating income	11,722	9,316
Interest expense, net ^(b)	(2,745)	(2,211)
Income from discontinued operations before income taxes	8,977	7,105
Income tax expense	94	—
Income from discontinued operations	\$ 8,883	\$ 7,105

^(b) Interest expense was allocated to discontinued operations due to a requirement in our amended Credit Agreement that cash generated from the Allied Transaction was to be used to reduce our borrowings.

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

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

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

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

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

4. Revenue

We disaggregate our revenue from customers by customer arrangement and 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,		
	2021	2020	2019
Construction contracts	160,632	80,805	80,968
Byproduct services	101,355	106,704	110,842
Raw material sales	31,232	44,868	52,851
Total revenue	\$ 293,219	\$ 232,377	\$ 244,661

Byproduct

	Year Ended December 31,		
	2021	2020	2019
United States	\$ 293,219	\$ 231,032	\$ 244,661
Foreign	—	1,345	—
Total revenue	\$ 293,219	\$ 232,377	\$ 244,661

On December 31, 2021, we had \$605,765 in transaction price for existing contracts allocated to remaining performance obligations. We expect to recognize approximately 20% of our remaining performance obligations as revenue during 2022, 13% in 2023, 11% in 2024 and 55% thereafter. Revenue associated with our remaining performance obligations relates 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, 2021. As of December 31, 2021, there were \$3,887 in an unapproved change orders associated with project scope changes included in estimated costs at completion on certain construction contracts, of which \$2,243 were approved after year end.

5. Asset Acquisition

As part of our ERT service offerings, in February 2021, the Company, through its wholly-owned special purpose vehicle subsidiary Gibbons Creek Environmental Redevelopment Group (“GCERG”), closed on an Asset Purchase Agreement (the “APA” or the “Agreement”) with Texas Municipal Power Agency to acquire, remediate and redevelop the Gibbons Creek Steam Electric Station and Reservoir (the “Gibbons Creek Transaction”). As part of this Agreement, GCERG took ownership of the 6,166-acre area (collectively, the “Purchased Assets”), which includes the closed power station and adjacent property, the 3,500-acre reservoir, dam and floodway. GCERG assumed all environmental obligations and became responsible for the decommissioning of the coal power plant as well as performing all environmental remediation work for the site landfills and ash ponds. At the closing of the APA, GCERG became liable for and expressly fully assumed any and all environmental liabilities and environmental compliance, as well as, without limitation, any remediation, investigation, management, mitigation, closure, maintenance, reporting, removal, disposal of and any other actions with respect to any hazardous substances at, on, in, under, or emanating from the Purchased Assets.

GCERG, at its discretion, plans to redevelop the property in an environmentally conscious manner that will expand economic activity and benefit the surrounding communities, as well as restore the property to a state that will enable it to be put to its best potential use. The existing power plant is being demolished, and GCERG is working with the Texas Commission on Environmental Quality to complete all environmental remediation required for the property and then plans to redevelop the remediated property within all zoning restrictions. The redevelopment of the property is expected to be completed within 34 months from the date of acquisition.

The Gibbons Creek Transaction was accounted for as an asset acquisition in accordance with ASC 805, *Business Combinations*, with the assumed liabilities net of cash received or owed to us by the seller comprising the purchase price. Since the fair value of the net assets acquired exceeded the cost, the Company allocated the difference pro-rata to reduce land, property and equipment, and intangible assets acquired on the basis of relative fair values.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
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The assets acquired and liabilities assumed as recognized within the Company's Consolidated Balance Sheet upon closing on the APA consisted of the following:

Consideration and direct transaction costs:		
Asset retirement obligations	\$	(50,590)
Bond and insurance accrued expenses, net		(2,229)
Direct transaction costs		(2,336)
Total consideration and transaction costs incurred	\$	(55,155)
Asset Received:		
Cash	\$	6,354
Restricted cash		28,546
Water rights		5,196
Land		14,385
Plant, machinery and equipment		610
Vehicles		64
Total allocated value of assets acquired	\$	55,155

The Company has identified asset retirement obligations within the assumed liabilities to be initially measured and valued in accordance with ASC 410, *Asset Retirement and Environmental Obligations*. We developed our estimates of these obligations based on our interpretation of current requirements and proposed regulatory changes, and we believe they 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, and is considered to be a Level 3 measurement. 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.

Once we determined the estimated closure and post-closure costs for each asset retirement obligation, we inflation-adjusted those costs to the expected time of payment and discounted those expected future costs back to present value 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 the obligation was 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. 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 related to the Gibbons Creek Transaction was approximately 4.5% at the acquisition date.

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 and results of operations. We assess the appropriateness of the estimates used to develop our recorded balances annually or more often if conditions warrant. Differences between the estimated costs and actual costs incurred are recognized in earnings as specific obligations are settled.

Demolition costs will be capitalized as part of the land as incurred as part of preparing the site for sale since, at the acquisition date, (i) we planned to demolish the existing structure as part of the redevelopment plan for the acquired property, (ii) demolition is expected to occur within a reasonable period of time after the acquisition, and (iii) such expected costs will be incurred to make the land saleable to a third party.

As part of the acquisition, the Company acquired certain plant, machinery and equipment and vehicles for which management committed to a plan to sell. Property and equipment of \$193 that was initially classified as held for sale was subsequently sold to third parties during the year ended December 31, 2021.

As of December 31, 2021, the Company has completed the sale of nearly 80% of the real property acreage acquired through the Gibbons Creek Transaction. The sale of property included 4,860 acres of the 6,166-acre area, the 3,500-acre reservoir, dam and spillway. The Company received net proceeds of \$23,575 and recorded a gain on sales of property and

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
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equipment, net, of \$14,669 in the Consolidated Statements of Operations related to this transaction. The proceeds were recorded in cash flows from investing activities in the Consolidated Statements of Cash Flows.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

6. Balance Sheet Items

Property and equipment, net

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

	December 31,	
	2021	2020
Plant, machinery and equipment	\$ 63,937	\$ 68,308
Structural fill site improvements	55,760	55,760
Vehicles	11,718	12,824
Office equipment	600	582
Buildings and leasehold improvements	267	262
Land, land improvements and structural fill sites	12,231	432
Capital lease assets	31,172	6,627
Construction in progress	1,522	1,961
Total property and equipment	\$ 177,207	\$ 146,756
Less: accumulated depreciation	(106,734)	(97,286)
Property and equipment, net	\$ 70,473	\$ 49,470

Land, land improvements and structural fill sites include \$5,953 of real property acquired in the Gibbons Creek Transaction that the Company is actively demolishing and for which depreciation expense is not being recorded. During the year ended December 31, 2021, the Company capitalized \$4,067 of demolition costs and sold scrap with a cost basis of \$2,511.

Depreciation expense for the years ended December 31, 2021, 2020, and 2019 was \$16,718, \$17,659, and \$17,353, 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 the 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, 2021, the Company determined that a triggering event occurred that indicated that the carrying value of certain remaining grinding technology-related equipment 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 of \$673. The long-lived assets impaired had no remaining fair value as of December 31, 2021.

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

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
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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.

During the year ended December 31, 2020, 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 Statement of Operations. As of December 31, 2021 and 2020, the inventory impaired during the year ended December 31, 2020 had a remaining fair value of \$8 and \$1,090, respectively.

Purchase Option Liability

On January 13, 2017, Charah Management, LLC, a Delaware limited liability company and wholly-owned subsidiary of Charah Solutions (“Charah Management”), completed a transaction with BCP, a previously unrelated third party, pursuant to which BCP acquired a 76% equity position of Charah Management (“the BCP transaction”). As part of this transaction, Charah Management recorded the fair value of a bargain purchase liability for an option held by a customer and a third party for its structural fill sites. The purchase option liability was calculated as the difference between the estimated fair value of the structural fill sites at the date of the BCP transaction and the option price to be paid by the customer or third party. The purchase options were exercisable after completion of work at the structural fill sites. The bargain purchase option was 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 Statement of Operations.

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

	December 31, 2020
Balance, beginning of period	\$ 7,110
Amortization expense	(7,110)
Balance, end of period	\$ —

Sales-type lease

In March 2021, the Company amended an existing ground lease with a third party concerning one of the Company's structural fill assets with a 30-year term expiring on December 31, 2050. The lease includes multiple options that may be exercised at any time during the lease term for the lessee to purchase all or a portion of the premises, as well as a put option (the “Put Option”) that provides the Company the option to require the lessee to purchase all of the premises at the end of the lease term.

In accordance with ASC 840, *Leases*, the Company considered whether this lease, as amended, met any of the following four criteria as part of classifying the lease at the amendment date: (a) the lease transfers ownership of the property to the lessee by the end of the lease term; (b) the lease contains a bargain purchase option; (c) the lease term is equal to 75 percent or more of the estimated economic life of the lease property; and (d) the present value of the minimum lease payments, excluding executory costs, equals or exceeds 90 percent of the excess of the fair value of the lease property to the lessor at lease inception. This lease was recorded as a sales-type capital lease due to the Put Option provision contained within the lease agreement that represents a transfer of ownership of the property by the end of the lease term. Additionally, the Company determined that collectability of the lease payments was reasonably assured and that there were not any significant uncertainties related to costs that it has yet to incur with respect to the lease.

CHARAH SOLUTIONS, INC.

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At the amendment date of the lease, a discount rate of 3.9% implicit in the sales-type lease was used to calculate the present value of the minimum lease payments, which the Company recorded as a lease receivable. The Company recognized a gain of \$5,568 within operating income in the Consolidated Statements of Operations.

The following table reflects the classification of the lease receivable within our Consolidated Balance Sheet:

	December 31, 2021
Lease receivable	\$ 5,937
Less: current portion in prepaid expenses and other current assets	(65)
Non-current portion in other assets	<u>\$ 5,872</u>

Asset sale agreement

In June 2021, the Company consummated an asset sale with an unrelated third party in which the Company assigned a lease agreement to the purchaser and sold certain grinding-related inventory and fixed assets for an aggregate sale price of \$2,852. The Company received \$1,250 in cash at closing, with the remaining portion to be paid over time on specified dates, with the final payment to be received 36 months from the closing date.

The Company determined that the note receivable included a significant financing component. As a result, the sale price and gain on sale were determined on a discounted cash flow basis. The Company recognized a gain of \$1,187 within gains on sales of fixed assets in the Consolidated Statements of Operations.

The following table reflects the classification of the note receivable within our Consolidated Balance Sheet:

	December 31, 2021
Note receivable	\$ 1,352
Less: current portion in prepaid expenses and other current assets	(500)
Non-current portion in other assets	<u>\$ 852</u>

Accrued liabilities

The following table shows the components of accrued liabilities:

	December 31,	
	2021	2020
Accrued expenses	\$ 25,074	\$ 19,323
Accrued working capital adjustment for the Allied Transaction	—	6,954
Accrued payroll and bonuses	7,798	7,227
Accrued preferred stock dividends	1,994	1,356
Accrued interest	2,008	77
Accrued liabilities	<u>\$ 36,874</u>	<u>\$ 34,937</u>

Contingent payments for acquisitions

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

	December 31,	
	2021	2020
Balance, beginning of period	\$ 1,950	\$ 11,481
Add: interest accreted on contingent payments for acquisition	—	171
Less: gain on change in contingent payment liability	—	(9,702)
Balance, end of period	<u>\$ 1,950</u>	<u>\$ 1,950</u>

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”)

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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 10, 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 Statement of Operations. As of December 31, 2021, the remaining liability balance of \$1,950 is expected to be paid after 2022.

7. Asset Retirement Obligations

The Company owns one structural fill site with continuing maintenance and monitoring requirements after its closure and four tracts of real property with decommissioning, remediation and monitoring requirements. As of December 31, 2021 and 2020, the Company has accrued \$42,413 and \$5,159, respectively, for the asset retirement obligations ("ARO").

Structural Fill Site ARO

Asset retirement activities and our related accounting for this ARO are as follows:

- 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 determined the final capping, closure, and post-closure costs, we inflated those costs to the expected time of payment and discount those expected future costs back to present value using an inflation rate of 3.0%. We discounted these costs to present value using the credit-adjusted, risk-free rate effective of 5.25% at the time an obligation was incurred, consistent with the expected cash flow approach.

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.

Real Estate AROs

The Company acquired certain real property through the Gibbons Creek Transaction with decommissioning, remediation and monitoring requirements. Refer to Note 5, Asset Acquisition, for asset retirement activities and our related accounting for these AROs.

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The following table reflects the activity for our asset retirement obligations:

	December 31,	
	2021	2020
Balance, beginning of period	\$ 5,159	\$ 15,131
Liabilities incurred	50,590	—
Liabilities settled	(11,725)	(8,413)
Accretion	2,012	568
Gain on ARO settlement	(3,623)	—
Revision in estimate	—	(2,127)
Balance, end of period	42,413	5,159
Less: current portion	(27,534)	(2,043)
Non-current portion	\$ 14,879	\$ 3,116

During the year ended December 31, 2021, the Company recognized a gain on ARO settlement of \$3,623 representing differences between the estimated costs used in the measurement of the fair value of the Company's AROs and the actual expenditures incurred for specific remediation tasks performed during the year ended December 31, 2021.

During the year ended December 31, 2020, 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 Statement of Operations.

8. Equity Method Investments

In January 2016, Charah, LLC, a Delaware limited liability company and wholly-owned subsidiary of Charah Solutions, organized a joint venture with VHSC Holdings, LLC, an unrelated third party, to provide ash management and remarketing services to the electric utility industry. The Company owns a 50% interest in the joint venture and 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 \$0 and \$182 at December 31, 2021 and 2020, 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 the year ended December 31, 2020. 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,	
	2021	2020
Current assets	\$ 14	\$ 1,812
Noncurrent assets	—	282
Total assets	\$ 14	\$ 2,094
Current liabilities	—	432
Equity of Charah	7	831
Equity of joint venture partner	7	831
Total liabilities and members' equity	\$ 14	\$ 2,094

CHARAH SOLUTIONS, INC.

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

	Year Ended December 31,		
	2021	2020	2019
Operating Data			
Revenue	\$ 555	\$ 6,012	\$ 9,354
Net income	\$ 381	\$ 2,569	\$ 4,590
The Company's share of net income	\$ 191	\$ 1,284	\$ 2,295

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

	Year Ended December 31,		
	2021	2020	2019
Opening balance	\$ 831	\$ 5,078	\$ 5,060
Distributions	(1,015)	(1,731)	(2,277)
Share of net income	191	1,284	2,295
Impairment	—	(3,800)	—
Closing balance	\$ 7	\$ 831	\$ 5,078

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

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 \$100, \$288, \$184, during the years ended December 31, 2021, 2020, and 2019. The Company had no receivables outstanding from ATC at December 31, 2021 and 2020. The Company had payables and accrued expenses, net of credit memos, due to ATC of \$4 and \$29 at December 31, 2021 and 2020, 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 in 2019. Expenses to B&R were \$1,565 during the year ended December 31, 2019. The Company had no receivables outstanding from or payables due to B&R at December 31, 2021 and 2020.

The Company previously 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 \$391 was incurred during the year ended December 31, 2019, respectively. The Company had no receivables outstanding from or payables due to Price Real Estate at December 31, 2021 and 2020.

PriceFlight, LLC ("PriceFlight"), an entity owned by a stockholder of the Company, previously provided flight services to the Company in 2019. Expenses to PriceFlight for flight services amounted to \$85 during the years ended December 31, 2019. The Company had no receivables outstanding from or payables due to PriceFlight at December 31, 2021 and 2020.

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 10, Long-term Debt, in August 2021, the Company completed an offering of \$135,000, in the aggregate, of the Notes, which amount included the exercise by the underwriters of their option to purchase an additional \$5,000 aggregate principal amount of Notes. B. Riley Securities, Inc. ("B. Riley"), a shareholder of the Company with board representation, served as the lead book-running manager and underwriter for this offering, purchasing a principal amount of \$80,325 of the Notes. Fees paid to B. Riley related to this offering were \$7,914 for the year ended December 31, 2021. These fees were capitalized as debt issuance costs within notes payable, less current maturities in the Consolidated Balance Sheets and will be amortized prospectively through interest expense, net in the Consolidated Statements of Operations using the effective interest method through the maturity date of the Notes. In addition, Charah, LLC, a Kentucky limited liability company and

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indirect subsidiary of the Company, issued a promissory note in exchange for cash in favor of B. Riley Commercial Capital, LLC, an affiliate of B. Riley, evidencing a loan in aggregate principal amount of \$17,852. The promissory note was repaid in full as of December 31, 2021.

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

10. 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

As of December 31, 2021 and 2020, goodwill was \$62,193. We performed a quantitative assessment of the Company, which we concluded was a single reporting unit, as of October 1, 2021 using a market approach, whereby the market capitalization of the Company was compared to its carrying value. The market capitalization was derived from the Company's publicly traded stock price. The fair value of the reporting unit exceeded its carrying value, and therefore, no impairment was recognized.

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. The 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, primarily as a result of 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 are comprised of our customer relationships. Amortization expense of definite-lived intangible assets was \$7,894, \$8,582, and \$8,400 for the years ended December 31, 2021, 2020, and 2019, respectively.

Long-lived assets, including definite-lived intangible assets are reviewed for impairment whenever certain triggering events may indicate impairment. There was no impairment of definite-lived intangible assets for the year ended December 31, 2021.

During the year ended December 31, 2020, as discussed in Note 6, 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.

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

	December 31, 2021			December 31, 2020		
	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	\$ (38,727)	\$ 40,215	\$ 78,942	\$ (30,832)	\$ 48,110
Indefinite-lived intangibles						
Charah trade name	13,316	—	13,316	34,330	21,014	13,316
Total			<u>\$ 53,531</u>			<u>\$ 61,426</u>

As of December 31, 2021, 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,		
2022	\$	7,894
2023		7,894
2024		7,894
2025		7,894
2026		7,894
Thereafter		745
Total	\$	<u>40,215</u>

11. Long-term Debt

Senior Notes

On August 25, 2021, the Company completed an offering of \$135,000, in the aggregate, of the Company's Notes, which amount includes the exercise by the underwriters of their option to purchase an additional \$5,000 aggregate principal amount of Notes.

The Notes were issued pursuant to the First Supplemental Indenture (the "First Supplemental Indenture"), dated as of August 25, 2021, between the Company and Wilmington Savings Fund Society, FSB, as trustee (the "Trustee"). The First Supplemental Indenture supplements the Indenture entered into by and between the Company and the Trustee, dated as of August 25, 2021 (the "Base Indenture" and, together with the First Supplemental Indenture, the "Indenture").

The public offering price of the Notes was 100.0% of the principal amount. The Company received proceeds before payment of expenses and other fees of \$135,000. The Company used the proceeds, along with cash from the issuance of \$13,000 of common stock, to fully repay and terminate the Company's Credit Facility, as defined below.

The Notes bear interest at the rate of 8.50% per annum. Interest on the Notes is payable quarterly in arrears on January 31, April 30, July 31 and October 31 of each year, commencing October 31, 2021. The Notes will mature on August 31, 2026.

The Company may redeem the Notes for cash in whole or in part at any time (i) on or after August 31, 2023 and prior to August 31, 2024, at a price equal to 103% of their principal amount, plus accrued and unpaid interest to, but excluding, the date of redemption, (ii) on or after August 31, 2024 and prior to August 31, 2025, at a price equal to 102% of their principal amount, plus accrued and unpaid interest to, but excluding, the date of redemption, and (iii) on or after August 31, 2025 and prior to maturity, at a price equal to 100% of their principal amount, plus accrued and unpaid interest to, but excluding, the date of redemption. On and after any redemption date, interest will cease to accrue on the redeemed Notes.

The Indenture also contains customary event of default and cure provisions. If an uncured default occurs and is continuing, the Trustee or the holders of not less than 25% in aggregate principal amount of the Notes may declare the Notes to be immediately due and payable.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
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The Notes are senior unsecured obligations of the Company and rank equal in right of payment with the Company's existing and future senior unsecured indebtedness.

As a result of the issuance of the Notes, \$12,116 of third-party fees were capitalized as debt issuance costs that will be amortized through interest expense, net in the Consolidated Statements of Operations using the effective interest method through the maturity date of the Notes.

Asset-Based Lending Credit Agreement

On November 9, 2021, the Company entered into a new Credit Agreement with JPMorgan Chase Bank, N.A. ("JPMorgan"), as administrative agent, the lenders party thereto and certain subsidiary guarantors named therein. The Credit Agreement provides for a four-year senior secured revolving credit facility with initial aggregate commitments from the lenders of \$30,000, which includes \$5,000 available for swingline loans, plus an additional \$5,000 of capacity available for the issuance of letters of credit if supported by cash collateral provided by the Company (with a right to increase such amount by up to an additional \$5,000) ("Aggregate Revolving Commitments"). Availability under the Credit Agreement is subject to a borrowing base calculated based on the value of certain eligible accounts receivable, inventory, and equipment of the Company and subject to redeterminations made in good faith and in the exercise of permitted discretion of JPMorgan. Proceeds of the Credit Agreements may be used for working capital and general corporate purposes.

The Credit Agreement provides for borrowings of either base rate loans or Eurodollar loans. Principal amounts borrowed are payable on the maturity date with such borrowings bearing interest that is payable (i) with respect to base rate loans, monthly and (ii) with respect to Eurodollar loans, the last day of each Interest Period (as defined below); provided that if any Interest Period for a Eurodollar loan exceeds three months, interest will be payable on the respective dates that fall every three months after the beginning of such Interest Period. Eurodollar Loans bear interest at a rate per annum equal to the Adjusted LIBOR for one, three or six months (the "Interest Period"), plus an applicable margin of 2.25%. Base rate loans bear interest at a rate per annum equal to the greatest of (i) the agent bank's reference rate, (ii) the federal funds effective rate plus 50 basis points and (iii) the rate for one month Adjusted LIBOR loans plus 100 basis points, plus an applicable rate of 125 basis points. The Credit Agreement contains a provision for sustainability adjustments annually that will impact the applicable margin by between positive 0.05% and negative 0.05% based on the achievement, or lack thereof, of certain metrics agreed upon between JPMorgan and the Company and publicly reported through the Company's annual non-financial sustainability report.

The Credit Agreement is guaranteed by certain of the Company's subsidiaries and is secured by substantially all of the Company's and such subsidiaries' assets. The Credit Agreement contains customary restrictive covenants for asset-based loans that may limit the Company's ability to, among other things: incur additional indebtedness, sell assets, make loans to others, make investments, enter into mergers, make certain restricted payments, incur liens, and engage in certain other transactions without the prior consent of the lenders.

A covenant testing period ("Covenant Testing Period") is a period in which excess availability (which is defined in the Credit Agreement as the sum of availability and an amount up to \$1,000), is less than the greater of (a) 12.5% of the lesser of the aggregate revolving commitments and the borrowing base, (b) the lesser of \$7,500 and the PP&E Component as defined in the Credit Agreement, and (c) \$3,500, for three consecutive business days. During a Covenant Testing Period, the Credit Agreement requires the Company to maintain a fixed charge coverage ratio as defined in the Credit Agreement, determined for any period of twelve (12) consecutive months ending on the last day of each fiscal quarter, of at least 1.00 to 1.00.

As of December 31, 2021, the Company has not drawn on the Credit Agreement. Outstanding letters of credit were \$19,027 as of December 31, 2021. As of December 31, 2021, the Company had \$13,387 of outstanding letters of credit with JPMorgan and \$5,649 with Bank of America, N.A.

As a result of entering into the Credit Agreement, \$1,366 of third-party fees were capitalized as debt issuance costs that will be amortized through interest expense, net in the Consolidated Statements of Operations using the effective interest method through the maturity date of the Credit Agreement.

Letter of Credit Cash Collateralization Promissory Note

On August 25, 2021, Charah, LLC issued a Secured Promissory Note (the "Promissory Note"), as the borrower, in favor of B. Riley Commercial Capital, LLC, as the noteholder (the "Noteholder"), evidencing a loan in aggregate principal amount of \$17,852 made by the Noteholder to Charah, LLC. The loan outstanding under the Promissory Note bears interest at a rate of eight percent (8%) per annum and was set to mature on the thirteen-month anniversary of the effective date of the

CHARAH SOLUTIONS, INC.

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Promissory Note. The proceeds of the Promissory Note were used by the Company and its subsidiaries to collateralize the Company's existing letters of credit issued through Bank of America, N.A. The loan was repaid in full during the year ended December 31, 2021.

Previous 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 included:

- 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 expired 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").

Pursuant to the terms of the Credit Facility and its related amendments, all amounts associated with the Revolving Loan and the Term Loan under the Credit Facility were set to mature in July 2022. The interest rates per annum applicable to the loans under the Credit Facility were 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 were added to the interest rate based upon our consolidated net leverage ratio (as defined in the Credit Facility). Customary fees were payable regarding the Credit Facility and included (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 were secured by substantially all of the assets of the Company.

The Credit Facility contained various customary representations, warranties, restrictive covenants, certain affirmative covenants, including reporting requirements, and customary events of default.

Outstanding letters of credit under the previous Credit Facility were \$11,079 as of December 31, 2020.

During the year ended December 31, 2021, using the proceeds from the Notes, along with cash from the issuance of \$13,000 of common stock, to fully repay and terminate the Credit Facility, the Company paid \$114,123 of outstanding principal on the Closing Date Loan and \$12,340 of outstanding loans on the Revolver. Further, the Company paid \$2,000 of previously accrued fees required as consideration for Amendment No. 3 to Credit Agreement that was otherwise due and payable on the maturity date. During the year ended December 31, 2021, the Company wrote off unamortized debt issuance costs of \$638 as a result of extinguishment of debt, which is included in loss on extinguishment of debt in the Consolidated Statements of Operations.

12. 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, 2021 and 2020:

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	December 31,	
	2021	2020
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 \$983 as of December 31, 2021.	\$ 1,748	\$ 2,871
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 \$5,471 as of December 31, 2021.	5,952	8,446
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 \$2,454 as of December 31, 2021.	2,633	3,490
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 \$1,767 as of December 31, 2021.	1,624	2,011
Various equipment notes entered into in 2021, payable in monthly installments ranging from \$3 to \$9, including interest ranging from 4.0% to 6.5%, maturing in February 2026 through August 2026. The notes are secured by equipment with a net book value of \$1,696 as of December 31, 2021.	1,861	—
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
Various commercial insurance premium financing agreements entered into in 2021, payable in monthly installments ranging from \$24 to \$117, including interest ranging from 3.0% to 3.9%, maturing in October 2021 through April 2022.	467	—
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 \$2,292 as of December 31, 2021.	3,387	5,791
The Closing Date Term Loan and the Delayed Draw Term Loan entered into in September 2018 as part of the Syndicated Credit Facility (see Note 10). In August 2021, the Credit Facility was terminated and the full outstanding principal balance was repaid.	—	125,239
Senior Unsecured Notes, issued August 2021 (see Note 10). The Notes are senior unsecured obligations of the Company, bearing stated interest at 8.50%, and rank equal in right of payment with the Company's existing and future senior unsecured indebtedness.	135,000	—
Total	152,672	148,301
Less debt issuance costs	(11,444)	(1,024)
	141,228	147,277
Less current maturities	(7,567)	(22,308)
Notes payable due after one year	\$ 133,661	\$ 124,969

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Notes to Consolidated Financial Statements, continued
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Future maturities of notes payable at December 31 are as follows:

For the Year Ending December 31,

2022	\$	7,567
2023		5,545
2024		3,226
2025		1,122
2026		135,212
Thereafter		—
Total	\$	152,672

13. 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 \$2,357 and \$2,128 is recorded within current and long-term liabilities, respectively, in the Consolidated Balance Sheet as of December 31, 2021. The proceeds from the sale were recorded within investing activities in the Consolidated Cash Flow Statements.

14. Mezzanine Equity

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, 2021, the Company had accrued dividends of \$1,030 associated with the Preferred Stock, which was recorded at a fair value of \$1,994 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. Upon meeting certain "specified payment conditions," the Company has the ability under the Asset-Based Lending Credit Agreement to pay cash dividends on the Series A Preferred Stock. However, 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, 2021, the liquidation preference of the Preferred Stock was \$32,712.

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, 2021, the maximum number of common shares that could be required to be issued if converted is 11,809 (eleven million eight hundred nine 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;

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- 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, 2021 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

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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 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 would 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.

15. Interest Rate Swap

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. On August 19, 2021, the Company terminated the interest rate swap in conjunction with the termination of the Credit Facility and issuance of the Notes. In conjunction with the termination, the Company settled the outstanding liability that was previously classified within other liabilities in the Consolidated Balance Sheet by paying \$745 to the counterparty, which represented the fair value of the swap as of the termination date.

The total amount of gain (loss) included in interest expense, net in the Consolidated Statements of Operations for the years ended December 31, 2021, 2020 and 2019 was \$190, \$181 and \$(2,007), respectively.

16. 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,	
	2021	2020
Costs and estimated earnings in excess of billings	\$ 17,163	\$ 12,196
Retainage	9,681	6,133
Total contract assets	<u>\$ 26,844</u>	<u>\$ 18,329</u>

The increase in contract assets in 2021 was primarily attributable to an increase in the total number of remediation and compliance services projects and the timing of the billings for such projects.

Our contract liabilities are as follows:

	December 31,	
	2021	2020
Deferred revenue	\$ 483	\$ 128
Billings in excess of costs and estimated earnings	5,716	6,167
Total contract liabilities	<u>\$ 6,199</u>	<u>\$ 6,295</u>

We recognized revenue of \$6,295 for the year ended December 31, 2021, which was previously included in the contract liability balance at December 31, 2020.

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

	December 31,	
	2021	2020
Costs incurred on uncompleted contracts	\$ 227,195	\$ 123,339
Estimated earnings	22,331	18,425
Total costs and earnings	249,526	141,764
Less billings to date	(238,079)	(135,735)
Costs and estimated earnings in excess of billings	\$ 11,447	\$ 6,029

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

	December 31,	
	2021	2020
Costs and estimated earnings in excess of billings	\$ 17,163	\$ 12,196
Billings in excess of costs and estimated earnings	(5,716)	(6,167)
Net balance in process	\$ 11,447	\$ 6,029

Anticipated losses on long-term contracts are recognized when such losses become evident. As of December 31, 2021 and 2020, accruals for anticipated losses on long-term contracts were \$159 and \$155, respectively.

17. Stock-Based Compensation

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's 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, 2021, the Company amended the 2018 Plan to reserve an additional 2,000 shares of common stock, for a total of 5,007 shares of common stock reserved for issuance under the 2018 Plan.

Restricted share units (“RSUs”)

During the years ended December 31, 2021, 2020 and 2019, the Company granted 501, 542 and 769, respectively, RSUs under the 2018 Plan that have time-based vesting requirements.

Of the RSUs granted during the year ended December 31, 2021, 3 vested immediately, 90 vest at the end of a one-year period, and 408 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, 2021, 3 of the shares were vested and none had been forfeited.

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, 2021, 251 of the shares were vested and 71 had been forfeited.

Of the RSUs granted during the year ended December 31, 2019, 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, 2021, 491 of the shares were vested and 111 had been forfeited.

Performance share units (“PSUs”)

During the year ended December 31, 2021 and 2020, the Company granted 235 and 228 PSUs, respectively, under the 2018 Plan that cliff vest after three years. The vesting of the PSUs is dependent upon the following performance goals during a specified period (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

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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, 2021, none of the shares granted during 2021 were vested or had been forfeited. As of December 31, 2021, none of the shares granted during 2020 were vested and 43 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, 2021, none of the shares were vested and 72 had been forfeited.

A summary of the Company’s non-vested share activity for the year ended December 31, 2021 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, 2020	981	\$ 5.08	453	\$ 4.02	1,434	\$ 4.74
Granted	501	5.41	235	4.74	736	5.20
Forfeited	(62)	7.54	(40)	4.76	(102)	6.45
Vested	(535)	5.88	—	—	(535)	5.88
Balance as of December 31, 2021	885	\$ 4.62	648	\$ 4.24	1,533	\$ 4.46

	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, 2020	0.79	\$ 2,817	1.68	\$ 1,299	1.07	\$ 4,116
Balance as of December 31, 2021	0.88	\$ 4,072	1.26	\$ 2,979	1.04	\$ 7,051

Stock-based compensation expense related to the restricted stock issued was \$1,945, \$1,839 and \$2,069 during the years ended December 31, 2021, 2020, and 2019, respectively. As of December 31, 2021, total unrecognized stock-based compensation expense related to non-vested awards of restricted stock, net of estimated forfeitures, was \$1,512, and is expected to be recognized over a weighted-average period of 1.29 years. The total fair value of awards vested for the year ended December 31, 2021 was \$2,463.

Stock-based compensation expense related to the performance stock issued was \$757, \$555, and \$345 during the years ended December 31, 2021, 2020, and 2019, respectively. As of December 31, 2021, total unrecognized stock-based compensation expense related to non-vested awards of performance stock, net of estimated forfeitures, was \$968, and is expected to be recognized over a weighted-average period of 1.91 years.

18. 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

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued (amounts in thousands except per share data)

ended December 31, 2021, 2020 and 2019, Charah and AMS contributed \$940, \$393 and \$1,014, respectively, to the Charah and AMS 401(k) Plan.

19. 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 groundwater monitoring at the site. In April 2021, the state approved the Company's application to modify its permit to conform to the work as completed. The Company will continue its work with the state to complete the remaining site closure operations.

Allied Power Services, LLC and its affiliate, Allied Power Resources, LLC, were 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. This lawsuit included related class claims alleging violations of the Illinois Minimum Wage Law and the Pennsylvania Minimum Wage Act for failure to pay overtime. This case was 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 payment was made in April 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.

We believe amounts previously recorded are sufficient to cover any liabilities arising from the proceedings with all outstanding legal claims. Except as reflected in such accruals, we are currently unable to estimate a range of reasonably possible loss or a range of reasonably possible loss in excess of the amount accrued for outstanding legal matters.

20. 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 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, 2021, 2020 and 2019 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 2021 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.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

Pension Fund	EIN/Pension Plan Number	Pension Protection Act Zone Status	FIP/RP Status Pending/ Implemented	Year ended December 31, 2021	Year ended December 31, 2020	Year ended December 31, 2019	Surcharge Imposed	Expiration Date of Collective Bargaining Agreement
				Contributions to Funds by AMS	Contributions to Funds by AMS	Contributions to Funds by AMS		
Central states, southeast and southwest areas pension plan	36-6044243	Red - Critical and declining	Progress under FIP or RP	\$ 111	\$ 55	\$ 47	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	\$ 81	\$ 74	\$ 112	Yes	2021

21. 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.

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

	Year Ended December 31,		
	2021	2020	2019
Continuing operations	\$ 661	\$ (914)	\$ 4,190
Discontinued operations	—	94	—
Total	\$ 661	\$ (820)	\$ 4,190

The components of the provision for income taxes attributable to continuing operations for the year ended December 31, 2021, 2020, and 2019 is as follows:

	Year Ended December 31,		
	2021	2020	2019
Current income tax expense (benefit):			
Federal	\$ —	\$ —	\$ —
State	80	(80)	(169)
	80	(80)	(169)
Deferred income tax expense (benefit):			
Federal	500	(843)	2,389
State	81	9	1,970
	581	(834)	4,359
Total income tax expense (benefit)	\$ 661	\$ (914)	\$ 4,190

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

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,		
	2021	2020	2019
Income tax benefit at the federal statutory rate (21%)	\$ (1,079)	\$ (13,537)	\$ (8,849)
State income tax (benefit) expense, net of federal tax benefit	127	(70)	1,180
Non-controlling interest	(3)	(251)	(595)
Stock compensation	(164)	277	78
Valuation allowance	1,578	12,328	12,190
Permanent items	202	339	186
Total income tax (benefit) expense	\$ 661	\$ (914)	\$ 4,190

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, 2021 and 2020 are as follows:

	As of December 31,	
	2021	2020
Deferred tax assets:		
Loss carryovers	\$ 14,333	\$ 5,505
Intangible assets	3,431	4,315
Other accrued expenses and reserves	2,326	3,987
Loan modification costs	—	1,828
Capital leases	1,091	1,646
Deferred asset sale	226	1,440
Accrued bonus	1,195	1,278
Asset retirement obligations	10,222	1,253
Capitalized cost	819	—
Deferred tax assets	33,643	21,252
Valuation allowance	(19,937)	(17,158)
Net deferred tax asset	13,706	4,094
Deferred tax liabilities:		
Fixed assets, including land	9,757	4,345
Restricted cash from ERT projects	4,838	—
Prepaid expenses	60	117
Deferred tax liabilities	14,655	4,462
Net deferred tax liability	\$ 949	\$ 368

The Company has net operating loss carryforwards of approximately \$47,324 for federal income tax purposes as of December 31, 2021. The increase in the net operating loss carryforward from 2020 is primarily due to bonus depreciation. Additionally, capital losses recognized in 2021 will be carried back to increase the net operating loss carryforward. Deferred interest expense carried forward to 2022 is approximately \$9,900. 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 \$949 and \$368 at December 31, 2021 and 2020, 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. Operating results during the most recent three-year period receive 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

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

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,	
	2021	2020
Beginning balance	\$ (17,158)	\$ (12,908)
Current additions recorded in income tax (benefit) or expense	(2,708)	(14,204)
Current reductions recorded in income tax (benefit) or expense	837	3,264
Other adjustments	(908)	6,690
Ending balance	<u>\$ (19,937)</u>	<u>\$ (17,158)</u>

Based on the available evidence as of December 31, 2021 and 2020 we were not able to conclude it was more likely than not certain deferred tax assets would be realized. Therefore, a valuation allowance of \$19,937 and \$17,158 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 any significant 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, 2020, 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, 2024, 2023, and 2022 respectively, and for most of the remaining state returns through October 15, 2025, 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 has a foreign subsidiary located in a foreign jurisdiction, for which 2020 and prior calendar years are open for examination by local tax authorities. The Company is not aware of any potential adjustments for 2020 or prior years and any potential adjustment is not expected to be material to the financial statements.

22. Leases

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
2022	\$ 10,216
2023	9,271
2024	5,646
2025	2,151
2026	1,003
Thereafter	819
Total	<u>\$ 29,106</u>

CHARAH SOLUTIONS, INC.
Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

The total rent expense included in the Consolidated Statements of Operations for the years ended December 31, 2021, 2020, and 2019 was \$26,990, \$19,406 and \$18,613, respectively.

Capital leases

The Company's depreciation of capital lease assets is included with depreciation expense. The following table shows the components of capital lease assets, net:

	December 31,	
	2021	2020
Capital lease assets	\$ 31,172	\$ 6,627
Less: accumulated depreciation	(3,606)	(368)
Capital lease assets, net	<u>\$ 27,566</u>	<u>\$ 6,259</u>

Future minimum lease payments are as follows:

For the Year Ending December 31,

2022	\$ 8,680
2023	8,429
2024	6,231
2025	4,794
2026	<u>2,293</u>
	30,427
Amount representing interest	<u>4,097</u>
Present value of lease payments	<u>\$ 26,330</u>

23. Loss Per Share

Basic loss per share is computed by dividing loss 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.

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

Basic and diluted loss per share is determined using the following information:

	Year Ended December 31,		
	2021	2020	2019
Numerator:			
Net loss from continuing operations	\$ (5,814)	\$ (64,746)	\$ (49,163)
Deemed and imputed dividends on Series A Preferred Stock	(592)	(461)	—
Series A Preferred Stock dividends	(8,156)	(4,064)	—
Net loss from continuing operations attributable to common stockholders	(14,562)	(69,271)	(49,163)
Net income from discontinued operations	—	8,883	7,105
Net loss attributable to common stockholders	\$ (14,562)	\$ (60,388)	\$ (42,058)
Denominator:			
Weighted average shares outstanding	31,573	29,897	29,495
Dilutive share-based awards	—	—	—
Total weighted average shares outstanding, including dilutive shares	31,573	29,897	29,495
Net loss from continuing operations per common share			
Basic	\$ (0.46)	\$ (2.32)	\$ (1.67)
Diluted	\$ (0.46)	\$ (2.32)	\$ (1.67)
Net income from discontinued operations per common share			
Basic	\$ —	\$ 0.30	\$ 0.24
Diluted	\$ —	\$ 0.30	\$ 0.24
Net loss attributable to common stockholders per common share			
Basic	\$ (0.46)	\$ (2.02)	\$ (1.43)
Diluted	\$ (0.46)	\$ (2.02)	\$ (1.43)

The holders of the Preferred Stock have non-forfeitable 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, 2021, 2020, and 2019, the inclusion of all potentially dilutive shares would be anti-dilutive. Therefore, dilutive shares (in thousands) of 12,234, 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, 2021, 2020, and 2019 respectively.

A summary of securities excluded from the computation of diluted earnings per share is presented below:

	Year Ended December 31,		
	2021	2020	2019
Diluted earnings per share:			
Anti-dilutive restricted and performance stock units	1,318	1,510	1,329
Anti-dilutive Series A Preferred Stock convertible into common stock	10,916	7,740	—
Potentially dilutive securities, excluded as anti-dilutive	12,234	9,250	1,329

CHARAH SOLUTIONS, INC.

Notes to Consolidated Financial Statements, continued
(amounts in thousands except per share data)

24. Major Customers

Revenues from certain customers in excess of 10% of total consolidated revenues for the years ended December 31 are as follows:

December 31, 2021	Revenue	% of Total	% of A/R, net
Customer 1	\$ 40,590	13.8 %	4.6 %
Customer 2	34,788	11.9 %	11.1 %
Customer 3	29,670	10.1 %	2.4 %

During the year ended December 31, 2020, no customers accounted for greater than 10% of total consolidated revenue or trade accounts receivable, net.

December 31, 2019	Revenue	% of Total	% of A/R, net
Customer 2	46,587	19.0 %	14.0 %

25. Quarterly Financial Data (Unaudited)

The following table summarizes the unaudited quarterly results of operations for the year ended December 31, 2021 and 2020:

	First Quarter ^(a)		Second Quarter		Third Quarter		Fourth Quarter ^(b)	
2021								
Revenue	\$	52,107	\$	63,518	\$	84,161	\$	93,433
Operating income (loss)		1,978		(770)		2,661		6,669
Income (loss) from continuing operations, net of tax and non-controlling interest		(1,287)		(4,166)		(1,677)		1,316
Deemed and imputed dividends on Series A Preferred Stock		(147)		(148)		(148)		(149)
Series A Preferred Stock dividends		(2,067)		(2,148)		(1,946)		(1,995)
Net loss from continuing operations attributable to common stockholders		(3,501)		(6,462)		(3,771)		(828)
Income from discontinued operations, net of tax		—		—		—		—
Net loss attributable to common stockholders		(3,501)		(6,462)		(3,771)		(828)
Net loss from continuing operations per common share								
Basic	\$	(0.12)	\$	(0.21)	\$	(0.12)	\$	(0.02)
Diluted	\$	(0.12)	\$	(0.21)	\$	(0.12)	\$	(0.02)
Net income from discontinued operations per common share								
Basic	\$	—	\$	—	\$	—	\$	—
Diluted	\$	—	\$	—	\$	—	\$	—
Net loss attributable to common stockholders per common share								
Basic	\$	(0.12)	\$	(0.21)	\$	(0.12)	\$	(0.02)
Diluted	\$	(0.12)	\$	(0.21)	\$	(0.12)	\$	(0.02)

	First Quarter	Second Quarter	Third Quarter ^(c)	Fourth Quarter ^(d)
2020				
Revenue	\$ 51,277	\$ 52,304	\$ 63,116	\$ 65,680
Operating loss	(5,773)	(3,451)	(108)	(30,237)
Deemed and imputed dividends on Series A Preferred Stock	—	(167)	(147)	(147)
Series A Preferred Stock dividends	(111)	(858)	(877)	(2,218)
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)

- (a) First-quarter of 2021 includes a \$5,568 gain on sales-type lease in operating income (loss).
- (b) Fourth-quarter of 2021 includes a \$14,669 gain on the sale of real estate and \$4,750 in accrued bonus compensation in general and administrative expenses.
- (c) 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.
- (d) 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.

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, 2021:				
Allowance for doubtful accounts	\$ 467	\$ 62	\$ (383)	\$ 146
Valuation allowance for deferred taxes	17,158	3,616	(837)	19,937
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

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
Avon Lake Environmental Redevelopment Group, LLC	Ohio
Cheswick Lefever, LLC	Pennsylvania
Cheswick Plant Environmental Redevelopment Group, LLC	Pennsylvania
Harwick Operating Company, LLC	Pennsylvania

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-225717 on Form S-8, Registration Statement No. 333-260221 on Form S-8, and Registration Statement No. 333-256047 on Form S-3 of our report dated March 31, 2022, relating to the financial statements of Charah Solutions, Inc. appearing in this Annual Report on Form 10-K for the year ended December 31, 2021.

/s/ Deloitte & Touche LLP

Louisville, Kentucky

March 31, 2022

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 31, 2022

/s/ Scott A. Sewell

Scott A. Sewell

President and Chief Executive Officer

(Principal Executive Officer)

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 31, 2022

/s/ Roger D. Shannon

Roger D. Shannon

Chief Financial Officer and Treasurer

(Principal Financial Officer)

**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, 2021, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Scott A. Sewell, President and 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 31, 2022

/s/ Scott A. Sewell

Scott A. Sewell

President and Chief Executive Officer

(Principal Executive Officer)

**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, 2021, 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 31, 2022

/s/ Roger D. Shannon

Roger D. Shannon

Chief Financial Officer and Treasurer

(Principal Financial Officer)



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.

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Charah Solutions, Inc.
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Louisville, KY 40299



**Charah®
Solutions**