

**Greensboro-Randolph Mega Site Development  
Water and Sewer Improvements  
Scope of Services  
5/8/2015**

**Project Background**

The Greensboro-Randolph Mega Site is located south of Greensboro in Randolph County near the Town of Liberty. This site has been identified as a possible site for an automobile manufacturing and assembly plant or other major industrial uses. Highway 421 runs adjacent to the site which provides good access to major interstates and an existing railroad also runs along the site. These attributes, combined with a large employment base in the greater Greensboro area, makes this site very attractive to potential automobile manufacturers. A missing component is available water and sewer service. The purpose of this project is to provide these utilities to the site.

The City of Greensboro (City) has identified the size and routing of the proposed water and sewer infrastructure to serve the site. This infrastructure includes approximately 87,900 LF of 16-inch waterline, 42,700 LF of 16-inch force main, and a 1.5 MGD sewer lift station. The waterline will be connected to existing waterlines in two locations to provide multiple feed points to improve reliability and operational flexibility. The pump station will be located just downstream of the proposed mega site with the force main conveying the wastewater to an existing gravity sewer installed along Big Alamance Creek. Flow from there will be transported by gravity to the Big Alamance pump station where it will be pumped to the TZO WRF for treatment.

In addition to the tasks outlined on the following itemized scope of services, HDR will perform the following activities related to Project Management, Meetings, and M/WBE Coordination:

- Assign and manage the necessary team members and support staff to the Project,
- Coordinate with and mentor M/WBE sub-consultants,
- Maintain a project filing system for storage and retrieval of documents,
- Maintain a SharePoint project filing system for full team access to documents,
- Schedule and lead monthly meetings and monthly conference calls,
- Apply on-going quality assurance and quality control procedures,
- Maintain a project cost accounting system; and,
- Prepare monthly invoices and progress reports for services.

Key services are outlined in the following task list, and each of these items is described in detail in the following sections.

1. Design
2. Surveying
3. Geotechnical
4. Permitting

**Task 100 – Design**

HDR will develop final design drawings and specifications for the proposed waterlines, wastewater force main, and wastewater pump station. These documents will be prepared to show the scope, extent, and character of the work to be furnished and performed by the Contractor for construction of the work elements described. Based on our understanding of the Project, the major elements of the design include:

- Waterlines - Approximately 87,900 LF of 16-inch waterline, fire hydrants every 500 LF, isolation gate valves every 1,000 LF, and air valves and blow-off assemblies as required.
- Wastewater Force Mains - Approximately 42,700 LF of 16-inch force main, isolation plug valves spaced as requested by the City, and air valves as required.
- Wastewater Pump Station - 1.5-MGD Submersible duplex pump station with cast-in-place concrete wet well, concrete valve vault, influent grinder, telemetry system to meet the City's standards, three phase power with permanently installed generator with automatic transfer switch, a split-face block with metal roof electrical building, and a gravel access road to the pump station site.

An alignment corridor has been established for the waterlines and wastewater force mains and a general location has been set for the proposed wastewater pump station. The initial stage of the design phase is to determine where within the established corridor the proposed pipelines will be installed (i.e. which side of the road) and the location of the pump station. This alignment must be established prior to survey as the survey limits will be reduced to just one side of the road to reduce the survey costs.

Documents will be prepared and submitted at the 30%, 60%, and 90% and 100% completion stage.

- 30% Submittal - Drawings will include the aerial base mapping, the location of existing utilities, and the preliminary horizontal alignment of the pipelines and pump station site.
- 60% Submittal - Drawings will include the proposed final horizontal alignment of the pipelines based on the aerial mapping and the field survey, the pump station site plan and section views, and the location of the required easements. Preliminary technical specifications will also be provided.
- 90% Submittal - Drawings will include the final horizontal and vertical alignment of the pipelines and all pump station drawings. A complete set of construction specifications will be submitted along with a 90% cost estimate.
- 100% Bid Set.

#### Task 100 Assumptions:

- The project will be designed and permitted as one project. Breaking the project out into multiple contracts will be performed as additional services if requested.
- The alignment corridor (i.e. which roads the utilities will be located along) and the proposed connection point to existing utilities provided by the City is established. HDR does not need to perform an alignment alternatives analysis. HDR only needs to perform the work necessary to determine the appropriate location to install the utility within the established road corridor.
- The existing water and wastewater infrastructure at the proposed connection points has the capacity to meet the demands of the proposed project. HDR does not need to perform analysis on the existing water and/or wastewater system(s).
- The routing of the proposed waterline and wastewater force main through the proposed development site is currently not well defined. Further details of these alignments will be provided to HDR by the City including the location of the pump station.
- No Preliminary Engineering Report is required.
- The diameter of the proposed waterline has been established by the City and does not need to be evaluated by HDR.
- The City will provide the working pressure and surge pressure for the proposed waterline for HDR's use in selecting the appropriate pressure rating of the piping and valves and for designing the thrust restrain system.

- The City will provide the average and peak flow wastewater flow projections for HDR's use in designing the proposed pump station and force main.
- The existing gravity sewer at the force main connection point and all downstream piping and pump stations have adequate capacity to convey the projected peak flows. The City will provide this data to regulatory agencies who may request this data and analysis. No downstream capacity analysis is included in HDR's scope of services.

### **Task 200 - Surveying**

The existing aerial photography performed by Spatial Data in March 2015 will be utilized for the base mapping. The data, when processed, will contain contours, edge of roadways and driveways, structure locations, and other visible features. HDR will collect ground control to allow the data to be processed to develop the base mapping.

To complete the collection of all the required data, field surveys will be conducted along the proposed alignment for the proposed waterlines and wastewater force mains as well as at the proposed wastewater pump station site. The field survey will obtain features such as property pins to determine property lines and road right-of-ways, culvert pipes, utility information, etc. The survey will be limited to a 40-foot width along the selected pipeline route as required to develop the construction drawings. The 40-foot width will extend from the edge of the roadway pavement to 40-feet in one direction (one side of the road only). Where the proposed utilities are to be installed outside existing road right-of-way, easement maps will be prepared per the City's requirements.

The survey task includes Subsurface Utility Engineering work. This work will include Utility Quality Level C along the entire route, Level B will be performed through the use of the state 811 utility locating service at points every 1,000-feet along the alignments (through coordination with the proposed geotechnical work), and Level A will be performed at each of the six Williams Gas Pipeline crossings.

#### **Task 200 Assumptions:**

- The total length of the survey will not exceed 130,600 linear feet based on the lengths provided by the City which included 87,900 LF for the proposed waterlines and 42,700 LF for the proposed wastewater force main.
- The accuracy of the existing aerial photography is assumed acceptable to the City. It is assumed that the data covers the entire project area.
- The access road to the pump station will be along the proposed force main and its easement leaving the site and will connect into the first public road that it crosses. The access road will be gravel and is only for the pump station, the design does not need to comply with County or State DOT requirements.
- The construction contractor will be responsible for all construction surveying and staking. HDR's scope does not include any surveying work for construction purposes.
- The scope includes preparing easement documents for up to 100 properties. If easements are required for more than 100 properties, the work will be considered additional services.
- The City will perform all easement acquisition services such as correspondence with the property owners, preparing cost estimates or obtaining appraisals, etc. HDR will only be providing the easement maps.
- The scope does not include design revisions due to changes requested by the property owners during easement negotiations.

### **Task 300 - Geotechnical**

Geotechnical investigations will be completed along the selected waterline and wastewater force main alignment and at the proposed pump station site. The scope includes obtaining a soil boring every 1,000-feet along the alignments and one at the proposed pump station site to determine general soil properties and determine the presence of rock. This work includes 132 soil borings, 127 of them will be drilled to a depth of 15-feet or until rock refusal and the remaining 5 will be drilled to a depth of 50-feet or until rock refusal. These 5 borings will be located on each side of the two major roadway crossings and at the pump station site. The final Geological Investigation Report will be included as an attachment to the Contract Documents so that bidders will have access to this information.

Task 300 Assumptions:

- A portion of the force main alignment and the pump station site is within private property. The scope assumes that access to this area will be obtained by the City and granted to HDR and no significant clearing will be required to get the drilling equipment to the drilling sites.
- Based on the City's knowledge, no soil corrosivity testing or testing for stray currents is required.

### **Task 400 – Environmental Assessment and Permitting**

HDR will prepare an Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and North Carolina State Environmental Policy Act (SEPA) by using NC Department of Environment and Natural Resources (NC DENR) guidance documentation for a "NEPA-like" SEPA review document which will satisfy both SEPA and NEPA for the Proposed Project. The preparation of the EA will include the following:

- Prepare a Scoping Document and conduct a scoping meeting (as necessary) with regulatory and permitting agencies to discuss the Project. Project information will be distributed to regulatory agencies through the State Clearinghouse in order to acquire data and identify issues of relevance to the assessment of environmental impacts.
- Refine the Study Area as needed based on scoping.
- Collect and analyze available Geographical Information System (GIS) data to determine preliminary potential impacts from the project.
- Review all existing environmental documents as provided by the City of Greensboro and Randolph County.
- Perform a field review of the Study Area. Resources within the Study Area will be evaluated through field investigations. These resources include:
  - Streams and wetlands, including field delineation and agency verification. HDR will prepare and submit a Preliminary Jurisdictional Determination (JD) request to the U.S. Army Corps of Engineers (USACE).
  - Federally protected species (terrestrial & aquatic habitat assessment) including the bald eagle which is protected via the Bald and Golden Eagle Protection Act. HDR will prepare and submit a letter to U.S. Fish and Wildlife Service (FWS) to obtain concurrence.
  - Natural communities.
  - Water Resources.
- Analyze the research and field data in relation to the Proposed Project in order to assess the potential for environmental impacts resulting from the project.
- Prepare a Draft EA. The EA will follow SEPA and DENR format for a "NEPA-like" SEPA review and will be submitted for DENR review, to approximately include the following:
  - Project Description.

- Project Purpose & Need.
- Alternatives Analysis.
- Existing Environmental Characteristics of Project Area.
- Predicted Environmental Effects of Project.
- Mitigation Measures.
- List of State & Federal Permits Required.
- Agency Coordination – HDR will attend agency meetings and provide agency coordination.
- Final EA - Preparation of the Final EA with inclusion of the comments and responses from the Draft EA.

In addition to the EA, the following additional permits are included in the scope as they are likely to be required before the proposed project could be constructed.

- **404/401 Permit/Certification** - HDR will prepare permits for impacts to jurisdictional waters (wetlands and surface waters under the jurisdiction of the USACE through Section 404 of the CWA and NCDWR through the Section 401 Water Quality Certification). Impacts to jurisdictional waters are allowable if no practical alternative exists for the project. It is anticipated that a Nationwide Permit 12 would be necessary.
- **Randleman Lake Water Supply Watershed Buffer Rule**- HDR currently does not anticipate the project will impact streams within the Randleman Lake Watershed; however, we will assess stream crossings for their potential to be within the jurisdiction of the buffer rule and include with the information required for the 404/401 permits if necessary.
- **State Stormwater Regulations** - HDR will address State Stormwater Regulations in the 404/401 permit application. As the project is currently related to underground utilities and few, if any, impervious surfaces are anticipated for this phase, a State Stormwater Plan is not anticipated. DENR would review the CWA 404/401 permit and determine if the project complies with State Stormwater Regulations or if a plan is necessary.
- **Section 404 Permit Review United States Fish and Wildlife Service (USFWS)** - HDR will coordinate with the USFWS during the EA process and prior to submission of the CWA 404/401 permit (under authority of the Fish and Wildlife Coordination Act) in determining if the project impacts any federally protected species.
- **Federal Emergency Management Agency (FEMA) Approval** - If any change in floodplain topography is required, HDR will prepare and submit a No Rise Certification to the local floodplain administrator for approval. It is anticipated that this project will comply with FEMA and local floodplain rules due to it being an underground utility and that contours would be put back to pre-construction grade.
- **Non-Discharge Permit** – A non-discharge permit will be obtained from NCDENR for the proposed pump station and force main.
- **Waterlines** – Review and approval from the City to construct the proposed waterlines.
- **Sedimentation and Erosion Control Plan** – A sedimentation and erosion control permit application and plan will be obtained from NCDENR for the proposed disturbances.
- **NCDOT Encroachment Agreement** – An encroachment permit will be obtained from NCDOT for construction inside its road rights-of-way.
- **Williams Gas Pipeline Encroachment Agreement** – An encroachment permit will be obtained from Williams Gas Pipeline for construction across its utility rights-of-way.
- **Duke Energy Encroachment Agreement** – An encroachment permit will be obtained from Duke Energy for construction across its transmission rights-of-way.

- **Railroad Encroachment Agreement** – An encroachment permit will be obtained from the railroad for construction across its railroad rights-of-way.

Task 400 Assumptions:

- Only those permits specifically mentioned above are anticipated and included in the scope of services.
- The City will pay all permit application and review fees required by the authorities referenced above.
- The “NEPA-like” SEPA review and an EA will be sufficient for the proposed project.
- DENR agencies are required to insure that the subject of the environmental assessment is properly defined. Closely connected activities should be reviewed together. It is assumed that closely connected activities associated with the larger plan of development for the “Mega Site” would be assessed separately and combined or completed simultaneously to this effort and referenced as needed.
- One round of Agency comments on the EA is included in this scope and fee.
- Access to all existing documents and necessary properties will be gained through the City within 30 days of Notice to Proceed.
- The site conditions of the project allow the final design to comply with all regulatory conditions for permitting. If conditions cannot be met, a different permitting procedure may be required.
- Wetland/Stream delineation will be conducted using sub-meter GPS equipment.
- Mitigation measures will be conceptually described for purposes of the EA, however a detailed compensatory mitigation plan for permitting purposes will not be completed until the permitting phase of the project.
- One Public meeting/hearing will be required to meet the “NEPA-like” SEPA review as outlined in the State Environmental Review Process (SERP).

### **Project Schedule**

HDR will complete the scope of services per the following schedule. The schedule is based upon a notice-to-proceed date of June 1, 2015.

Task	Start	End
Design (Task 100)	June 1 <sup>st</sup> , 2015	April 1 <sup>st</sup> , 2016
Surveying – Field Work (Task 200)	June 1 <sup>st</sup> , 2015	November 1 <sup>st</sup> , 2015
Geotechnical (Task 300)	June 1 <sup>st</sup> , 2015	November 1 <sup>st</sup> , 2015
EA and Permitting* (Task 400)	June 1 <sup>st</sup> , 2015	May 1 <sup>st</sup> , 2016
Surveying – Easement Docs (Task 200)	March 1 <sup>st</sup> , 2016	May 1 <sup>st</sup> , 2016

\*Schedule is dependent upon agencies review time and comments

The scope of services does not include tasks beyond those listed above however they shall be completed to allow construction of the proposed project to be completed by June 1<sup>st</sup>, 2017 (24-months from notice-to-proceed) based on the following schedule.

Task	Start	End
Easement Acquisition	April 1 <sup>st</sup> , 2016	September 1 <sup>st</sup> , 2016
City Materials Procurement	June 1 <sup>st</sup> , 2016	September 1 <sup>st</sup> , 2016
Bidding and Award	June 1 <sup>st</sup> , 2016	September 1 <sup>st</sup> , 2016
Construction	September 1 <sup>st</sup> , 2016	June 1 <sup>st</sup> , 2017

### **Engineering Fee**

Based upon the Scope of Service presented above, HDR's proposed fee is 'Two Million Two Hundred Ninety Seven Thousand Dollars' (\$2,297,000) based upon the following break down:

1. Design: \$ 1,167,000
2. Surveying: \$ 549,000
3. Geotechnical: \$ 133,000
4. EA and Permitting: \$ 398,000
5. City's Contingency: \$ 50,000