



**Proposal to Provide
ENGINEERING SERVICES**

for

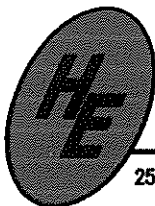
D E T R O I T

**WATER AND
SANITARY SEWER IMPROVEMENTS
ALONG
BIG FLOYD LAKE**

to

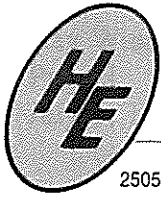
DETROIT TOWNSHIP

DETROIT LAKES, MINNESOTA



HOUSTON ENGINEERING, INC.

2505 N. UNIVERSITY DRIVE • P.O. BOX 5054 • FARGO, NORTH DAKOTA 58105 • PHONE: (701)237-5065



HOUSTON ENGINEERING, INC.

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FARGO, NORTH DAKOTA 58105-5054

PHONE: (701) 237-5065

FAX: (701) 237-5101

July 1, 1997

Ray Windschitl
Detroit Township Clerk
Route 3, Box 381A
Detroit Lakes, MN 56501

Re: Proposal for Engineering Services for the
Sub-Ordinate Service District for
Water and Sanitary Sewer Service along
Big Floyd Lake
H.E. Project No. 97-2156

Dear Mr. Windschitl:

Some of the residents along Big Floyd Lake may be included in a Sub-Ordinate Service District to design and build a sanitary sewer and water system. **HOUSTON ENGINEERING IS READY TO ASSIST THE DETROIT TOWNSHIP CHAIRMAN AND SUPERVISORS IN IMPLEMENTING THIS PROJECT.**

Enclosed is our proposal which is structured to comply with your request for proposals. The following is a review of key elements of our proposal:

1. In Section 10 we present a cursory construction cost. These cost figures are very rough at this point, and assume that water and sanitary sewer service is supplied to only one side of the street, although the pipes are sized for both sides of the street. We will fine tune these costs in the preliminary study. At this point, there are too many questions to be investigated, including the type of treatment, soil conditions, and treatment site locations.
2. In Section 9 we present various fee structures for engineering services. It is difficult to estimate a lump sum fee for the design without knowing what will be designed, if a drainfield is acceptable, or if we will be required to construct lagoons. Engineering fees for construction services will depend on the contract time and what is constructed.

Minneapolis Office:

5100 GAMBLE DRIVE, SUITE 398

MINNEAPOLIS, MINNESOTA 55416-1585

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Ray Windschitl
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July 1, 1997

3. Though it was not included in your request for proposals, we have submitted a Scope of Work (Section 4). The Scope of Work provides a general description of a sequence of events for providing sanitary sewer and water service to each resident of the Sub-Ordinate District.

We understand that the schedule for the completion of the preliminary report is before September 1, 1997 (Labor Day). We propose to submit a draft report of the preliminary study to the Township Board by August 15, 1997, and conduct a public information meeting for the Lake Association residents for 10:00 a.m. on Saturday, August 23, 1997. This schedule allows the residents of the Lake Association to consider their options prior to a referendum.

We stand ready to begin this project and look forward to working with the Detroit Township Chairman and Supervisors.

Sincerely,

HOUSTON ENGINEERING, INC.



Michael L. Miller, P.E.

MLM:gz
Encl.

DETROIT TOWNSHIP, DETROIT LAKES, MINNESOTA
WATER AND SEWER IMPROVEMENTS
ALONG BIG FLOYD LAKE

PROPOSAL FROM:

Houston Engineering, Inc.
P.O. Box 5054
Fargo, ND 58105

CONTACT PERSON:

Michael L. Miller, P.E.
Phone (701) 237-5065

July 8, 1997

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Section 1

Description of the Firm and Similar Projects

Description of the Firm and Organization

For the past 29 years, Houston Engineering, Inc. has provided complete engineering services in the municipal engineering field, including:

- Sanitary Sewer Systems and Lift Stations;
- Wastewater Treatment Systems;
- Water Supply Systems, including wells and intake structures;
- Water Distribution Systems, including ground and elevated storage tanks and pump stations;
- Storm Sewer Systems, including force mains, storm water pump stations and outfalls;
- Water Resources Projects, including urban and rural drainage projects, flood insurance studies, surface water management studies, sedimentation studies, hydrologic and hydraulic computer modeling; and
- Water Resources Systems, including dams, dikes, drainage channels, and culverts.

The complete engineering services that Houston Engineering, Inc. provides includes:

- Conceptual Planning;
- Planning Studies;
- Preliminary Engineering Studies;
- Design Services; and
- Construction Services.

Houston Engineering, Inc. has provided engineering services to cities in North Dakota and Minnesota, water resource districts in North Dakota and watershed districts in Minnesota. In addition, we have provided hydrologic and hydraulic engineering services to counties, U.S. Army Corps of Engineers, Natural Resource

Description of the Firm and Organization

Conservation Service, Veterans Administration, and the Federal Emergency Management Agency (FEMA).

Our extensive experience in conducting municipal engineering projects, including water and sanitary sewer projects, qualifies Houston Engineering, Inc. for this project.

Houston Engineering, Inc., a corporation owned by principals active in the business, was established in 1968 and presently operates out of its free-standing 8,500-foot modern office located in Fargo. The firm's normal staffing ranges from 30-40 personnel.

Houston Engineering is owned by the following five principals:

George T. Houston, P.E. - Chairman of the Board
Lawrence H. Woodbury, P.E. - President
Roger C. Hagen, P.E. - Vice President/Secretary
Jeffrey R. LeDoux, P.E. - Vice President/Treasurer
Rick R. St. Germain - Vice President

Michael Miller will be project manager for this water and sewer project. Michael has 18 years of experience in water and sewer projects. Michael will have ultimate project responsibility, including coordinating planning, design and construction activities, resource allocation, quality control, budget control, coordination and timely project completion. The final review of reports and submittals, under the project management methodology employed by Houston Engineering, is conducted jointly by the project manager and the project engineer responsible for each phase of the project.

Section 2

Recent Similar Projects

Lake Lida Central Sewer Project

Houston Engineering designed a sewer system for the residents of Lake Lida Lake Association. The project included a preliminary study, evaluating various alternatives, and design. The sewer system would collect the sewage from each house and treat the water at a central location.

Owner: Lake Lida Lake Association

ProGold Corn Wet Mill Plant, Wahpeton, North Dakota

In 1995 and 1996, Houston Engineering designed the site civil work for the ProGold processing plant in Wahpeton, ND. The design that Houston Engineering was responsible for included: the sanitary sewer system including the sewage treatment plant, pump station and force main to the City of Wahpeton's lagoons; the water distribution system, including groundwater wells, river intake facility, raw water pump stations, raw water ponds, transfer pump station, and water distribution and transmission lines; the process water system including the brine ponds, the treated effluent ponds, the discharge control facility, and the discharge outlet pipe and diffuser; the railroad facilities including the railroad sidings, over 11,000 feet of plant site railroad track and approach track for loading and unloading facilities; all roads and parking facilities; and temporary facilities to facilitate construction.

Owner: ProGold Limited Liability Co.

Big Cormorant Lake Central Sewer

Houston Engineering designed a sewer system for the residents of Big Cormorant Lake. The project included a preliminary study and design. The preliminary study evaluated various options which were presented to the Owner. Houston Engineering designed a central collection system with a lagoon treatment process.

Owner: Cormorant Lakes Watershed District

Big Cormorant Lake Outlet

Big Cormorant Lake is a land-locked lake. Water level fluctuations have caused sever damage to lake residences. In this project, Houston Engineering completed a preliminary study, designed an outlet structure to stabilize the highwater elevation of the lake, and presented testimony at hearings.

Owner: Cormorant Lakes Watershed District

Sanitary Sewer System for Horace, North Dakota

Houston Engineering serves as the City's engineer for the City of Horace. Houston Engineering has designed the City of Horace's wastewater treatment plant which consists of a lagoon system to treat their wastewater. Houston Engineering has also designed an upgraded sewer collection system for the City. The upgraded sewer collection system uses gravity sewers, lift stations and force mains to deliver the City's sewage to the treatment plant.

Currently, the City has under construction an expansion to the sewer system and treatment plant. Houston Engineering has designed and is providing construction services for this expansion.

Owner: City of Horace, Horace, ND

Sanitary Sewer Systems for Wheaton, Minnesota

Houston Engineering has designed the City of Wheaton's wastewater plant. The City uses a lagoon system to treat the City's wastewater. Houston Engineering provided design and construction services for this project.

Owner: City of Wheaton, Wheaton, MN

Sanitary Sewer System for Harwood, North Dakota

Houston Engineering has recently been employed as City Engineer for Harwood, ND. Houston Engineering has conducted a preliminary investigation of the City's treatment system. The City is currently considering expanding their treatment lagoons.

Owner: City of Harwood, Harwood, ND

Rural Water Systems

Houston Engineering has provided engineering services for developing many rural water systems in the States of North Dakota and South Dakota. The rural water systems include developing a water source, treating and distributing the water to each user. These water systems serve rural residents; cities as bulk customers, generally with one point of service; and cities as individual customers, with individual service to each user. Houston Engineering provides preliminary studies, design and construction services. The water systems have ranged in size from 10 users to 2,200 users served. The following is a list of owners (water systems):

- North Valley Water Association
- Tri-County Water Users
- Dakota Water Users
- Traill County Rural Water Users
- Cass Rural Water Users
- North Prairie Rural Water Assoc.
- SE Water Users
- Barnes Rural Water Users
- Stutsman Rural Water Users
- Wells County Water Assoc.
- North Dakota Arsenic Trioxide Super Fund Project
- Grant-Roberts Rural Water System
- B.D.M. Rural Water System
- Southwest Water Coop.
- Lake Traverse-Roberts County Rural Water

Northwest Water Supply Project

Houston Engineering is designing the facilities for the Northwest Water Supply Project (NAWS). The NAWS project is sponsored by the North Dakota State Water Commission and the Garrison Diversion Conservancy District. The project includes pumping raw water from Lake Audubon to the City of Minot's water treatment plant, treating the water then supplying water to 14 communities in eight counties in northwest North Dakota. Houston Engineering has completed the preliminary studies, the pre-final design, and is currently developing the final design. Houston Engineering is responsible for final design and construction services for the project. The

facilities included in this project consist of intake structures, pump stations, storage tanks and pipelines.

Owner: North Dakota State Water Commission

City Water Line Projects

Houston Engineering has designed water line replacement and expansion for various cities in Minnesota and North Dakota. The projects generally include preparing a preliminary plan addressing various options, assisting the cities in acquiring funding, developing designed plans and specifications, and providing construction administration services.

The following is a list of some of the owners we have worked with:

- City of Wheaton, Minnesota
- City of Moorhead, Minnesota
- City of Ada, Minnesota
- City of Harwood, North Dakota
- City of Fargo, North Dakota
- City of Horace, North Dakota

Section 3

Personnel Available for the Project

Personnel Available for the Project

The Project Design Team consists of an experienced organization of key personnel available to provide engineering services for all phases of the Project.

The following is a list of potential people we would utilize.

- Michael L. Miller - Registered Engineer
 - Experience in Water and Sanitary Sewer Systems
 - Resume to follow
- Jeffrey R. LeDoux - Registered Engineer
 - Experience in Water and Sanitary Sewer Systems
 - Resume to follow
- Richard L. Gunderson - Registered Engineer
 - Experience in Water and Sanitary Sewer Systems
 - Resume to follow
- Roger C. Hagen- Registered Engineer and Surveyor
 - Experience in Water and Sanitary Sewer Systems
 - Head of Survey Department
- John D. Freitag - Registered Engineer
 - Experience in Water and Sanitary Sewer Systems
 - Experience in Construction Management
 - Resume to follow
- James W. Larsen, Registered Engineer
 - Experience in Water and Sanitary Sewer Systems
 - Experience in Construction Management
- Curtis A. Skarphol - Civil Engineer
 - Experience with Analyzing Survey Data and Project Configuration
- Larry E. Wurgler - CAD Operator
 - Experienced CAD Operator
 - Resume to follow
- Donald D. Josund - Survey Leader
 - Surveying
 - Resume to follow

Michael L. Miller

Project Manager

Michael L. Miller, Civil Engineer and Environmental Engineer, will represent the firm as **Project Manager**. Michael L. Miller joined Houston Engineering in July, 1993, after 14 years as a Civil Engineer in a consulting engineering firm in Houston, Texas. Mr. Miller has been a practicing civil engineer and environmental engineer for 18 years. As a consultant, Mr. Miller has provided services in water system planning; wastewater and drainage studies; airport planning; water, sanitary sewer, drainage, and paving design; wastewater treatment plant and water treatment plant design, including water towers; and construction phase services.

Relevant Experience:

Kingwood Development. Project Manager of the Kingwood Development project, a 15,000-acre master plan community in Kingwood, Texas. Managed the development of 11 subdivisions which included over 4,000 acres of land, over 6,000 single development homes, 95 miles of 4-inch to 24-inch water lines, two elevated water storage tanks, one water plant, 15 sanitary lift stations with over 10 miles of force main, 80 miles of 6-inch to 12-inch gravity sanitary lines, improvements to the wastewater treatment plant, over \$20 million in utility construction, over \$25 million in roadway construction, with a total projected assessed value of \$1.1 billion.

Harris County Utility District No. 2 - Sanitary Sewer Rehabilitation. Project Manager on a project that analyzed an existing sanitary sewer system and design repairs. The project was funded through a \$2,480,000 bond sale. Project Manager was responsible for preparing the reports for approval of the project funding. The project included 168 sanitary sewer repairs and replacements, and modifications to three sanitary sewer lift stations within a 678-acre subdivision. This project required a significant amount of community involvement and planning to repair the sanitary sewer lines within confined areas and existing homes.

ProGold LLC Corn Wet Mill Project. Project Manager of the design of the water supply, wastewater treatment, drainage, railroad, paving, and site grading facilities for the ProGold Plant. The project is designed to process 80,000 bushels of No. 2 corn daily, at a total project cost of \$265 million. The total construction cost for the seven bid packages designed by Houston Engineering is \$10.5 million.

Michael L. Miller

Project Manager

(cont.)

BDM Rural Water System, East Marshall County Expansion. Project Manager to the first phase of the BDM water system expansion. The water system expansion will serve 830 new users with 645 miles of pipe, and includes five pump stations and water plant improvements.

Northwest Area Water Supply (NAWS). Project Engineer on the Pre-Final Design for the NAWS project. The project will serve treated water to nearly 100,000 residents of northwest North Dakota at a total estimated cost of \$164,000,000. Facilities include over 700 miles of pipe, 26 pump stations, two intake structures and three water treatment plants.

City of Houston Water Master Plan, Houston, Texas. Engineer on the water system master plan of the City of Houston. The project included: developing water demands for a 30-year planning period; developing water distribution system computer models to determine required distribution system improvements; and presenting the findings in a water system master plan report which includes a capital improvement program projecting required annual expenditures.

Education: B.S. Civil Engineering, University of Illinois
(Champaign-Urbana), 1977
M.S. Civil Engineering, University of Illinois
(Champaign, Urbana), 1979

Registration: Professional Engineer in North Dakota, South Dakota, Minnesota
and Texas

Memberships:
(Professional) American Society of Civil Engineers
American Water Works Association
North Dakota Society of Professional Engineers
Fargo-Moorhead Engineers Club

Professional Experience: Houston Engineering, Inc., 1993 - Present
Turner Collie & Braden Inc., 1979 - 1993

Jeffrey R. LeDoux

Project Engineer

Jeffrey R. LeDoux, as a Civil Engineer, has provided consulting services in the design, improvement, and administration of state, county, municipal and private civil engineering improvement projects. He has been involved in design and project management for the past 14 years.

Relevant Experience:

City of Ada, MN - EDA Project. Project Engineer for the EDA funded project. The project included an Engineer's Report which identifies existing water and sanitary facilities, proposed improvements, cost and financing. The improvement project consisted of water line improvement, sanitary sewer extension, lift station and a 500,000 gallon water tower.

Firing Ranges, Camp Grafton South, Army National Guard. Project Engineer for three firing ranges in North Dakota. The ranges include over 1,000,000 c.y. of earthwork. Design included domestic water wells, sanitary treatment systems, stormwater facilities, erosion control, sidewalk, curb and gutter, parking and fencing. Two of the three ranges are constructed at a cost of over 2.3 million dollars.

Wild Rice Watershed District, Ada, MN. District Engineer for the 2,000 square mile watershed district. Hydraulic and hydrologic studies, watershed computer modeling, erosion and sediment control, dams, wetland restoration and design of repair and improvements to the surface water system is included as part of the engineering services.

Colorado Landfill, Inc., Greeley, CO. Design Engineer for two landfills in Weld County, Colorado. Provided periodic engineering services including earthwork and waste volume calculations, county zoning permits, stormwater design, site and roadway improvements, easement acquisition, and client representation.

Storm Water System Improvements - Design Study, Moorhead, MN. Project Engineer for a city wide analysis to determine long-term requirements for storm sewer expansions, pump station improvements and urban channel improvements. A computer model was developed to simulate the run-off effects on the existing facilities.

Jeffrey R. LeDoux

Project Engineer

(cont.)

Education: B.S. Civil Engineering, North Dakota State University, 1982

Registration: Professional Engineer, North Dakota, Minnesota, and Colorado

Memberships:
(Professional) National Society of Professional Engineers
North Dakota Society of Professional Engineers
National Association of County Engineers
Fargo-Moorhead Engineers Club

Professional
Experience: Houston Engineering, Inc., 1988 - Present
Nelson Engineers, Greeley, Colorado, 1983 - 1988
City of Fargo Engineering Department, 1978 - 1982 (summers)

Richard L. Gunderson

Engineer

Richard Gunderson, Civil Engineer, has performed design work and construction engineering on numerous piping and pipeline facilities during his 15 years as a practicing civil engineer. This work included a wide variety of design projects from process piping to municipal water and sewer mains. He has extensive experience in dealing with municipalities, counties, state agencies, community associations, and water and sewer districts, as well as private clients.

Relevant Experience:

Lake La Quinta, La Quinta, California. Project Engineer for 160-acre mixed use subdivision. This project included a 24-acre manmade lake, sewage lift station, irrigation pump station and over 10 miles of water, sewer and irrigation mainlines. Storm drain systems were piped to the lake which was used to store run-off from the 100-year storm event. Designed per Coachella Valley Water District Specifications.

Trans-Alaska Pipeline System, Alaska. Design Engineer for analysis of high pressure crude oil relief systems at Pump Stations No. 2 and No. 7 for the Alyeska Pipeline Service Company. Performed analysis of all load cases including dynamic seismic acceleration for the 36" diameter high pressure relief piping, relief valves and surge tanks. Designed pipe supports and snubbers in addition to the piping system.

Palm Desert Water and Services District, Palm Desert, CA. Design Engineer for \$700,000 water distribution system upgrade. This work included extensive water main replacements, the addition of high capacity booster pumps and the refurbishing of two bolted steel water reservoirs.

Barnes Rural Water Users, Valley City, ND. Performed construction inspection and pipeline staking for an 1,100 mile rural water pipeline system in Barnes County, ND. Met with individual users to set shut-off locations on their property and staked alignment.

Callaway Nuclear Power Plant, Fulton, Missouri. Construction Piping Engineer and Quality Control for Union Electric's Callaway Unit No. 1. Reviewed piping installations, material certification and construction documentation prior to system acceptance. Identified nonconformances for corrective action. Supervised resolution of N-5 punchlist items prior to low power testing.

Richard L. Gunderson

Engineer

(cont.)

Shale Oil Upgrading Plan, Parachute Creek, Colorado.

Design Engineer for analysis of loads on process piping related to Union Oil of California's Shale oil facility. Analyzed loads and stresses on piping, vessels and reciprocating equipment due to thermal and other forces.

Education: B.S. Civil Engineering, Colorado State University, 1980

Registration: Professional Engineer, Minnesota and California

Memberships:
(Professional) National Society of Professional Engineers
North Dakota Society of Professional Engineers
Fargo-Moorhead Engineers Club

Professional Experience: Houston Engineering, Inc., 1993 - Present
Mainiero, Smith & Associates, Palm Springs, CA, 1984-1993
Fluor-Daniel, Irvine, CA, 1981-1984

John D. Freitag

Engineer

Mr. Freitag, a Civil Engineer for Houston Engineering, Inc. for over 11 years, has been responsible for the design and construction services for various site development projects, municipal water treatment projects, and rural water systems.

Relevant Experience:

ProGold LLC Corn Wet Mill Project. Design Engineer on underground utility portion of Houston Engineering's Bid Packages. Mr. Freitag also served as the Site Area Manager during construction of the project. Duties included observing and coordinating all civil site work, review of progress estimates, and engineering liaison between the various contractors and the Owner.

Moorhead Water Treatment Plant, Moorhead, MN. Resident Engineer during construction of a new 10 MGD Lime-Softening Water Treatment Plant and major rehabilitation of the existing 6 MGD Water Treatment Plant. The project included a separate, new chemical feed building which serves both the existing and new water treatment plants. The new 10 MGD Treatment Plant utilizes ozone as the primary disinfectant, the first facility of its kind in the State of Minnesota.

Arsenic Trioxide Rural Water Project. Design Engineer on a Rural Water System constructed to alleviate problems with arsenic contaminated groundwater in southeastern North Dakota. Mr. Freitag was also the Resident Engineer during construction of the project, which included a new water treatment plant, 5 concrete reservoirs and pumping stations ranging in size from 40,000 gallons to 270,000 gallons, and over 340 miles of pipeline. The \$7.4 million construction project was funded by an EPA superfund grant and a FmHA loan.

Water Treatment Plant, Wheaton, MN. Design Engineer for a 0.5 MGD water treatment plant. The plant design included rehabilitation to existing supply wells, a gravity filter, a new chemical feed system, and high service distribution pumps. The project was constructed in 1992 in conjunction with a new elevated water storage tank and a watermain replacement project.

John D. Freitag

Engineer

(cont.)

Water Master Plan, Moorhead, MN. This project was a joint venture of Houston Engineering and Montgomery Watson. Mr. Freitag developed and analyzed a computer model of Moorhead's distribution system to determine required system improvements. The 1990 Master Plan Report presented recommendations for system improvements that would be required for a 20-year planning period.

Education:	Associate of Science in Pre-Engineering, North Dakota State School of Science, 1983 Bachelor of Science, Civil Engineering, North Dakota State University, 1986
Registration:	Professional Engineer, North Dakota
Memberships: (Professional)	American Society of Civil Engineers Fargo-Moorhead Engineers Club
Professional Experience:	Houston Engineering, Inc., 1986 - Present

Larry E. Wurgler

Chief CAD Operator

Larry E. Wurgler, a Certified Engineering Technician, is Chief CAD Operator for Houston Engineering, Inc. He is responsible for supervision of the CAD/drafting department, coordination with engineering personnel, and the production of detail and construction drawings. He is qualified in CAD, specifically Version 13 c4, AutoCAD.

Mr. Wurgler's experience includes flood control facilities, roadways, subdivisions, highways, airports, bridges, water and wastewater treatment plants, sewer systems, and water distribution and storage systems.

Mr. Wurgler supervises 8 to 15 draftspersons. He oversees work progress and design details, and informs the Project Manager of the project status.

Education: Graduation Certificate in Civil Engineering Technology, Lake
Region Junior College, Devils Lake, ND - 1970

Certification: Associate Engineering Technician

Memberships: American Society of Certified Engineering Technicians
Institute for the Certification of Engineering Technicians

Experience: Houston Engineering, Inc., 1973 - Present
North Central Consultants, Ltd., 1970 - 1973

Donald D. Josund

Survey Crew Chief

Donald Josund, as a survey crew chief, has been with Houston Engineering since the establishment of the company, a period of over 20 years. In this time, he has worked at all levels on a survey crew, including rod man, instrument man, and eventually survey crew chief. He is experienced in operating the most modern types of surveying equipment, including Total Station and electronic distance measuring (EDM) instruments.

Mr. Josund's experience as a crew chief includes directing survey crews in preliminary surveys, land surveys, legal surveys, topographic surveys, and construction surveys. Some of the projects that Mr. Josund has been involved with include right-of-way and construction surveys for Minn-Kota Power Company on a 250 DC transmission line, bankline surveys along the Missouri River in North Dakota and South Dakota, and numerous construction staking surveys for roadways, flood control projects, dams, dikes, channels, bridges, site improvements, and other types of civil engineering projects throughout the tri-state area.

Experience: Houston Engineering, Inc., 1969 - Present

Section 4

Scope of Work

The scope of work is separated between a sanitary sewer system and a water system.

I. Preliminary Study for the Sewer System

The preliminary study for the sewer system would consist of the following:

A. Collect Data

1. Meeting with the Township Board and Lake Association to discuss the project.
2. Locate each potential user on a map.
3. Locate each user's existing septic system.
4. Consider the seasonal demand on the facilities.
5. Meet with governmental agencies to discuss the project.
6. Collect information on the quality of any individual systems that have discharge violations.

B. Analyze Options

1. Develop three or four options to serve all the users. Options may include a two stage lagoon system for all the users, multiple treatment units each to serve a group of homes, and discharging the effluent from each septic tank into a drainfield.
2. Analyze the options evaluating construction cost, financing, operation and maintenance costs, ease of operation, and the ability to construct the facilities.

C. Present the Results (Draft Report)

1. Meet with the Township Board to discuss the findings, and receive comments.

2. Meet with the organization (probably Wild Rice Electric) that will operate the system.
3. Meet with governmental agencies that will be required to issue a permit, which includes Minnesota Pollution Control Agency, Minnesota Department of Natural Resources, and Minnesota Department of Health.

D. Finalize the Study

1. Analyze the comments received and modify the study as needed.
2. Present the findings to the Lake Association and answer questions.
3. Print and distribute the final report.

II. Preliminary Study for the Water System

The preliminary study for the water system would consist of the following:

A. Collect Data

1. Meet with the Township Board and Lake Association to discuss the project.
2. Locate each potential user on a map.
3. Locate each user's existing water supply.
4. Develop water demand requirements.
5. Meet with governmental agencies to discuss the project.

B. Analyze Options

1. Develop three or four options to serve all the users. Options may include a single source to serve all the users, multiple water sources (wells) each serving an area, and

keep the existing system. Consider storage and variability of water demand.

2. Analyze the options evaluating construction cost, financing, operation and maintenance costs, ease of operation, and the ability to construct the facilities. Develop computer models to analyze each water system to determine the adequacy of each system.

C. Present the Results (Draft Report)

1. Meet with the Township Board to discuss the findings and receive comments. Discuss the concerns of developing a public water system.
2. Meet with the organization (probably Wild Rice Electric) that will operate the system.
3. Meet with governmental agencies that will be required to issue a permit.

D. Finalize the Study

1. Analyze the comments received and modify the study as needed.
2. Present the findings to the Lake Association and answer questions.
3. Print and distribute the final report.

After the preliminary studies are complete, and the Lake Association has approved a sewer system and/or water system plan, Houston Engineering will assist the Township Board in financing for the project. Houston Engineering will prepare the application for funding with the Township Board's assistance. The applications for funding assistance may be submitted to: banks, local REAs, Minnesota Department of Health (State Revolving Fund Program), Community Development Block Grant, and USDA-Rural Utility Service (formerly Farmers Home Administration).

III. Design Services for the Sanitary Sewer and/or Water Systems

Once the Township Board has selected a type of sewer and/or water system, and has directed Houston Engineering to complete the final design, we would proceed as follows:

1. Prepare the appropriate environmental report to determine the environmental quality items that need to be addressed in the design documents, including a wastewater discharge permit.
2. Once we receive approval of the environmental report from the Township Board and governmental agencies, Houston Engineering will prepare plans and specifications.
3. After the plans and specifications are prepared, Houston Engineering will submit the plans to the Township Board and governmental agencies for review and approval.
4. Houston Engineering would prepare any plats and easements that would be required for the location and access of the designed facilities. Houston Engineering would assist the Township Board in acquiring easements and fee title to the specified land.
5. Houston Engineering will submit approved plans and specifications with an updated opinion of probable cost for construction of the project.

IV. Construction Services for the Sanitary Sewer and/or Water Systems

After the Township Board has approved the approved plans and specifications, and has secured funds for construction, then the Board would authorize construction of the sewer and/or water system. With the approval and concurrence of the Township Board, Houston Engineering would perform the following:

1. Help the Township Board with soliciting competitive bids from contractors and awarding a construction contract.

2. Administer the construction contract.
3. Review contractor's shop drawing submittals.
4. Observe construction and report construction progress to the Township Board.
5. Prepare monthly pay requests for submittal to the Township Board.
6. Prepare and submit to the Contractor and Township Board any time extension or change orders that may be required.
7. Submit to the Township Board record drawings, operations manuals and recommended maintenance schedule.
8. Conduct a final review of the project with the Township Board and contractor.
9. Prior to the end of the warranty period, inspect the facilities and notify the Township Board and the contractor of any deficiencies.

Section 5

Major Items of Resource Equipment

Major Items of Resource Equipment

For 29 years, Houston Engineering, Inc. has provided civil engineering services throughout the Dakotas and Minnesota. We have prided ourselves in our efforts and ability to keep up with the rapid changing computer age - we are leaders in the areas of acquiring and utilizing the latest in computer and software technology. Our staff of engineers and technicians has been thoroughly trained and excels in utilization of computers and software to analyze and model existing conditions and improvements. Even though we have kept up with technology, our greatest resource is the technical ability developed through 29 years of experience, our personnel, and our reputation.

Houston Engineering, Inc. has 23 engineering/computer and CADD work stations. The CADD work stations are each equipped with a 12 x 12 digitizer and 20" monitors for efficient computer assisted drafting. All computers are IBM compatible running under either MS-DOS, Windows 95, or Windows NT Operating System. Plotting is done on a Hewlett Packard Design Jet 650 Color plotter. This plotter, with various media types, results in high quality output at high speed.

The firm utilizes a variety of software programs, including Autodesk's AutoCAD Release 14, Water CAD and KY Pipes (Hydraulic Pipe Network Analysis), HY8 Culvert Analysis, HEC-1 (Hydrologic package), HEC-2 (Hydraulic package), Illudrain (Urban Drainage Simulator), TR20 (Runoff Simulator), CARS (Construction Automation Records System), XPSWMM (Storm Sewer Drainage Analysis), and Simplicity System's Survey 3.0 (COGO).

Houston Engineering, Inc. also utilizes PacSoft 96-1.0 software. This engineering computer program is for COGO, T-net modeling, topographic mapping, cross-sections, 3-D mapping and earthwork calculations. In addition, Houston Engineering, Inc. utilizes a Numonics 36" x 48" digitizer with 0.005' accuracy with data transferable to PacSoft and AutoCAD.

The computers at Houston Engineering, Inc. are networked using Novell Netware 3.12. This allows quick efficient file transfer between the staff and rapid output to a variety of devices.

Houston Engineering, Inc. has complete Internet access. This enables our company to quickly communicate with our clients and agencies using e-mail. The Internet also enables us to access the latest information data bases and software. File transfers can

Major Items of Resource Equipment

also be done quickly and easily using the Internet.

Houston Engineering's survey crews are equipped with Total Station and modern EDM equipment, theodolites and self-leveling levels. The Total Station surveying uses the Sokkia System software that provides the interface to perform mapping, calculations, contouring, volumes, profiles and modem use to transfer data from field to finish. The crews utilize 4-wheel drive suburbans or pick-ups and all-terrain vehicles as applicable. All Houston Engineering vehicles are equipped with two-way UHF business band radios or cellular phones.

Our clerical department utilizes WordPerfect 6.0 software on a MS-DOS computer for word processing. Printing is done on an HP-LaserJet, resulting in high quality correspondence and reports. The clerical department is also equipped with a Fax machine.

Houston Engineering, Inc.'s job cost accounting is all processed with Timberline Project Control and Accounting software on a MS-DOS computer. This will assure accuracy and efficient record keeping and billing as the project progresses.

Section 6

**Work to be Done by Others
Outside the Firm**

Work to be Done by Others Outside the Firm

A geotechnical engineering and material testing firm is the only other consultant we would anticipate utilizing on this project. Depending on the type of wastewater system and water system developed, a geotechnical engineering firm may be required to determine soil loading, percolation rates, and compaction requirements for certain facilities. A material testing firm may be required during construction to verify the contractor's soil compaction effort.

Section 7

**Firm's Headquarters Where
Work Would Be Performed**

Firm's Headquarters Where Work Would Be Performed

Houston Engineering's main office is located in Fargo, North Dakota. The firm has recently opened a new office in Minneapolis, Minnesota. It is in the Fargo office where the work for this project will be performed. The Fargo office is better staffed for a project of this nature, and is closer to the project.

Section 8

Consultant's Contact Person

Consultant's Contact Person

The contact person for this project will be the project manager:

Michael L. Miller, P.E.
Houston Engineering, Inc.
PO Box 5054
Fargo, ND 58105
Phone No. 701-237-5065
Fax No. 701-237-5101
Email: mmiller@corpcomm.net

Section 9

Complete Fee Schedule

Complete Fee Schedule

Houston Engineering has used many types of fee schedules for compensation of services. Once we are selected, we can negotiate a fee schedule that is acceptable to both parties. The following are examples of fee schedules we have used.

A. Percent of Construction Contract

<u>Construction Cost</u>	<u>Basic Compensation</u>
First \$100,000	Negotiated
\$100,000 to \$250,000	\$11,500 plus 8.8% over \$200,000
\$250,000 to \$500,000	\$24,700 plus 7.5% over \$250,000
\$500,000 to \$750,000	\$43,500 plus 6.3% over \$500,000
\$750,000 to \$1,000,000	\$59,200 plus 6.2% over \$750,000
Over \$1,000,000	\$74,700 plus 6.0% over \$1,000,000

This schedule is compensation for design and construction administration. Preliminary engineering studies, environmental evaluations and reports, special reports, surveys, geotechnical services, construction observation, and material testing would be extra services. Compensation for extra services would be estimated prior to providing the service.

B. Lump Sum

Lump sum compensation is acceptable when the scope of services is well defined. The preliminary engineering study could be completed based on a lump sum amount. Depending on the amount of data available, the preliminary engineering study could be completed as follows:

<u>Type of Study</u>	<u>Lump Sum Range</u>
Sanitary System Only	\$16,100
Water System Only	\$14,800
Water and Sanitary Systems in One Study	\$21,100

C. Hourly Rates

Enclosed at the end of this section is Houston Engineering's current hourly rate schedule.

D. Per Diem and Mileage Rates

Our per diem rates are based on our hourly rates and time worked. Our mileage rates are included on our hourly rate schedule.

1997 FEE SCHEDULE
for
Houston Engineering, Inc.
Fargo, North Dakota

The following is a schedule of hourly rates and charges for engineering and surveying services offered by Houston Engineering, Inc.

1.	Engineer I	92.00 per hour
2.	Engineer II	75.00 per hour
3.	Engineer III	59.00 per hour
4.	Technician I	51.00 per hour
5.	Technician II	41.00 per hour
6.	Surveyors: Two-man crew Three-man crew	79.00 per hour 99.00 per hour
7.	CAD Operator	51.00 per hour
8.	Clerical	36.00 per hour

Chargeable Expenses

a.	Subsistence Travel Vehicles	Actual Cost \$ 0.32 per mile
b.	Long distance telephone, facsimile, overnight mail and postage	Actual Cost
c.	Cost of surveying materials, drafting materials, and other materials required for the job	Actual Cost plus 15%

Section 10

Cursory Construction Cost

Cursory Construction Cost

Sanitary Sewer System

Based on past experience from previous construction work, we have developed the following:

1.	Sanitary Collection Lines Serving One Side of the Street with 60'-75' Wide Lots, Good Density	\$6,100/lot
2.	Additional Cost for Narrow Streets Reduced Right-of-Way and Minimum Clearing Allowed	\$1,600/lot
3.	Treatment Facilities, either Drain Field or Lagoons, Range of \$1,200 to \$2,000/user	\$1,600/lot
4.	Contingencies, 10%	<u>\$ 930/lot</u>
	Total	\$10,230/lot

This estimate is for planning purposes only.

This estimate includes construction costs, engineering costs, and contingencies. Land costs and clearing costs are assumed to be minimum.

Total Cost \$10,230 x 130 lots = \$1,330,000

Water System

Based on experience from previous construction work, we have developed the following:

1.	Water Lines Serving One Side of the Street with 60'-75' Wide Lots, Good Density	\$1,600/lot
2.	Each Home's Service Line with Shut-Off and Meter	\$1,300/lot
3.	Additional Cost for Narrow Streets Reduced Right-of-Way and Minimum Clearing Allowed	\$ 400/lot

Cursory Construction Cost

4.	Water Supply including Wells, Pump Station, Minimum Treatment (Chlorine Disinfection), and Storage	\$1,400/lot
5.	Contingencies, 10%	<u>\$ 470/lot</u>
	Total	\$5,170/lot

This estimate is for planning purposes only and includes construction, engineering and contingency costs. Land costs and clearing costs are assumed to be minimum.

Total cost of the water system is \$672,000. Currently, the federal government is considering regulations for public systems with groundwater supplies. If additional requirements are enacted, then these costs will increase.