



# STATEMENT OF QUALIFICATIONS

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## SOLID WASTE/LANDFILL EXPERIENCE



**HARD HAT SERVICES**™  
Engineering, Construction and Management Solutions

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Hard Hat Services (HHS) is a full-service environmental company providing engineering, construction, operations and project management services to the solid waste industry. We have more than 175 combined years experience in the solid waste/landfill industry, and are familiar with all aspects of landfill work. We are knowledgeable of the state and federal regulations applicable to solid and hazardous waste facilities, and have performed services at numerous landfills in the US. For more information on company background, principals, and areas of specialization, please visit [www.hardhatinc.com](http://www.hardhatinc.com).

## Landfill Experience

HHS' landfill experience includes siting of new facilities, expansions of existing sites, closure, post closure monitoring and maintenance, operations, site assessment, and remediation. This range of experience has been applied to typical landfill projects including construction of single and double liners, leachate collection and treatment, landfill gas passive venting and active gas collection systems, and cover systems at sites regulated by state solid waste codes, as well as federal programs (i.e. CERCLA, RCRA).

We have acted as lead technical review, design engineer, geologist, quality control engineer, construction supervisor or site manager for the following landfill related components:

1. Siting application review
2. Hydrogeologic investigations
3. Landfill expansions and new cells, including clay, geomembrane and composite liner systems
4. Landfill gas systems, both passive (venting) and active (collection), conveyance and treatment
5. Leachate collection systems, including granular and geo-composite drainage layers, piping networks, and pumping systems
6. Groundwater underdrain systems, including lysimeter construction and collection systems
7. Final cover systems, consisting of compacted clay, FML, drainage layers, root zone layers, and vegetative layers
8. Stormwater control, including sediment ponds, terraces, drainage channels, erosion control, and permitted outfalls



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HHS has also evaluated and applied these typical landfill components as remedial actions at various sites. HHS experience also includes landfill operation and maintenance (O&M), which includes performance and assessment monitoring of solid and hazardous waste sites, operation of leachate and gas collection systems, regulatory reporting, and permitting

The following projects highlight our recent experience:

## **Waste Management Inc., Closed Sites Management Group – IL, IN, WI and MO**

HHS is currently acting as the Agent Manager for 19 closed solid waste facilities located in the Midwestern United States (Illinois, Indiana, Wisconsin, Missouri). In its role as Agent Manager, Hard Hat performs, or manages through its subcontractors, a wide range of operation and maintenance tasks that originate as regulatory or permit requirements. The scope of work includes routine monitoring (groundwater, landfill gas, leachate), regulatory reporting and permitting, and site maintenance and repair (landfill cap, leachate collection system, and landfill gas collection system).

The sites include; Greene County, Woodford Marshall, Wheatland Prairie, Tri County, Kahle, Eaton, Neosho, Polk, Reclamation, Hayward, Ladysmith, Thorp, Hagen Farm, City Disposal, Centerpoint, Pines, Fivecoate, North Wells, and South Wells.

## **Waste Management Inc., Leachate System Design/Build – Zeeland, MI**

Design-build of a leachate collection treatment system to remove arsenic from the leachate at Autumn Hills Landfill by oxidation and precipitation. The system consisted of a lift station, rapid mix tanks for hydrogen peroxide and ferric sulfate addition, a lamella clarifier with rapid and floc mix vessels, associated chemical feed systems, sludge storage and transfer systems, instrumentation and controls system, mechanical systems, weather protection, and structural systems.

## **Wauconda Sand & Gravel Landfill, Wauconda Task Group – Wauconda, IL**

HHS is currently the Project Manager overseeing the implementation of the remedial actions included in the Consent Decree with the U.S. EPA. The duties include those of the Supervising Contractor and Project Coordinator. The remedial actions include connecting nearby residents to the municipal water supply, groundwater and landfill gas monitoring, and landfill cap maintenance. The scope of work includes routine reporting, in compliance with the Consent Decree.

## **Yeoman Creek Landfill, Heritage Environmental – Waukegan, IL**

HHS currently performs operation and maintenance of the landfill gas system at the site. The work includes landfill gas monitoring at perimeter probes and nearby structures, and operation and maintenance of blower and flare system. Prior work at the site has included engineering and construction (design/build) of modifications to the gas management system to improve the operational efficiency. Additionally, HHS troubleshoots and performs any non-routine issues at the facility.



## **Landfill Siting Application Review, Jeep and Blazer – Kendall County, IL**

HHS reviewed the applicants' siting submittals with regard to Criterion 2, 4, 5, and 9 of Section 39.2(a) of the Illinois Environmental Protection Act and the Kendall County Site Approval Ordinance. HHS provided geological and engineering support to Jeep and Blazer, counsel representing the County, for the Waste Management, Inc. Willow Run Landfill siting process and the Lisbon Development, LLC Willow Hill Landfill siting process. HHS provided questions for the expert witnesses, attended the hearings to provide additional support based on the testimony, and contributed expert witness services.

## **Ft. Sheridan Landfill Caps, U.S. Army – Ft. Sheridan, IL**

HHS acted as the Project Manager to oversee and document the cap installation at two (2) former landfills. The work included installation of leachate and landfill gas collection systems and RCRA-equivalent multi-layer caps. The cap construction included installation of geocomposite, GCL, FML (HDPE), and soil layers. Erosion control and landscaping were also overseen by HHS. Reporting and documentation, including QA sampling and certifications, were performed by HHS.

## **Chanute AFB, U.S. Air Force – Rantoul, IL**

HHS personnel fulfilled the role of lead design engineer for a composite cap for 4 former landfills, as part of the remedial action in Rantoul, Illinois for the U.S. Air Force. Design components included waste excavation and consolidation, leachate collection, passive gas collection and venting, composite capping, cover drainage systems, and storm water control systems. HHS is currently acting as construction quality control engineer and 3<sup>rd</sup> party, independent CQA Officer for the landfills which are approximately 75 total acres. The work includes all quality control aspects on the landfill gas collection system, compacted clay, geomembrane, geocomposite drainage and vent layers, and root zone soils, as well as the leachate piping and pumping systems.

## **Hagen Farm Site, Waste Management, Inc. – Stoughton, WI**

HHS personnel performed start-up (i.e. pilot test) and troubleshooting, including repair, of the in-situ vapor extraction (ISVE) system at the site, which was constructed as a remedial measure to treat waste and contaminated soil beneath a cap.

## **City Disposal Site, Waste Management, Inc. – Town of Dunn, WI**

HHS personnel performed O&M of the landfill gas collection system at the site, including coordination and implementation of necessary repairs.

## **ACS RD/RA, ACS PRP Group – Griffith, IN**

HHS personnel served as project engineer and manager for installation and start-up of multiple remedial components at the site, including three active landfill gas collection and treatment systems and two alternative RCRA-equivalent landfill caps. HHS personnel were responsible for design work plans, oversight during installation, negotiations with regulatory agencies, and collection of quality assurance (Troxler, materials verifica-



tion, destructive test) samples. The cap construction included installation of composite and soil material layers.

## **Dekalb County Landfill, Waste Management - Dekalb, IL**

Designed and installed a pilot system for collection of landfill gas from the eastern side of the landfill, as part of a corrective action at the site. The system included a piping header, pressure monitoring probes, and a blower system. HHS performed the pilot test, compiled the data in a design report, and made recommendations for future work, based on pilot test data. HHS personnel completed the design and construction of the improvements which included connecting the gas migration control system to the newly installed blower system. The work included start-up and training of operators.

## **Kankakee RDF Cut-Off Trench, Waste Management - Kankakee, IL**

HHS acted as the General Contractor for work at the Kankakee RDF that included installing a system designed to reduce off-site migration of landfill gas. The work included clearing and grubbing, erosion control and storm water controls, excavation of a 16- to 18-foot deep trench, and installation of a series of vertical wells to create an effective gas extraction system. HHS also installed extraction header pipes, and a new blower shed, valves, monitoring ports, gauges and fittings as necessary to produce a complete operable system. The project was performed as design-build, thus HHS also produced design documents suitable to support a permit application, and a completion report for documentation of the installed system.

## **Waste, Inc. Landfill, Waste, Inc. RD/RA Committee - Michigan City, IN**

HHS personnel served as project engineer and certifying engineer-of-record for installation of a landfill gas collection system, RCRA-equivalent cover, leachate collection system, and subsurface containment wall. The work included design and certification of all quality control aspects of landfill gas header system and wells, blower system and gas discharge, RCRA-equivalent geomembrane cover, drainage layer, root zone soils, vegetative layer, and leachate collection system.

## **H.O.D. Landfill, Waste Management - Antioch, IL**

HHS personnel served as project engineer for the feasibility study at site, which included evaluation of cap upgrades, installation of new leachate collection system, upgrade of combination leachate/gas venting system, and deep groundwater monitoring system.

## **Joliet Army Ammunition Plant, U.S. Army Corps of Engineers –Wilmington, IL**

HHS personnel acted as review engineer for cover design and construction work plans for numerous capping systems planned for the Joliet Army Plant. The design included 35 IAC 811-compliant composite caps, drainage systems, and monitoring systems. HHS personnel also performed engineering reviews and critical work plan reviews for site engineer(s).



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## **Autumn Hills RDF, Waste Management - Zeeland, MI**

HHS personnel served as construction manager for two 10-acre cell expansions. Construction activities included excavation of 1,000,000 cubic yards of clay and sand, and placement of a composite liner. Site work also included inspection of clay compaction, installation of 60 mil HDPE geomembrane, leachate collection system piping, and granular drainage layer.

## **Folkertsma Landfill, Waste Management –Kent County, MI**

HHS personnel performed construction of a 12-acre landfill cap over a former foundry and transfer station. The cap included a 6 inch grading layer, 2 feet of compacted clay, 1.5 feet of root zone, and 6 inch topsoil/vegetation layer. A site-wide storm water drainage system was also installed to manage run-on and run-off at the site from a 100-yr storm event.

## **Crab Orchard Wildlife Refuge, U.S. Army Corps of Engineers - Marion, IL**

HHS employees constructed the cover system on a former 5-acre trinitrotoluene (TNT) burning and burial area. The cap construction complied with state regulations and included multiple soil layers (2-foot thick compacted clay, 1.5 foot root zone, and 6" of topsoil).

## **Dickinson County Sanitary Landfill, Sanifill –Arnolds Park, IA**

HHS personnel performed the role of Project Engineer and general contractor for the design of a 6 acre expansion of an existing sanitary landfill. The design included a composite liner system tied into the existing landfill liner, leachate collection side-slope risers, drainage layer, and stormwater controls including a new sediment pond.

## **U.S. Army Corps of Engineers - Grand Forks, ND**

HHS personnel acted as Project Engineer of record for design of two contiguous landfills, with over 60 acres of composite landfill cap. The design included compacted clay and 40-mil LLDPE geomembrane layers, drainage layers, root zone and vegetative layers.

## **Rockwell Corporation – Cedar Rapids, IA**

HHS personnel designed a composite clay/geomembrane cap with erosion control for an 8-acre disposal area. The design included integration with surrounding land, incorporation of SVE system headers and wells, and flood protection from adjacent creek. The scope also included oversight and inspection during grading and cap installation, and certified construction of cap for Iowa Department of Natural Resources requirements.

## **Ottumwa-Midland Landfill, Ottumwa-Midland Development Corporation – Ottumwa, IA**

HHS personnel acted as Project Engineer, engineer-of-record, construction supervisor, and certifying engineer for new landfill construction. The Site was a 40-acre sand-and-gravel pit, which was developed into an industrial landfill for fly- and bottom-ash disposal. The design included a groundwater geocomposite underdrain, 4-foot compacted clay liner, leachate collection system, and geocomposite/granular drainage layer.



## **General Motors – Fischer Guide, Flint, MI landfill construction**

HHS personnel served as Construction Manager for the construction of Subtitle C landfill liner at the site. The scope of work included supervision of installation of all aspects of liner construction and stabilization of 400,000 cubic yards of electroplating sludge. The liner design consisted of 3-foot compacted clay, a secondary 40 mil HDPE geomembrane, a lysimeter layer, 2 feet of compacted clay, a primary 40 mil HDPE geomembrane, leachate collection piping, and a drainage layer.

## **U.S. Air Force – Mather and George AFB, CA landfill caps**

HHS personnel performed engineering design and storm water control design for numerous landfill caps at California AFBs. The cap design ranged from re-graded compacted clay to composite RCRA clay/geomembrane with drainage layers and gas vent layers.

## **IES Utilities – Big Bend, Stoney Point, Marshalltown Landfills, IA**

HHS personnel performed project engineering and oversight for landfill development and final cap placement at several small landfills in Iowa. Liners and caps were compacted clay and geomembrane composites, with integral drainage layers, including leachate collection and stormwater drainage.

## **3M Corporation – Landfill Cap Upgrade, Guin, AL**

HHS personnel performed engineering and reporting for cap repair at an industrial landfill, including recompacted clay layer, root zone, vegetative layer, storm water control and erosion control.

## **Cyprus Foote Mineral Company – Landfill cap upgrade/repair, Keokuk, IA**

HHS employees designed and provided oversight for compacted clay cap upgrade and slope repair after flooding had damaged the existing cap. The design included quality control procedures and erosion control elements to protect riverside bank from Mississippi flood waters.

## **Winnebago (Pagel's) Landfill, Winnebago Reclamation – Winnebago, IL**

HHS personnel acted as the field supervisor for the hydrogeologic investigation used to gather data for the siting application. Field work included logging and interpreting soil and rock borings, overseeing construction of monitoring wells, and performing hydraulic conductivity testing. Work on the siting application included researching regional and local geology and hydrogeology, and performing field and laboratory data reduction for inclusion in the document. Preparation of the hydrogeology section of the local siting application included generation of reports, figures, tables, boring logs, cross sections, potentiometric maps, and running groundwater flow models.



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## **Kanakee Regional Landfill, Town and Country, LLC – Kankakee County, IL**

HHS personnel assisted in two hydrogeologic site investigations used to gather data for the siting application. Field work included logging and interpreting soil and rock borings, overseeing construction of monitoring wells, and performing hydraulic conductivity testing. Work on the siting application included researching regional and local geology and hydrogeology, and performing field and laboratory data reduction for inclusion in the document. Preparation of the hydrogeology section of the local siting application included generation of reports, figures, tables, boring logs, cross sections, potentiometric maps, and running groundwater flow models.

