



JEFFERSON COUNTY
DEPARTMENT OF ADMINISTRATIVE SERVICES
729 MAPLE ST / PO BOX 100
HILLSBORO MO 63050
WWW.JEFFCOMO.ORG

BID #: 19-0049

Request for Proposal: [HIGHWAY MAINTENANCE ON-SITE](#)
[SEWER SYSTEM 2019](#)

Date Issued: 4-25-2019

PROPOSALS SHALL BE ACCEPTED UNTIL: WEDNESDAY, MAY 29, 2019, AT 2:00 P.M. LOCAL TIME.

Specification Contact:

JASON JONAS

Department of Public Works
636-797-5369
jjonas@jeffcomo.org

Contract Contact:

VICKIE PRATT

Department of Administrative Services
636-797-5380

Mail (3) Three Complete Copies With Vendor And Proposal Information As Shown In Sample:

SAMPLE ENVELOPE

VENDOR NAME

VENDOR ADDRESS

CONTACT NUMBER

DEPARTMENT OF THE COUNTY CLERK

JEFFERSON COUNTY MISSOURI

729 MAPLE ST / PO BOX 100

HILLSBORO MO 63050-0100

SEALED PROPOSAL: (PROPOSAL NAME)

Contract Term:
ONE YEAR CONTRACT UPON APPROVAL OF THE COUNTY COUNCIL AND COUNTY EXECUTIVE

The undersigned certifies that he/she has the authority to bind this company in an agreement/contract to supply the commodity or service in accordance with all terms, conditions, and pricing specified. This Proposal, if accepted, will constitute an Agreement and Contract with Jefferson County, Missouri, upon approval of the County Council and County Executive. Prices are firm during this agreement term, unless agreed upon in writing by the County. The County has the option to renew this agreement at the same terms and conditions as the original agreement for one additional one-year term with the written consent of the successful bidder. Price increases for renewals are not authorized unless approved in writing by the County.

Vendor Information:

Company Name

Authorized Agent (Print)

Address

Signature

City/State/Zip Code

Title

Telephone #

Date

Tax ID #

E-mail

Fax #

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REQUIRED DOCUMENTS

- 1. Current and valid Certificate of Insurance or binder showing required insurance coverage must be provided with each bid.**
(County must be added as additional insured if awarded)
- 2a. Proof that Bidder does not owe delinquent real or personal property in Jefferson County (tax receipts for past 3 years)**
Obtain receipts at <http://jeffersonmo.devnetwedge.com>
- Or**
- 2b. A notarized affidavit, on company letterhead stating that the applicant does not own any real or personal property in Jefferson County, Missouri.**
- 3. A Notarized affidavit of work authorization and current business entity status with E-verification documentation (pages 9 & 10).**
- 4. Agreement to be executed by the County upon approval by the County Council and County Executive (Bidder is required to complete company information and execute signature).**
- 5. Cooperative Bid Form (last page)**
- 6. All pages of the Invitation for Bid/Request for Proposal must be used when submitting your bid/proposal response along with initialing each page with the bid/proposal. Additional information may be included separately.**
- 7. Bid deposits/bonds must be in the exact amount as stipulated in the bid. (if required)**

***BIDS MAYBE REJECTED IF REQUIRED DOCUMENTATION IS NOT INCLUDED OR COMPLETED AT DISCRETION OF THE COUNTY**

PROPOSAL REQUIREMENTS

Bidder shall initial all pages and return where the Bid Document denotes

“BIDDER”S INITIALS: _____”

A. DEFINITIONS:

1. The term "County" means the Jefferson County, Missouri and its designated representatives.
2. The term "Vendor" means Supplier, Contractor, and Seller and includes designated representatives.
3. The term "RFP" means Request for Proposal.
4. The term "Agreement/Contract" means Binding Agreement, Contract, Request for Purchase, Order.

B. PROPOSAL SUBMISSION:

Submit bid form in original (one original) and two (two copies) with all specification pages, if applicable. No facsimile or electronic proposals shall be accepted and shall be rejected. A fully executed Affidavit is required by Section 285.530 RSMo., and shall be submitted with the proposal form. A copy of the Affidavit is attached hereto. Failure to execute the Affidavit shall result in the proposal being rejected. Vendor shall comply with the requirements of Sections 285.525 to 285.555 of the Revised Statutes of the State of Missouri. If any part of the work is subcontracted, each subcontractor shall comply with the same requirements of this specification. No contractor shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the State of Missouri. Vendor and any of its subcontractors, shall, by sworn affidavit and provision of documentation, affirm their enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Vendor and its subcontractors shall also sign an affidavit affirming that they do not knowingly employ any person who is an unauthorized alien.

Prevailing Wage Vendor and its subcontractors shall pay not less than the prevailing hourly rates of wages, as determined by the Labor and Industrial Relations Commission of Missouri. Vendor shall abide by the most current Annual Wage Order published by the Missouri Department of Labor and Industrial Relations or other similar resources and publications. Failure to comply with any provision, provide any required documentation, insurance forms or deposits or bonds in exact amounts or any other term or condition that is not in strict conformance shall result in the bid being rejected.

C. BASIS OF PROPOSAL AWARD:

Award may be made on an item-by-item basis to the lowest and best proposals or award may be made to the lowest and best proposal total, whichever is in the best interest of the County. County may reject any or all proposals for any reason and may waive any informality. Proposals submitted from a Missouri State Contract shall include a copy of the State Contract with the proposal.

It is further agreed that the Contract shall not be valid and binding upon the County until approved by the County Counselor, as to legal form and is subject to the Ordinances, Resolutions and Orders of Jefferson County, Missouri, and State and Federal Law. If no proposal or proposals have been awarded by the County Council within forty-five (45) days following the opening of the proposal then all proposals will be deemed rejected.

D. PROPOSAL PREPARATION:

1. Vendors are responsible for examination of drawings, specifications, schedules and instructions.
2. Each Vendor shall furnish the information required by the invitation. The vendor shall sign all required documents. All deletions and erasures shall be initialed
3. Alternate proposals for supplies or services other than specified shall not be considered unless authorized by invitation.
4. Vendor shall state a definite time for delivery of goods or for performance of services unless otherwise specified in the Request for Proposal.
5. When specified, samples must be timely submitted and at no expense to the County.
6. Failure to adhere to all requirements may result in the response being disqualified as non-responsive.

E. MODIFICATION OR WITHDRAWAL OF PROPOSALS:

Proposals may be modified or withdrawn prior to the exact hour and date specified for receipt of proposals, provided the modification or withdrawal is in writing and is delivered in the same manner as a proposal submission.

F. LATE PROPOSALS:

It is the responsibility of the vendor to deliver his proposal or proposal modification on or before the date and time of the proposal closing to the Department of the County Clerk of Jefferson County. Proposals received late will be rejected and returned unopened to the vendor.

G. BID DEPOSITS/BONDS:

Bid Deposits/Bonds are not required unless specified in the specifications. Bid deposits/Bonds must be in the exact amount as stipulated in the bid.

H. MATERIAL AVAILABILITY:

Vendors must accept responsibility for verification of material availability, product schedules and other pertinent data prior to submission of proposal and delivery time. It is the responsibility of the vendor to notify the County immediately if the materials specified are discontinued, replaced, or not available for an extended period of time. All materials ordered by the County, shall be as needed. A sample of materials may be requested.

I. ALTERNATE PROPOSALS:

Where required, vendors must submit complete specifications on all alternate proposals with the proposal form. Alternate proposals without complete specifications may be rejected. Alternate proposals and exceptions to proposal clauses must be clearly noted on the proposal form. The County may accept or reject alternate proposals; whatever is most advantageous to the County.

J. INCORPORATION OF DOCUMENTS:

The terms of the proposal invitation, proposal specifications, proposal form are and shall be incorporated into the contract as if fully setout therein. The Proposal, if accepted and approved by the County Council and County Executive shall constitute the terms of a Contract or Agreement with Jefferson County, Missouri, subject to any further Amendments, Memoranda or other documents or specifications which must be set forth in writing and signed by all parties.

K. ADDENDA:

Addenda to proposal specifications are incorporated by reference as if fully setout herein. It is the responsibility of the vendor to insure and verify that they are in receipt of and completed all attached addenda's prior to submission of proposal forms. Verification is made by contacting the Department of Administrative Services or by reviewing the County Web Site. (www.jeffcomo.org).

L. INSURANCE:

The Vendor/Contractor shall purchase and maintain insurance with an insurance company licensed to do business in the State of Missouri or in the state where the vendor is incorporated or otherwise licensed to do business and which shall remain, at all times during the term of any contract with the County, in full force and effect. Preference will be given to a Vendor/Contractor who provides insurance with an insurance company licensed to do business in the State of Missouri, but in any event said Vendor/Contractor shall provide said insurance at it's own expense. Such insurance shall be provided as will protect the Vendor/Contractor from claims which may arise out of or result from the Vendor/Contractor's execution of the work, whether such execution be by himself, his employees, agents, or by anyone for whose acts any of them may be liable. If any such work covered by the Contract is to be performed on County owned or leased premises, the Vendor agrees to carry liability and workman's compensation insurance, satisfactory to the County, and to indemnify the County against all liability, loss, and damage arising out of any injuries to persons and property caused by the Vendor, his sub-contractors, employees or agents. The insurance coverage shall be such as to fully protect the County and the general public from any and all claims for injury and damage resulting by any actions on the part of the Vendor/Contractor or its' forces as enumerated above. All policies must name the County as an additional insured and provide for thirty (30) days written prior to any material changes or cancellation. Any disputes regarding a breach, insurance amounts, liability, coverage, lapse or otherwise shall be litigated in the Circuit Court of Jefferson County, Missouri and the same shall be incorporated into any Contract agreed to by the parties.

THE COUNTY REQUIRES A CURRENT AND VALID CERTIFICATE OF INSURANCE OR BINDER SHOWING REQUIRED INSURANCE COVERAGE MUST BE PROVIDED WITH EACH BID. JEFFERSON COUNTY MUST BE ADDED AS AN ADDITIONAL INSURED AFTER AWARD OF THE BID. ANY LAPSE IN INSURANCE COVERAGE OR CANCELLATION THEREOF BY THE CONTRACTOR OR SUB-CONTRACTORS DURING THE TERMS OF THE CONTRACT SHALL IMMEDIATELY BE DEEMED A MATERIAL BREACH UNDER THE TERMS OF ANY CONTRACT.

A. (X)Required () Not Required **Comprehensive General Liability Insurance**

The Vendor/Contractor shall maintain and keep in full force and effect during the terms of this Contract such comprehensive general liability insurance as shall protect them from claims which may arise from operations under this Contract, whether such operations be by themselves or by anyone directly or indirectly employed by them. The amounts of insurance shall be not less than \$1,000,000.00 combined single limit for any one occurrence covering both bodily injury and property damage, including accidental death.

B. (X)Required () Not Required **Professional Liability Insurance**

The Vendor/Contractor shall provide the County with proof of Professional Liability Insurance, which shall protect the County against any and all claims, which might arise as a result of the operation of the Vendor/Contractor in fulfilling the terms of this Contract during the life of the Contract. The minimum amounts of such insurance will be \$1,000,000.00. Should any work be subcontracted, these limits will also apply.

C. (X)Required () Not Required **Worker's Compensation Insurance:
per Missouri Revised Statutes Chapter 287**

The Vendor/Contractor or his sub-contractor or contractors, shall maintain and keep in force of this Contract such worker's compensation insurance limits as required by the statues of the State of Missouri and Employer's Liability with limits no less than \$500,000.00.

M. PROPOSAL OPENINGS:

Proposals will be publicly opened and read aloud at the time indicated on page 1. The vendors and the public are invited but not required to attend the formal opening of the proposals. No decisions relating to the award of a contract or agreement will be made at the opening.

N. PROPOSAL TABULATIONS:

Proposal Tabulations will be available 5 to 7 business days following the proposal opening. Proposal submissions are open for public review at the time of the proposal opening. Proposal tabulations are posted on the County's web-site address, www.jeffcomo.org, under the services tab, Invitation for Bid/Request for Proposal link. **NO COPIES** of proposal tabulations are sent to vendors.

PROPOSAL FORM AND CONTRACT

A. PROPOSAL REPRESENTATIONS:

The vendor, by executing the proposal form certifies that:

1. The proposal complies with Request for Proposal, Form and Proposal Specifications.
2. The vendor is not debarred or suspended from participation in Federal Assistance programs.

B. TAXES:

No bid or proposal shall be awarded by Jefferson County unless the prospective bidder provides proof that the bidder does not owe delinquent real or personal property taxes to Jefferson County. The prospective bidder may be required to provide proof in the form of an original paid tax receipt issued by the Jefferson County Collector or a verified affidavit stating that the applicant does not own any real or personal property in Jefferson County. Tax receipts for the past 3 years are required and may be obtained at <http://jeffersonmo.devnetwedge.com/> or a notarized affidavit stating that the applicant does not own any real or personal property in Jefferson County on company letterhead.

Section 135.040 of the Jefferson County Code of Ordinances (Ord. No. 10-0411) requires that no bid or proposal shall be awarded by Jefferson County unless the prospective bidder provides proof that the bidder does not owe delinquent real or personal property, or that the bidder does not own any real or personal property in Jefferson County. All delinquent real or personal property taxes shall be paid, in-full, prior to the award of any bid, or proof shall be provided that the bidder does not own any real or personal property in Jefferson County prior to the award of any bid. Jefferson County considers that the failure to pay any and all real or personal property taxes due Jefferson County, Missouri, the failure to report all real or personal property owned, held or used in Jefferson County, the failure to provide proof thereof, and/or the failure to keep said tax bills current shall be deemed a material breach of the contract and will subject the contract to immediate cancellation. All taxes, due and owing, must be paid in full at the time the bid is awarded by Jefferson County and remain paid during the entire term of the contract unless the prospective bidder provides proof that the bidder does not own real or personal property in Jefferson County. This requirement shall not apply to the award of bids for projects which are funded in whole or in part by Federal funds.

C. CERTIFICATION OF INDEPENDENT PRICE DETERMINATION:

1. The prices in the proposal shall be independently determined, without consultation, communication, or agreement for the purpose of restricting competition as to any matter relating to price with any Vendor or other person.
2. Unless otherwise required by law, the prices shall not have been knowingly disclosed by the Vendor prior to opening; or
3. No attempt has been made or will be made by the vendor to induce any other person or firm to submit or not to submit a proposal.

D. PRICE:

The price(s) specified in this proposal shall be firm and not subject to contingency or reservation. The vendor represents prices specified in the proposal do not exceed current selling price for the same or substantially similar good or service, and are the same as or lower than other prices charged to the vendor's most favored customer. In the event the stated prices are determined to be higher than the prices for which Supplier has sold the items, or services, to others, this contract price shall be reduced accordingly. **Proposal prices are ALL INCLUSIVE: (Shipping, Handling, Delivery, and Assembly to locations specified by the County).** Prices shall be firm for ALL County departments and locations for term of the agreement.

E. MISSOURI DOMESTIC PRODUCT PROCUREMENT ACT:

Vendor represents that the goods provided comply with Sections 34.350 to 34.359, RSMo., known as the Domestic Product Procurement Act. The act encourages the purchase of products manufactured or produced in the United States, State of Missouri, and Jefferson County, Missouri. Vendor shall include proof of compliance with the Act with the proposal.

F. NON-EXCLUSIVE AGREEMENT:

The contractor shall understand and agree that the contract shall not be construed as an exclusive agreement and further agrees that the County may secure identical and/or similar services or products from other sources at anytime in conjunction with or in replacement of the contractor's services.

H. INSPECTION, ACCEPTANCE AND APPROVALS:

Goods shall at all times and places, including the period of manufacture, are subject to inspection and test by County. County will accept or give notice of rejection of goods delivered within a reasonable time after receipt. Acceptance shall not waive any warranty. All goods supplied are subject to final inspection and acceptance by County notwithstanding payment, prior inspections or approvals. County may require prompt replacement or correction of rejected goods at Supplier's expense, including a reduction in price for rejected goods. Supplier shall not resubmit rejected goods to County without prior written approval and instructions from County. In addition, Supplier shall identify resubmitted goods as previously rejected. Supplier shall provide and maintain a quality assurance and control system acceptable to County.

I. WARRANTY:

Unless otherwise agreed to in writing by the parties, Supplier warrants that items ordered to specifications will conform thereto and to any drawings, samples or other descriptions furnished or adopted by County, or, if not ordered to specifications will be fit and sufficient for the purpose intended, and that all items will be new, merchantable, of good material and workmanship, and free from defect. Such warranties, together with Supplier's service warranties and guarantees, if any, shall survive inspection, test, acceptance of, and payment for the items and shall run to County and its assigns. Except for latent defects, the County shall give notice of any nonconformity to the Supplier within one (1) year after acceptance. County may return for credit or require prompt correction or replacement of the defective or non-conforming goods or have the defective good corrected or replaced at Supplier's expense. Return to Supplier of any defective or non-conforming goods and delivery to County of any corrected or replaced goods shall be at Supplier's expense. Defective or non-conforming items shall not be corrected or replaced without written authorization by County. Goods required to be corrected or replaced shall be subject to the provisions of this clause and the clause hereof entitled "Inspection, Acceptance and Approvals" in the same manner and to the same extent as goods originally delivered under this contract.

J. PAYMENT:

County will pay Supplier for goods upon delivery to, submission of certified invoices and acceptance. The County will not be responsible for articles or services furnished without a purchase order. Price is tax-exempt.

K. CHANGE ORDER:

County may make changes within the general scope of this contract. If any such changes cause an increase or decrease in the cost of or the time required for the performance of any part of the work, whether changed or not changed by any such order, an equitable adjustment shall be made in the price or delivery schedule or both, and any change order shall be in writing. Any claim by a Supplier for adjustment under this clause shall be asserted within fifteen (15) days from the date of receipt of this written order directing the change, provided, however, County, if it decides that the facts justify such action, may receive and act upon such claim asserted at any time prior to final payment.

L. DELIVERIES:

Deliveries shall be made in strict accordance with any delivery schedule contained in the proposal specification or contract and in the exact quantity ordered. Failure to adhere to delivery schedule is reason for termination in accordance with the "termination" clause. Deliveries are to be made at locations specified by the County at time of Order.

M. RESPONSIBILITY FOR SUPPLIES:

Pursuant to Section 290.560 RSMo., Supplier/Contractor shall employ only Missouri laborers and laborers from nonrestrictive states except that other laborers may be used when Missouri laborers or laborers from nonrestrictive states are not available, or are incapable of performing the particular type of work involved, if so certified by the contractor and approved by the County. Except as otherwise provided, Supplier shall be responsible and bear all risks for loss and damage to goods until delivery at County's facilities, regardless of F.O.B. point, point of inspection or acceptance; and if the goods are rejected.

N. SUBCONTRACTS:

Supplier shall not enter into any subcontract(s) in excess of \$25,000 or 20% of this contract price; whichever is less, for any goods without County's prior written approval.

O. CHOICE OF LAW:

This proposal and contract shall be governed and interpreted according to the laws of the State of Missouri. Venue for any court action shall be in Jefferson County, Missouri.

P. TERMINATION:

1. General: Performance of work may be terminated by the County in whole, or from time to time in part, whenever County shall determine that such termination is in the best interests of County. Termination shall be affected by delivery to Supplier of a Notice of Termination specifying the extent to which performance of work is terminated and the date upon which such termination becomes effective. If such notice does not state termination is pursuant to subparagraph 2, 3, or 4 of this paragraph, County shall have the right to so indicate within thirty (30) days. If no notice is delivered within the thirty (30) day period, or such longer periods as is mutually agreed to by the parties, the original Notice of Termination shall be deemed to be issued pursuant to subparagraph 1 of this paragraph.
2. Bankruptcy or Insolvency: In the event bankruptcy proceedings are commenced by or against Supplier or under any provisions of the United States Bankruptcy Act or for the appointment of a receiver or trustee or a general assignment for the benefit of creditors of either party, County shall be entitled to terminate without further cost or liability.
3. **Section 135.040 of the Jefferson County Code of Ordinances (Ord. No. 10-0411) requires that no bid or proposal shall be awarded by Jefferson County unless the prospective bidder provides proof that the bidder does not owe delinquent real or personal property, or that the bidder does not own any real or personal property in Jefferson County. All delinquent real or personal property taxes shall be paid, in-full, prior to the award of any bid, or proof shall be provided that the bidder does not own any real or personal property in Jefferson County prior to the award of any bid.** Jefferson County considers that the failure to pay any and all real or personal property taxes due Jefferson County, Missouri, the failure to report all real or personal property owned, held or used in Jefferson County, the failure to provide proof thereof, and/or the failure to keep said tax bills current shall be deemed a material breach of the contract and will subject the contract to immediate cancellation. All taxes, due and owing, must be paid in full at the time the bid is awarded by Jefferson County and remain paid during the entire term of the contract unless the prospective bidder provides proof that the bidder does not own real or personal property in Jefferson County. This requirement shall not apply to the award of bids for projects which are funded in whole or in part by Federal funds.
4. Default: County may terminate the whole Contract or any part in either of the following circumstances:
 - a. If supplier fails to deliver the items required by the contract within the time specified; or
 - b. If supplier fails to perform any of the other provisions of the contract, or so fails to make progress as to endanger performance of the contract in accordance with its terms, and in either of these two circumstances does not cure such failure within a period of ten (10) days after notice from County specifying such failure. In the event of termination under subparagraph 1, County shall have the right to procure, on such terms and in such manner as it may deem appropriate, items similar to those terminated, and to recover from Supplier the excess cost for such similar items provided, however, Supplier shall not be liable for such excess costs where the failure upon which the termination is based has arisen out of causes beyond the control of Supplier and without the fault or negligence of Supplier. Such causes shall be deemed to include fires, floods, earthquakes, strikes, and acts of the public enemy. The rights of County provided in subparagraph 1 shall be in addition to any other rights provided by law or the contract.
 - c. In the event of the Supplier's non-compliance with the provisions as set forth. This Contract may be cancelled, terminated or suspended in whole or in part and the supplier may be declared ineligible for further County contracts. The rights and remedies of the County provided in this paragraph shall not be exclusive but are in addition to any remedies provided in this Contract or as provided for by law.

Q. NOTICE AND SERVICE THEREOF:

Any notice from the County shall be in writing and considered delivered and the service thereof completed when said notice is posted, by certified or regular mail, to the Supplier, at the address stated on the proposal form.

R. CONTRACT TERM:

Performance shall be governed solely by the terms and conditions as set forth in the Request for Proposal, Proposal Specifications, Proposal Form and the Contract notwithstanding any language contained on any invoice, shipping order, bill of lading or other document furnished the Seller at any time and the acceptance by the County for any goods furnished.

S. COMPLIANCE WITH APPLICABLE LAWS:

Supplier warrants it has complied with all applicable laws, rules and ordinances of the United States, Missouri or any other Governmental authority or agency in the manufacture or sale of the goods, including but not limited to all provisions of the Fair Labor Standards Act of 1938, as amended.

T. ACTS OF GOD:

No party shall be liable for delays, nor defaults due to Acts of God or the public enemy, riots, strikes, fires, explosions, accidents, governmental actions of any kind or any other causes of a similar character beyond its control and without its fault or negligence.

U. SELLER'S INVOICES:

Invoices shall contain the following information. Contract number (if any), Purchase Order Number, Item number, contract description of goods or services, sizes, quantities, unit prices and extended totals. Invoices for and inquiries regarding payment should be addressed to the County Accounts Payable Clerk.

V. APPROVAL:

It is agreed the acceptance of a proposal shall not be valid and binding upon the County until approved by the County Purchasing Agent, County Council and County Counselor.

W. INDIVIDUAL, PARTNERSHIPS, CORPORATIONS:

Indicate: [] Individual: [] Partnership: [] Corporation.

Incorporated in the State of _____.

X. LITIGATION:

This agreement shall be interpreted under the laws of the State of Missouri. Any disagreements, questions, controversies, litigation or other causes of action whatsoever arising from or under the terms of this agreement shall be resolved in the trial courts of 23rd Judicial Circuit Court of the State of Missouri-Hillsboro, Missouri.

Y. LANGUAGE: Bids and all related documents will only be accepted in the English Language.

THE INVITATION FOR BID / REQUEST FOR PROPOSAL NOTICES ARE POSTED ON THE JEFFERSON COUNTY, MISSOURI WEBSITE AT WWW.JEFFCOMO.ORG LOCATED UNDER THE SERVICES TAB, INVITATION FOR BID / REQUEST FOR PROPOSAL LINK.

SPECIFICATION
CONTACT

JASON JONAS – JEFFERSON COUNTY PUBLIC WORKS
636-797-5369

AFFIDAVIT OF WORK AUTHORIZATION

The grantee, sub grantee, contractor or subcontractor who meets the section 285.525, RSMo., definition of a business entity must complete and return the following Affidavit of Work Authorization.

Comes now _____ (Name of Business Entity Authorized Representative) as _____ (Position/Title) first being duly sworn on my oath, affirm _____ (Business Entity Name) is enrolled and will continue to participate in the E-Verify federal work authorization program with respect to employees hired after enrollment in the program who are proposed to work in connection with the services related to _____ (Bid/Grant/Subgrant/Contract/Subcontract) for the duration of the grant, subgrant, contractor, or subcontractor, if awarded in accordance with subsection 2 of section 285.530, RSMo., I also affirm that _____ (Business Entity Name) does not and will not knowingly employ a person who is an unauthorized alien in connection with the contracted services related to _____ (Bid/Grant/Subgrant/Contract/Subcontract) for the duration of the grant, subgrant, contract, or subcontract, if awarded.

In Affirmation thereof, the facts stated above are true and correct. (The undersigned understands that false statements made in this filing are subject to the penalties provided under section 575.040, RSMo.)

Authorized Representative's Signature

Printed Name

Title

Date

Subscribed and sworn to before me this _____ of _____. I am
(DAY) (MONTH, YEAR)

commissioned as a notary public within the County of _____, State of
(NAME OF COUNTY)

_____, and my commission expires on _____.
(NAME OF STATE) (DATE)

Signature of Notary

Date

AFFIDAVIT OF WORK AUTHORIZATION

(Continued)

CURRENT BUSINESS ENTITY STATUS

I certify that _____ (Business Entity Name) **MEETS** the definition of a business entity as defined in section 285.525, RSMo., pertaining to section 285.530, RSMo., as stated above.

Authorized Business Entity
Representative's Name
(Please Print)

Authorized Business Entity
Representative's Signature

Business Entity Name

Date

As a business entity, the grantee, sub grantee, contractor, or subcontractor must perform/provide the following. The grantee, sub grantee, contractor, or subcontractor shall check each to verify completion/submission:

- Enroll and participate in the E-Verify federal work authorization program (Website: <http://www.dhs.gov/e-verify>; Phone: 888-464-4218; Email: e-verify@dhs.gov) with respect to the employees hired after enrollment in the program who are proposed to work in connection with the services required herein;

AND

- Provide documentation affirming said company's/individual's enrollment and participation in the E-Verify federal work authorization program. Documentation shall include a page from the E-Verify Memorandum of Understanding (MOU) listing the grantee's, subgrantee's, contractor's, or subcontractor's name and the MOU signature page completed and signed, at minimum, by the grantee, subgrantee, contractor, or subcontractor and the Department of Homeland Security – Verification Division; (if the signature page of the MOU lists the grantee's, subgrantee's, contractor's, or subcontractor's name, then no additional pages of the MOU must be submitted).

SPECIFICATIONS

SCOPE OF SERVICES

HIGHWAY MAINTENANCE ON-SITE SEWER SYSTEM

Project Purpose and Introduction:

Request the services of a contracting company and associated packaged sewer treatment provider to review existing system conditions and submit a proposal on required and/or recommended improvements. The awarded contractor shall oversee any needed design, construction and installation of an upgrade solution for the Jefferson County, Missouri East Highway Maintenance facility on-site sewer treatment system. Project is located at 2960 Lee Pyle Road, Desoto, Missouri 63020. The services anticipated for this project are detailed further in the contract work section.

The chosen Contractor shall be committed to work with Jefferson County Facility Services staff, as well as the assigned County Project Manager during design, installation and implementation to aid staff with a general understanding of the system. The Contractor shall be trained on the proper use and basic trouble shooting of the equipment. Upon completion of the installation, the Contractor shall be prepared to fully test the system to assure optimum functionality and performances are achieved.

Project Objectives

The Contractor shall be responsible to provide all labor, materials, equipment, supplies, and tools required to complete the work that has been proposed and awarded, and in compliance with all applicable federal, state and local codes and standards. The Contractor must oversee and coordinate the entire project. Any subcontractor must be approved by the County prior to the commencement of the contract work. The Contractor shall be responsible for cleanup and disposal of all trash and construction debris generated by the project, disposal of any existing items removed, but not used in the new installation, and repair of any damage to other facility components caused by the Contractor or their subcontractors. Final acceptance of the project will be provided by the County Project Manager.

The following are the basic project objectives:

1. Provide a new on-site sewer treatment system within the stated parameters of this Request for Proposal.
2. Prepare the end users for operation and basic system maintenance by providing comprehensive training to user groups and maintenance staff.
3. Provide not less than a one-year warranty on the new on-site sewer treatment system.

The following are the basic general requirements of the project:

1. The on-site sewer treatment system design shall be in accordance to the following regulations:
 - a. **Missouri Code of State Regulations** – 19 CSR, Division 20-3.060, Rules and Regulations of the Department of Health and Senior Services, Division 20 – Division of Community and Public Health

- b. **Jefferson County On-Site Sewage Treatment Code** – Chapter 705, Article VI, Construction Standards for On-Site Sewage Treatment Systems, Section 705.300; and following Article VI, Absorption Systems, Section 705.400; and following Article VI, Site Evaluation & Requirements Section 705.160 through 705.210; and following Article I, Permits, Section 705.060
- 2. All equipment and materials used shall meet all applicable industry standards and based on the manufacturer's recommendations.
- 3. All equipment and materials shall have been thoroughly tested and proven in actual use in situations of a similar nature.
- 4. A site visit and inspection shall be offered to all interested firms wishing to submit proposals for this project. Firms that attend one of these meetings will receive all ten (10) points out of the ten (10) maximum points for that rated category. Those that do not attend one of these meetings will receive zero (0) points out of ten (10) maximum points for that rated category. Attendance at only one of these meetings shall be necessary to receive the maximum points. These meetings shall be held at the job site location and on the following dates and times:

May 10, 2019 at 1:00PM and May 13, 2019 at 1:00PM

- 5. To maintain security, integrity and intent of this project; the County reserves the right to observe the Contractor's operations and inspect their work site at any and all times. The Contractor shall agree to abide by any and all of the County rules and regulations, as well as the facility security measures, procedures and protocols.
- 6. The County reserves the right to order immediate removal of any employee of the Contractor, or of their subcontractors, from the job site for just cause. Reasons could include; but are not limited to, security, disorderly behavior, intoxication, violation of laws, unsafe behavior, or for emergency public safety.
- 7. Respondents must provide project reference installations. Experience with similar on-site sewer treatment systems as the one proposed by the bidder will receive more rating points in the related experience and technical competence/expertise scoring categories. Project client information or details on those projects is highly encouraged.
- 8. All labor used in the construction of this public improvement shall be paid a wage no less than the prevailing hourly rate of wages of work, of a similar character in this locality, as established by the State of Missouri's "Annual Wage Order" that is currently effective 10 calendar days prior to bid opening.

Basis of Project Proposals / Contract Work:

The following information shall only serve as a framework of the anticipated project work required or assumed by Jefferson County, Missouri. These details and assumptions shall not be construed as either all-inclusive or essential in terms of what each potential bidder may view as needed, required or recommended per their own independent evaluation. Each interested party that wishes to consider a bid submission is highly encouraged to attend one of the site visit meetings during the bidding process to perform their own onsite evaluation of the existing system. In doing so, these engaged firms will be able to better understand what solutions to include and omit in their final proposal. Failure to perform such an evaluation and fully understanding the facility needs for repair, improvement and upgrade may result in poor scoring in one or more of the rating categories listing within this request for proposal.

The proposed scope of work includes:

- County Anticipated On-Site Sewer Treatment System Solution
 - Removal and replacement of an existing septic system for the Jefferson County Department of Public Works East Maintenance facility located at 2960 Lee Pyle Road, approximately 0.2 miles east of US Highway 67.
 - The East Maintenance facility drip soil absorption system or trickle irrigation system should be designed for 30 individuals during the expected useful life of the proposed wastewater system.
 - A conservative estimate of 30 gallons per day per unit per person should be used in accordance to Table 2A of 19 Code of State Regulations 20-3 / Table 603.1(a) of Jefferson County On-Site Sewage Treatment Code, Article VI. Therefore, the system shall be designed to provide treatment for an expected daily volume of 900 gallons in total, or 4,500 gallons during a standard 5-day work week.
 - Application rates for Group IV soils should equal 0.1 to 0.05 gallons per day per square foot. The design loading rate for drip systems shall be based on the most hydraulically limiting natural soil horizon within 20 inches of the ground surface or to a depth of one foot below the trench bottom, whichever is greater.
 - Installation shall be made in accordance with manufacturer's specifications.
 - Refer to Attachment A for an aerial view of the project site, concept-level information on the intended design and soil boring information.
 - Refer to Attachment B for the basis of design memorandum. This information shall be considered for information only to all potential respondents. Each respondent shall develop their proposed solution to address the on-site sewer needs of the site.
- Administration of the On-Site Sewer Treatment System Project
 - Develop/manage design, construction, installation, scheduling, details, etc.
 - Coordination of the subcontractors during all phases of the project.
 - Communication with County and all monitoring agencies on project progress.
 - Act as the general information source for all questions regarding the project.
 - Review and approve all shop drawing and material selections.
 - Determination and acquisition of all necessary permits, certification, or inspections.
 - Submission and approval of all phases of the project through Local, State and Federal permitting/controlling agencies (any fees to be paid by Contractor).
 - Assist County Project Manager in the selection of project features (if required).
 - Assist County Project Manager with project close out.

- Coordination of final inspection of project.
- Correction of any non-conforming work of project.
- Collection and submission of warranty documents.
- Collection and submission of operations and maintenance manuals.
- Collection and submission of design plans and details.
- Respond to questions and comments from any inspection agency in writing.
- Provide user training on all system equipment installations.
- Documentation of the project to include.
 - Design drawings, schematics, and necessary details.
 - List and certification of all original parts used in the project.
 - Inspection reports, permits, certifications and documents detailing compliance with building and safety standards.
 - Insurance requirements and lien waivers for all project contractors.
 - Prevailing wage requirements.
 - Warranty documents and operation and maintenance manuals.
 - List of all supplier specific parts and components with the contact and order information for the suppliers.
- Construction site management for the project.
 - Schedule updates of the construction progress must be provided to County Project Manager.
 - Accommodations will be made to provide minimum disturbance to the normal functions and activities of the highway maintenance facility.
 - Work area to be tidy and comply with all safety regulations.

Project Team:

The proposed project team must contain and identify in the proposal, the team members and subcontractors that will be necessary for each component of this project. The fees, services and cost estimates shall be broken down to the smallest proposed unit of delivery and then totaled for all necessary category listings advertised.

Project Proposal Submissions:

Project proposals are due to the County no later than by 2:00 pm CST on Wednesday May 29, 2019. Proposals will be publicly opened and read aloud at the time and date indicated above. The vendors and the public are invited but not required to attend the formal opening of the proposals. No decisions relating to the award of a contract or agreement will be made at the opening. Delivery shall be to the attention of the office of the County Clerk, Jefferson County Administration Center, 729 Maple Street, Hillsboro, Missouri, 63050. All bids shall be submitted in triplicate in an opaque sealed envelope, marked with the project title, name and address of the bidder, and accompanied by the other required documents. Bids submitted via fax or electronic will be rejected. Late bids will not be accepted and will be returned to the sender, unopened. Proposals shall include all fees and services necessary to complete this project. All sub-consultant fee proposals shall also be included in the total project fees.

Anticipated Project Selection and Award Timeframe:

- May 29, 2019 – Proposals due to the County; Opening of Submitted Proposals
- June 5, 2019 – Anticipated Selection of Contractor
- June 10, 2019 – Anticipated Award of the Contract
- June 17, 2019 – Anticipated Issuance of Notice to Proceed
- Schedule for Project Completion – As Defined by Contractor Proposal

Proposal Review:

Proposals will be evaluated on certain category qualifications and the ability of the bidding company to meet the needs of the County. The on-site sewer treatment project proposal will need to balance: total project cost; timeframe required to complete project; functionality of the proposed solution; and maintenance or serviceability of the proposed system.

Contractor Selection:

The selection of the team for this project shall be made using the following rated categories and weight scale associated with this request for proposal:

<u>Category</u>	<u>Point Scale</u>
Total Project Cost (as awarded)	50 points max.
Related Project Experience	10 points max.
Technical Competence and Expertise	10 points max.
Details of the Project Proposal	10 points max.
Evaluation of the Project Site	10 points max.
Project Schedule	<u>10 points max.</u> 100 points max.

Category Definitions:

Total Project Cost – Lowest responsive bidder will be awarded 50 points. All low bids in succession to the lowest bidder shall receive 10 less points respectively (i.e. 1st = 50 pts, 2nd = 40 pts, and so on).

Related Project Experience – Rating of proposal on relevant and related project experience on a scale of 1 to 10.

Technical Competence and Expertise – Rating of proposal on technical competence and professional expertise of the team on a scale of 1 to 10.

Details of the Project Proposal – Rating of proposal on equipment or elements being required or recommended by the bidder versus the specified requirements and recommendations of the County, on a scale of 1 to 10.

Evaluation of the Project Site – Rating of proposal on what extent the team reviewed the existing facility conditions and capacity as a basis for the proposal's required and/or recommended improvements, repairs, replacements, upgrades, etc. on a scale of 1 to 10.

Project Schedule – Rating of proposal on submitted project schedule on a scale of 1 to 10.

The proposing teams are highly encouraged to explain how they best meet the above stated categories to assist the County in rating the proposals. The County reserves the right to reject proposals that do not entirely cover the scope of services being requested. The firms are highly encouraged to contact the County Project Manager with any questions pertaining to what is being requested or required in the proposal. All correspondence that relates to this project must be directed to the County Project Manager only in order to maintain a fair bidding environment. The County Project Manager for this project is as follows:

Jason Jonas, P.E
Office: 636-797-5369
Email: jjonas@jeffcomo.org

Total Cost of the Project \$ _____

JEFFERSON COUNTY EAST MAINTENANCE YARD

2960 LEE PYLE RD



PERCOLATION TESTS

P1	P2	P3	P4
MINUTES/IN	MINUTES/IN	MINUTES/IN	MINUTES/IN
26.667	1.850	22.500	14.000
26.000	2.447	30.625	40.000
60.000	3.356	60.000	81.667
41.667	2.917	66.250	265.000
66.250	3.247	65.000	265.000
61.250	3.176	53.000	260.000
56.250	3.519	97.500	190.000
90.000	3.056	165.000	616.667

TER A 5 DAY PERIOD)

RECHARGES AND RESTARTED 5 DAYS AFTER THE INITIAL TESTS.

83.654	2.244	103.373	216.750
RECHARGE	2.232	285.000	285.000
32.745	3.205	603.889	431.190
100.000	3.571	RECHARGE	458.750
RECHARGE	4.630	45.982	
43.235	4.630	4.630	

AVC 57.310 AVC 3.272 AVC 133.177 AVC 260.335

LEGEND

SOIL BORING LOCATION

 (SEE ATTACHMENT FOR RESU

PRELIMINARY

- NOT FOR CONSTRUCTION -

EX.001

SHEET 1 OF 1

Bidder's Initials



DAILY FIELD REPORT BOREHOLE LOG

SHEET 1 OF 1

PROJECT NUMBER: 18-6001

HOLE NUMBER: B-1

PROJECT: Jefferson County East Maintenance Yard										LOCATION: Near Building/Existing Septic Tank				
COORDINATES:										DRILLING CONTRACTOR: Terracon				
DRILL MAKE AND MODEL: CME 550 ATV				DEPTH TOP OF ROCK: 8'6"				DEPTH CASING & SIZE: HSA		HOLE SIZE: 8"				
ELEVATION: Local Ref. 100'			ANGLE FROM VERT. AND BEARING: N/A				DEPTH BOTTOM OF HOLE: 8'6"							
WATER LEVEL: N/A			FLUIDS AND ADDITIVES: N/A				DATE START: 3/30/18		DATE FINISH: 3/30/18		LOGGER: MDW			
ELEVATION	DEPTH BELOW SURFACE	SAMPLE			STANDARD PENETRATION TEST RESULT		SYMBOLIC LOG	MOISTURE %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION		
		INTERVAL	TYPE & NUMBER	RECOVERY								NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL		
Feet														
0														
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
REMARKS:														
The stratification lines represent approximate strata boundaries In situations the transition may be gradual.														



DAILY FIELD REPORT BOREHOLE LOG

SHEET 1 OF 1
PROJECT NUMBER: 18-6001
HOLE NUMBER: B-2

PROJECT: Jefferson County East Maintenance Yard							LOCATION: Eastern Field - NorthEast							
COORDINATES:							DRILLING CONTRACTOR: Terracon							
DRILL MAKE AND MODEL: CME 550 ATV				DEPTH TOP OF ROCK: 4'10"				DEPTH CASING & SIZE: HSA			HOLE SIZE: 8"			
ELEVATION: Local Ref. 79.67'			ANGLE FROM VERT. AND BEARING: N/A				DEPTH BOTTOM OF HOLE: 4'10"							
WATER LEVEL: N/A				FLUIDS AND ADDITIVES: N/A				DATE START: 3/30/18		DATE FINISH: 3/30/18		LOGGER: MDW		
ELEVATION	DEPTH BELOW SURFACE	SAMPLE			STANDARD PENETRATION TEST RESULT	SYMBOLIC LOG	MOISTURE %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION			
		INTERVAL	TYPE & NUMBER	RECOVERY							NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL			
Feet				Pocket Penetrometer tons/ft ²										
0														
1	1' - 2.5'	SP-1	10/18	4-3-5 - PP 1.0		45.79								
2														
3														
4	3.5' - 5'	SP-2	12/18	4-12-50 - PP 1.25		23.01								
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
REMARKS: SP-3 (in boot) 14.59% moisture														
The stratification lines represent approximate strata boundaries. In situations the transition may be gradual.														

 <p style="text-align: center;">DAILY FIELD REPORT BOREHOLE LOG</p>										SHEET 1 OF 1		
										PROJECT NUMBER: 18-6001		
										HOLE NUMBER: B-3		
										PROJECT: Jefferson County East Maintenance Yard		
COORDINATES:					DRILLING CONTRACTOR: Terracon							
DRILL MAKE AND MODEL: CME 550 ATV				DEPTH TOP OF ROCK: 5'			DEPTH CASING & SIZE: HSA		HOLE SIZE: 8"			
ELEVATION: Local Ref. 80.75'			ANGLE FROM VERT. AND BEARING: N/A				DEPTH BOTTOM OF HOLE: 5'					
WATER LEVEL: N/A			FLUIDS AND ADDITIVES: N/A				DATE START: 3/30/18		DATE FINISH: 3/30/18	LOGGER: MDW		
ELEVATION	DEPTH BELOW SURFACE	SAMPLE		STANDARD PENETRATION TEST RESULT	SYMBOLIC LOG	MOISTURE %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION		
		INTERVAL	TYPE & NUMBER							RECOVERY	Pocket Penetrometer tons/ft ²	NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL
0												
1	1' - 2.5'	SP-1	6/18	10-5-9 - PP n/a	29.33					Brown Clay w/Sandstone fragments		
2												
3												
4	3.5' - 5'	SP-2	13/18	3-33-50[for 2"]	21.90					8" Brown Silty Clay with iron staining and rock fragments		
5												
6												
7										Auger Refusal at 5'		
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
REMARKS: SP-3 (in boot) 13.12% moisture												
<small>The stratification lines represent approximate strata boundaries In situations the transition may be gradual.</small>												



DAILY FIELD REPORT BOREHOLE LOG

SHEET 1 OF 1

PROJECT NUMBER: 18-6001

HOLE NUMBER: B-4

PROJECT: Jefferson County East Maintenance Yard								LOCATION: Eastern Field -SouthWest			
COORDINATES:								DRILLING CONTRACTOR: Terracon			
DRILL MAKE AND MODEL: CME 550 ATV				DEPTH TOP OF ROCK: 8' 6"				DEPTH CASING & SIZE: HSA		HOLE SIZE: 8"	
ELEVATION: Local Ref. 81.25'			ANGLE FROM VERT. AND BEARING: N/A					DEPTH BOTTOM OF HOLE: 8' 6"			
WATER LEVEL: N/A			FLUIDS AND ADDITIVES: N/A					DATE START: 3/30/18	DATE FINISH: 3/30/18	LOGGER: MDW	
ELEVATION	DEPTH BELOW SURFACE	SAMPLE		STANDARD PENETRATION TEST RESULT	SYMBOLIC LOG	MOISTURE %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION	
		INTERVAL	TYPE & NUMBER							RECOVERY	Pocket Penetrometer tons/ft ²
0											
1	1' - 2.5'	SP-1	8/18	5-7-7 - PP 0.5		20.65				Brown Silty Clay and Gravel	
2											
3											
4	3.5' - 5'	SP-2A SP-2B	16/18	3-7-21 - PP 3.5		28.29 18.63				8" Brown sandy clay 8" Brown Clayey Sand with weathered Sandstone in shoe	
5											
6	6' - 7.5'	SP-3	10/18	6-5-4 - PP n/a		16.43				2" Brown Clay 8" Tan weathered Sand	
7											
8											
9										Auger Refusal at 8'6"	
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
REMARKS: SP-4 (in boot) 22.27% moisture											
<small>The stratification lines represent approximate strata boundaries. In situations the transition may be gradual.</small>											



LAND SURVEYING | ENGINEERING DESIGN | CONSTRUCTION

ATTACHMENT B

4140 Lindell Boulevard
Saint Louis, Missouri 63108
P: 314-454-0222
www.abnaengineering.com

MEMORANDUM

To: Jason Jonas, P.E.
Director of Public Works
Jefferson County, MO

From: Chantal Block, P.E.
Engineering Project Manager

Subject: East Highway Maintenance
Facility Wastewater Treatment
Basis of Design Memorandum

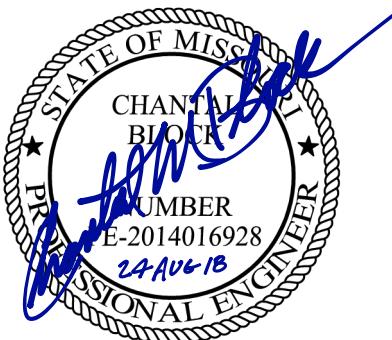
Date: 8/24/2018

CC: Todd Brady, P.E.
Department Manager,
Environmental Engineering

Jason,

The following pages address the suitability of various wastewater treatment options for the East Highway Maintenance Facility located at 2960 Lee Pyle Road. Please review and contact me if you have any questions or would like further discussion on the options we examined.

Sincerely,



Chantal Block, P.E.

Basis of Design Memorandum

Introduction

The purpose of this memorandum is to evaluate the on-site wastewater disposal options for the Jefferson County Department of Public Works East Maintenance Yard (East Yard) located on Lee Pyle Road, approximately 0.2 miles east of US Highway 67. The objective is to develop design criteria for a new wastewater treatment system serving the Operations Building of the East Yard, intended to replace the existing septic system. The current septic system has been in service since the 1970s.

Documentation on the design or construction of this system is unavailable. This system emits odors in lower parts of the Yard, indicating that underground components for the system have either failed or are no longer functioning as intended. The existing system is unlikely to conform to the current day design standards and regulatory requirements.

The frequency of day-to-day work activities have steadily increased at the East Yard since it was first put into service. It is likely that wastewater loadings on the existing septic system have increased since the initial design was completed, and will continue to increase as time progresses. Furthermore, the current septic drain field is reportedly located beneath the staff parking lot and vehicle staging and maintenance area south of the Shop Building. It is likely that the soils in the septic drain field may have been subject to compaction since the system was put into service.

Design Parameters

Wastewater in Missouri (including on-site wastewater treatment systems) is regulated by multiple state and local agencies. At the State level, both the Missouri Department of Natural Resources and the Missouri Department of Health and Senior Services are responsible for domestic wastewater treatment systems, depending on the expected system volume. The Department of Natural Resources is responsible for housing developments consisting of multiple lots and commercial facilities whose domestic wastewater facilities are expected to discharge in excess of 3,000 gallons per day (or, in the case that no absorption field is used, less than 3,000 gallons per day for commercial use). Wastewater treatment systems designed to handle less than 3,000 gallons per day treated and contained on-site are under the jurisdiction of the Missouri Department of Health and Senior Services.

Per early conversations with site operators, the East Yard could employ up to 30 individuals during the expected useful life of the proposed wastewater system. Design of the proposed system should take this future expansion into consideration and be able to accommodate the increase in staff over time. As such, sewage flow rates shall be determined by estimate of future conditions rather than from current actual measured flow rates for the existing system. A conservative estimate of 30 gallons per day per unit per person¹ was selected (the rate for "Warehouses"). Therefore, the system shall be designed to

¹ Estimates were derived from Table 2A of 19 Code of State Regulations 20-3 / Table 603.1(a) of Jefferson County On-Site Sewage Treatment Code, Article VI.

provide treatment for an expected daily volume of 900 gallons in total, or 4,500 gallons during a standard 5-day work week. As this loading falls under 3,000 gallons per day, the appropriate codes for design use are as follows:

Missouri Code of State Regulations 19 CSR Division 20-3.060 (Rules and Regulations of the Department of Health and Senior Services, Division 20 – Division of Community and Public Health)

Chapter 705, Jefferson County On-Site Sewage Treatment Code,

Article VI, **Construction Standards for On-Site Sewage Treatment Systems, Section 705.300** and following

Article VI, **Absorption Systems**, Section 705.400 and following

Article VI, **Site Evaluation & Requirements** Section 705.160 through 705.210

Article I, **Permits**, Section 705.060

References in this report indicate Chapter 705, Jefferson County On-Site Sewage Treatment Code, and have been cross referenced to the Missouri Code of State Regulations for consistency. Both code documents must be satisfied when designing wastewater treatment for the East Yard.

Current Site Layout and Evaluation

Current Site Layout

The Jefferson County East Maintenance Yard is located across two lots at 2950 Lee Pyle Road and 2960 Lee Pyle Road in De Soto, Missouri. The total land area of the two adjacent parcels owned by Jefferson County is 21.05 acres². The operations building is located on the northwest end of the site. Reference Attachment A for a site map.

Soil Conditions

Preliminary soils information was gathered from a report generated by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). The NRCS report indicates the presence of Wrengart silt loams (3 to 8 percent slopes), Sonsac gravelly silt loams (15 to 40 percent slopes) and quarry pits. The report evaluated the site conditions in respect to the functionality of a septic tank absorption field, examining the section of the soil between the depths of 24 and 60 inches. Rating classes indicate the extent to which the soils are limited by all of the soil features that affect the use of the site as an effluent absorption system, and are both verbal and numerical. Soils at the East Yard site were classified as “Very Limited”, indicating that the soil and one or more features that are unfavorable for the specified use. The limitation generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high

² Jefferson County Department of the County Assessor

maintenance of drain fields installed in in this soil classification can be expected³. Numerical ratings indicate the severity of individual limitations and are shown as decimal fractions ranging from 0.1 to 1.00. Soils features with a rating of 1.00 have the greatest negative impact on use. Numeric ratings for the site soils equaled 1.0, citing the expected depth to saturated zone, slow water movement, steep slope and shallow depth to bedrock as expected site conditions negatively impacting the use of the site as a septic drain field. Reference Attachment D for the full USDA NRCS Soils Report.

Soil borings are to be conducted regardless of the type of sewage treatment system planned to serve the land parcel. A minimum of three soil borings are required for a site with an existing septic system⁴. The borings should extend at least three feet below the bottom of the proposed system and be of a sufficient size and extent to determine the soil characteristics. Where site conditions prevent the collection of traditional soil borings, borings may be dug by hand. Borehole test data in the replacement system are expected to be equivalent to data in the proposed system area; therefore a separate soil morphology pit was not conducted during the evaluation of this site.

In total, four soil borings were performed: three in the expected footprint of the absorption field and one in the expected location of the wastewater septic tank. Borings indicate the presence of high plastic clays (CH) overlying thin sandy residuum (SL). Due to the composition of soils in this area indicating clays, a classification of Soil Group IV is appropriate for this site. Each boring was made to the point of auger refusal, which ranged from four foot ten inches to eight foot six inches in depth. Soil profile descriptions including thicknesses of various soil horizons are indicated in the Borehole Logs included in Attachment B of this memorandum. The presence of groundwater was not observed in any of the four borings, and there was no indication of soil saturation at the time of testing. There was no evidence of alluvial and colluvial deposits which would preclude the use of a subsurface soil absorption system.

Soil percolations rate is based on a standard testing method which includes a twenty-four hour presoak in a six to eight inch diameter hole to the depth of the proposed absorption field. After the presoak, water is poured into the hole to a level of eight inches above the bottom. The drop in water level is then measured at thirty minute intervals until a stabilized rate is obtained. Four percolation tests were performed in the area of the proposed septic drain field. Initial testing indicated average percolation rates of 3.06 minutes per inch to 617 minutes per inch. Due to the variance in test results, the percolation tests were repeated 5 days after the initial results. Subsequent testing indicated average percolation rates between 3.27 minutes per inch to 260 minutes per inch. Reference Attachment C for results of soil percolation tests.

Topography

Soil topography in the selected location generally consists of moderate to moderately steep slopes (approximately 13 to 28 percent, based on available LiDAR data). A localized soil depression (expected to be the former site the foundation of a demolished structure) exists near the proposed footprint of the absorption field. Site slopes typically run from north to south, away from Lee Pyle Road and parallel to

³ USDA NRCS Web Soil Survey

⁴ Jefferson County, Missouri Construction Standards for On-Site Sewage Treatment Systems, Chapter 705, Article VI, Section 705.180: Slope

the general East Yard layout. Reference Attachment E for general topographic indications of the site. A soil absorption system proposed in this area must adhere to the following setback requirements anticipated to be relevant: 10 feet from upslope property line, 50 feet from downslope property line, 15 feet from existing building foundations, 10 feet from water lines under pressure, 20 feet from top of slope embankments, and 100 feet from the edge of surficial sink holes⁵.

The presence of relatively impermeable soils in the area indicates a potential for flooding during heavy rainfall. However, the relatively steep slopes of the East Yard may mitigate this threat.

Proposed Design

This memorandum will focus on the applicability of a conventional sewage tank discharging to a soil absorption system that is designed to retain the effluent upon the East Yard property. All liquid waste from the Operations Building shall discharge into the sewage tank with exception of any stormwater runoff from the roof or nearby surface water. The Operations Building is not a food-service area; therefore, examination of the effect of kitchen waste or functionality of a grease trap is beyond the scope of this memorandum.

Sewage Tank

The proposed wastewater treatment system utilizes a traditional sewage septic tank located adjacent to the East Yard Operations Building. This location was chosen due to its proximity to the building and due to the presence of a nearby drive aisle, providing accessibility to the tank for periodic maintenance and removal of liquids and accumulated solids. A soil boring was performed in the expected footprint of the sewage tank to confirm that the soils in the area are capable of bearing the weight of the constructed tank and its contents when full. The tank must be set back a minimum distance of 15 feet⁶ from the foundation of the Operations Building and 10 feet from the building's water service line.

The potential for intermittent use of the system precludes the use of an aeration treatment unit (ATU) in place of a traditional sewage septic tank. As such, the design of an ATU is not covered under the scope of this memorandum.

The sewage tank must be water-tight and designed and constructed to withstand all lateral earth pressures under saturated soil conditions with the tank empty, and to withstand at least two feet of saturated earth cover above the top⁷. Data from the soil boring conducted within the expected location of the proposed septic tank gave no indication that the existing soils in this area would not satisfy the aforementioned requirement. The tank shall be sized so that the liquid depth is between 3 and 6.5 feet, and so that no horizontal dimension is less than 2 feet. Access to the septic tank shall be provided over

⁵ Full setback requirements can be found in Chapter 705 of Jefferson County On-Site Sewage Treatment Code, Chapter 705, Article VI, Section 705.310

⁶ Jefferson County, Missouri Construction Standards for On-Site Sewage Treatment Systems, Chapter 705, Article VI, Table 602.1: Minimum Setback Distances

⁷ Jefferson County, Missouri Construction Standards for On-Site Sewage Treatment Systems, Chapter 705, Article VI, Section 705.350(A)

both the inlet and outlet devices and to each tank compartment by means of either a removable cover or manhole.

The capacity of septic tanks serving non-residential flows must exceed 1,000 liquid gallons. A minimum liquid capacity of 2,500 gallons⁸ is appropriate for the East Yard expected maximum flow of 900 gallons per day. A tank of this size that is fabricated as a single unit must be divided into at least two compartments. Design inside the tank must adhere to all standards found in the Jefferson County Missouri Construction Standards for On-Site Sewage Treatment Systems.

Other features necessary for operation of the sewage tank including the effluent filter system and electrical systems shall be designed in accordance with the Jefferson County, Missouri Construction Standards for On-Site Sewage Treatment Systems, and are not covered in the scope of this memorandum.

Absorption System

This memorandum will review the applicability of a system of absorption trenches, each containing its own distribution pipe. Should the site topography and soils profile prevent the effective use of a traditional absorption system, other alternatives should be considered.

The proposed septic drain field location is within a vacant lot to the east of the facility. This location was chosen due to its currently undeveloped state, ease of access, and due to the downslope location from the proposed septic tank.

An appropriate application rate for Class IV soils is between 0.3 and 0.1 gallon per day per square foot⁹, requiring a drain field between 3,000 to 9,000 square feet in size for treatment of the expected daily volume of the East Yard. Gravity conventional absorption trenches should not be constructed in soils having a loading rate slower than 0.3 gallons per day per square foot. The presence of relatively impermeable soils within the expected depth of the absorption field is a non-conforming site condition, and will require a design alternative.

Moderate to Moderately steep slopes are considered provisionally suitable for placement of an absorption field provided that soils are thirty-six inches thick or greater¹⁰. Boreholes indicate between 4 and 8 feet of soils in this area. Slopes within this range may require installation of interceptor drains upslope from the soil absorption system to remove all excess water that may be moving laterally through the soil during wet periods.

⁸ Jefferson County, Missouri Construction Standards for On-Site Sewage Treatment Systems, Chapter 705, Article VI, Table 607.2(a): Non-Residential Septic Tank Capacity

⁹ Per Jefferson County, Missouri Construction Standards for On-Site Sewage Treatment Systems, Chapter 705, Article VI, Section 705.410 Absorption Trenches, Table 613.15(a): Application Rate by Soil Groups for Conventional Systems

¹⁰ Jefferson County, Missouri Construction Standards for On-Site Sewage Treatment Systems, Chapter 705, Article VI, Section 705.470: Topography and Landscape Position

Alternative Systems

Low Pressure Pipe System

A low pressure pipe system (LPP) may be utilized where soil and site conditions prohibit the installation of a conventional or modified septic tank system due to slow soil permeability. The separation distance between the trench bottoms and bedrock shall be at least two feet. The amount of rock fragments shall be less than 50% unless the trenches are lined with sand.

A LPP system includes a perforated PVC network placed in natural soil. The pipe trenches shall include at least five inches of pea gravel below the pipe and at least two inches above the pipe, and an additional four inches of soil cover. A pretreatment system (typically an approved Class 1 aeration unit) and a pumping or dosing tank must be utilized for this system, as well as a submersible sewage effluent pump and a water-tight supply manifold pipe to convey effluent from the pump to the low pressure network.

A LPP absorption field requires special design procedures to assure proper distribution of effluent over the absorption fields when site slopes exceed 10%. An application rate of 0.1 to 0.05 gallons per day per square foot must be used in Class IV soils. A drainfield of 9,000 to 18,000 square feet in area will be required for treatment when using this system.

Wastewater Stabilization Pond

A wastewater stabilization pond (or lagoon) can provide satisfactory sewage treatment in areas where soils are not suited for absorption systems. Setback distances for lagoons equal or exceed those required for conventional treatment areas. A setback requirement of 500 feet to the edge of surficial sink holes likely precludes the use of a lagoon as a treatment system for the East Yard. Lagoons are typically utilized when percolation rates slower than 120 minutes per inch exist (as indicated in two of the four measured field percolation tests). Slopes greater than 15% shall be avoided when constructing a lagoon. Much of the selected treatment site at the East Yard contains slopes in excess of this parameter. For these reasons, a lagoon is likely an inappropriate treatment option for the East Yard site.

Elevated Sand Mounds

Elevated sand mounds may be considered whenever site conditions preclude the use of absorption trenches. Elevated sand mounds shall not be utilized on soils where soils having a percolation rate slower than 120 minute per inch occur within 24 inches of natural grade. Two of the four measured field percolation tests indicate the presence of limiting strata that does not meet this requirement. Mounds shall not be located on natural slopes of more than six percent if the percolation rate is slower than 60 minutes per inch to a depth of 24 inches below the sand layer. Mounds may be located on slopes up to a maximum of 12%. Much of the selected treatment site at the East Yard contains slopes in excess of this parameter. For these reasons, elevated sand mounds are likely an inappropriate treatment option for the East Yard site.

Holding Tank Sewage System

A holding tank is an alternative to an on-site sewage treatment system and shall only be approved by a Code Official if an on-site system, on-site system with off-site drain field, or connection to sewer system is not feasible. These systems should be used when commercial usage with a design flow of less than fifty gallons per day are expected, or in emergency situations on a temporary basis. A holding tank sewage system shall require an operating permit renewal every two years, and pumping, hauling and disposal must be made by a sewage-pumping contractor. A service contract naming the responsible contractor and addressing the frequency and schedule of pumping, and a financial guarantee for such an operation must be provided before permits are provided. A holding tank for this purpose shall be constructed of the same materials and by the same procedure as those specified for water-tight sewage tanks and sized for at least seven times the expected average daily flow rate (approximately 6,300 gallons for the East Yard). An additional reserve volume of three times the average daily flow rate (or 2,700 gallons) is necessary.

Sand Filters

Sand filters may be used in conjunction with an aeration treatment unit in soils with a loading rate of 0.20 gallons per day per square foot. The applicability of an ATU for this site must be examined, and whether intermittent use (5 or more days without flow) is a potential. Setback distances shall be consistent with a traditional drain field system.

Drip Soil Absorption

The use of a drip soil absorption system, also known as a trickle irrigation system, may be an appropriate method of treatment for the East Yard site. Application rates for Group IV soils should equal 0.1 to 0.05 gallons per day per square foot. The design loading rate for drip systems shall be based on the most hydraulically limiting natural soil horizon within 20 inches of the ground surface or to a depth of one foot below the trench bottom, whichever is greater. Installation shall be made in accordance with manufacturer's specifications.

Package Treatment Plant

A package treatment plant requires a minimum expected daily flow rate of 10,000 gallons per day, far above the expected 900 gallons per day flow rate for the East Yard. Estimated costs for a system of this type exceed \$120,000. A package treatment plant is not an appropriate treatment option for the East Yard due to the expected daily flow rate generated.

Conclusion

A combination of steep slopes and poorly draining soils make the East Maintenance Yard a challenging site to determine an appropriate wastewater treatment solution for. The presence of relatively impermeable soils within the expected depth of the absorption field precludes the installation of a conventional gravity absorption field, any many alternative systems are inappropriate to the terrain and/or the expected system's frequency of use. ABNA contacted several drainlayer contractors licensed to install septic in Jefferson County. All recommended the installation of a drip soil absorption system

over the other alternates. Though a site-specific cost estimate is difficult to make without a contractor review of a designed system, general cost estimates for a system of this size ranged from \$12,000 to an excess of \$30,000. The majority of cost estimates fell between \$14,000 and \$20,000 for a drip soil absorption system of this size. Additional costs can be expected if pumping is necessary (though it is not expected to be the case on this site).

Alternately, a holding tank sewage system may be an appropriate solution to the site constraints, which limit the options in drain field type. A typical system including a fill alarm with lid is estimated to cost about \$10,000, including excavation and installation. Pumping estimates range in price and method used to estimate. All Type, Inc. of De Soto quoted \$0.10 a gallon for pumping. All Weather Sewer Service quoted \$135/hour plus \$500 disposal fee for each visit. King Septic estimated \$750 a week for a tank of this size, and Burns Septic estimated \$300 per 3,600 gallon truck load. However, most installers we contacted warned that Jefferson County may not allow this type of system as a long-term solution. Jefferson County Rules and Regulations bolster this statement. The applicability of a holding tank system may be reviewed in a case-specific basis by the County, and should be examined further for suitability.

Attachment A: Site Map



Attachment B: Boring Logs



DAILY FIELD REPORT BOREHOLE LOG

SHEET 1 OF 1

PROJECT NUMBER: 18-6001

HOLE NUMBER: B-1

PROJECT: Jefferson County East Maintenance Yard										LOCATION: Near Building/Existing Septic Tank				
COORDINATES:										DRILLING CONTRACTOR: Terracon				
DRILL MAKE AND MODEL: CME 550 ATV					DEPTH TOP OF ROCK: 8'6"				DEPTH CASING & SIZE: HSA		HOLE SIZE: 8"			
ELEVATION: Local Ref. 100'			ANGLE FROM VERT. AND BEARING: N/A						DEPTH BOTTOM OF HOLE: 8'6"					
WATER LEVEL: N/A				FLUIDS AND ADDITIVES: N/A				DATE START: 3/30/18		DATE FINISH: 3/30/18		LOGGER: MDW		
ELEVATION	DEPTH BELOW SURFACE	SAMPLE			STANDARD PENETRATION TEST RESULT		SYMBOLIC LOG	MOISTURE %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION		
		INTERVAL	TYPE & NUMBER	RECOVERY								NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL		
Feet														
0														
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
REMARKS:														
The stratification lines represent approximate strata boundaries In situations the transition may be gradual.														



DAILY FIELD REPORT BOREHOLE LOG

SHEET 1 OF 1
PROJECT NUMBER: 18-6001
HOLE NUMBER: B-2

PROJECT: Jefferson County East Maintenance Yard							LOCATION: Eastern Field - NorthEast							
COORDINATES:							DRILLING CONTRACTOR: Terracon							
DRILL MAKE AND MODEL: CME 550 ATV				DEPTH TOP OF ROCK: 4'10"				DEPTH CASING & SIZE: HSA			HOLE SIZE: 8"			
ELEVATION: Local Ref. 79.67'			ANGLE FROM VERT. AND BEARING: N/A				DEPTH BOTTOM OF HOLE: 4'10"							
WATER LEVEL: N/A				FLUIDS AND ADDITIVES: N/A				DATE START: 3/30/18		DATE FINISH: 3/30/18		LOGGER: MDW		
ELEVATION	DEPTH BELOW SURFACE	SAMPLE			STANDARD PENETRATION TEST RESULT	SYMBOLIC LOG	MOISTURE %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION			
		INTERVAL	TYPE & NUMBER	RECOVERY							NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL			
Feet				Pocket Penetrometer tons/ft ²										
0														
1	1' - 2.5'	SP-1	10/18	4-3-5 - PP 1.0		45.79								
2														
3														
4	3.5' - 5'	SP-2	12/18	4-12-50 - PP 1.25		23.01								
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
REMARKS: SP-3 (in boot) 14.59% moisture														
The stratification lines represent approximate strata boundaries. In situations the transition may be gradual.														

 <p style="text-align: center;">DAILY FIELD REPORT BOREHOLE LOG</p>										SHEET 1 OF 1		
										PROJECT NUMBER: 18-6001		
										HOLE NUMBER: B-3		
										PROJECT: Jefferson County East Maintenance Yard		
COORDINATES:					DRILLING CONTRACTOR: Terracon							
DRILL MAKE AND MODEL: CME 550 ATV				DEPTH TOP OF ROCK: 5'			DEPTH CASING & SIZE: HSA		HOLE SIZE: 8"			
ELEVATION: Local Ref. 80.75'			ANGLE FROM VERT. AND BEARING: N/A				DEPTH BOTTOM OF HOLE: 5'					
WATER LEVEL: N/A			FLUIDS AND ADDITIVES: N/A				DATE START: 3/30/18		DATE FINISH: 3/30/18	LOGGER: MDW		
ELEVATION	DEPTH BELOW SURFACE	SAMPLE		STANDARD PENETRATION TEST RESULT	SYMBOLIC LOG	MOISTURE %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION		
		INTERVAL	TYPE & NUMBER							RECOVERY	Pocket Penetrometer tons/ft ²	NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL
0												
1	1' - 2.5'	SP-1	6/18	10-5-9 - PP n/a	29.33					Brown Clay w/Sandstone fragments		
2												
3												
4	3.5' - 5'	SP-2	13/18	3-33-50[for 2"]	21.90					8" Brown Silty Clay with iron staining and rock fragments		
										5" Tan Sand		
5										Auger Refusal at 5'		
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
REMARKS: SP-3 (in boot) 13.12% moisture												
<small>The stratification lines represent approximate strata boundaries In situations the transition may be gradual.</small>												



DAILY FIELD REPORT BOREHOLE LOG

SHEET 1 OF 1

PROJECT NUMBER: 18-6001

HOLE NUMBER: B-4

PROJECT: Jefferson County East Maintenance Yard								LOCATION: Eastern Field -SouthWest					
COORDINATES:								DRILLING CONTRACTOR: Terracon					
DRILL MAKE AND MODEL: CME 550 ATV				DEPTH TOP OF ROCK: 8' 6"				DEPTH CASING & SIZE: HSA		HOLE SIZE: 8"			
ELEVATION: Local Ref. 81.25'			ANGLE FROM VERT. AND BEARING: N/A					DEPTH BOTTOM OF HOLE: 8' 6"					
WATER LEVEL: N/A			FLUIDS AND ADDITIVES: N/A					DATE START: 3/30/18	DATE FINISH: 3/30/18	LOGGER: MDW			
ELEVATION Feet	DEPTH BELOW SURFACE	SAMPLE			STANDARD PENETRATION TEST RESULT	SYMBOLIC LOG	MOISTURE %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION		
		INTERVAL	TYPE & NUMBER	RECOVERY							NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL		
					Pocket Penetrometer tons/ft ²								
0													
1													
2	1' - 2.5'	SP-1	8/18	5-7-7 - PP 0.5									
3													
4	3.5' - 5'	SP-2A SP-2B	16/18	3-7-21 - PP 3.5									
5													
6	6' - 7.5'	SP-3	10/18	6-5-4 - PP n/a									
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
REMARKS: SP-4 (in boot) 22.27% moisture													
<small>The stratification lines represent approximate strata boundaries. In situations the transition may be gradual.</small>													

Attachment C: Percolation Test Results

Jefferson County East Maintenance Yard Percolation Tests

P1
minutes/in
26.667
26.000
60.000
41.667
66.250
61.250
56.250
90.000

P2
minutes/in
1.850
2.447
3.356
2.917
3.247
3.176
3.519
3.056

P3
minutes/in
22.500
30.625
60.000
66.250
65.000
53.000
97.500
165.000

P4
minutes/in
14.000
40.000
81.667
265.000
265.000
260.000
190.000
616.667

(over a 5 day period)

Recharged and restarted 5 days after the initial tests.

83.654
Recharge
32.745
100.000
Recharge
43.235

Avg 57.310

2.244
2.232
3.205
3.571
4.630
4.630
5.000

Avg 3.272

103.373
285.000
603.889
Recharge
45.982

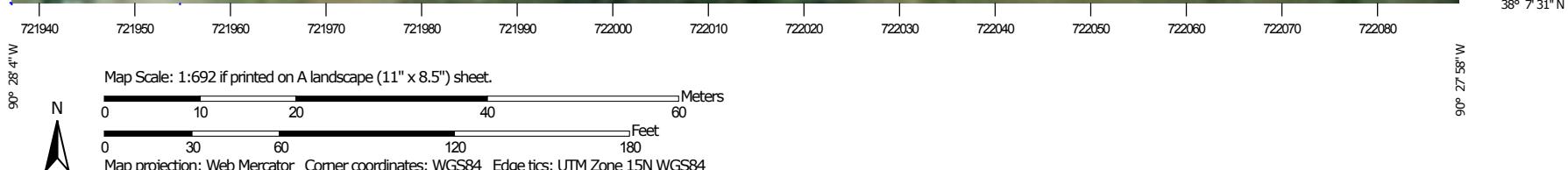
Avg 133.177

216.750
285.000
431.190
458.750

Avg 260.335

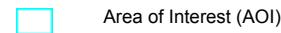
Attachment D: USDA NRCS Soils Reports

Septic Tank Absorption Fields—Jefferson County, Missouri



MAP LEGEND

Area of Interest (AOI)



Area of Interest (AOI)

Background



Aerial Photography

Soils

Soil Rating Polygons

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

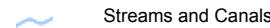
Soil Rating Lines

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Soil Rating Points

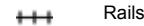
-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Water Features



Streams and Canals

Transportation



Rails



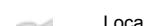
Interstate Highways



US Routes



Major Roads



Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jefferson County, Missouri

Survey Area Data: Version 20, Sep 18, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 19, 2013—Nov 22, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Septic Tank Absorption Fields

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
73046	Wrengart silt loam, 3 to 8 percent slopes, eroded	Very limited	Wrengart (90%)	Depth to saturated zone (1.00) Slow water movement (1.00)	0.1	4.5%
73201	Sonsac gravelly silt loam, 15 to 40 percent slopes, very stony	Very limited	Sonsac (85%) Gatewood (8%) Gasconade (5%) Alred (2%)	Slow water movement (1.00) Slope (1.00) Depth to bedrock (1.00) Depth to saturated zone (1.00) Slow water movement (1.00) Slope (1.00) Depth to bedrock (1.00) Depth to bedrock (1.00) Slope (1.00) Slow water movement (1.00) Slope (1.00)	0.2	16.8%
99000	Pits, quarry	Not rated	Pits, quarry (95%)		0.9	78.8%
Totals for Area of Interest					1.1	100.0%

Rating	Acres in AOI	Percent of AOI
Very limited	0.2	21.2%
Null or Not Rated	0.9	78.8%
Totals for Area of Interest	1.1	100.0%



Description

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.



Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Attachment E: Site Topographic Indications



JEFFERSON COUNTY EAST MAINTENANCE YARD
EXISTING SITE SLOPES

In Witness thereof, the parties hereto have executed this Agreement, in triplicate, as of this _____ day of _____ 2019:

County of Jefferson, State of Missouri

Company Name

Signature

Dennis Gannon J. County Executive

Print

Company Address: _____

Phone: _____

I hereby certify under section 50.660 RSMo., there is either: (1) a balance of funds, otherwise unencumbered, to the credit of the appropriation to which the obligation contained herein is chargeable, and a cash balance otherwise unencumbered, in the treasury, to the credit of the funds from which payment is to be made, each sufficient to meet the obligation contained herein; or (2) bonds or taxes have been authorized by vote of the people and there is a sufficient unencumbered amount of the bonds yet to be sold or of the taxes levied and yet to be collected to meet the obligation in case there is not a sufficient unencumbered cash balance in the treasury.

County Auditor

APPROVED AS TO FORM

County Counselor

COOPERATIVE BID FORM

Bid Name: _____

INSTRUCTIONS: Bidders **MUST** fill out this form as part of the bidding process and attach to your bid response to Jefferson County, Missouri.

COOPERATIVE PROCUREMENT CONTRACT

This is a cooperating supply contract in accordance with Chapter 130, Section 130.020. K.3., of the Procurement Policy and Procedures, Jefferson County Code of Ordinances.

Will you extend bid prices, cash terms, and all other terms and conditions of any contract resulting from this bid with Jefferson County, Missouri, to any Jefferson County, Missouri, Municipality, government agency, district, sub-district or other tax-supported entity?

Yes **No**

Although agreeing to the extension of the terms of this contract to municipalities or other tax-supported entities, ***is not a prerequisite for award***, Jefferson County, Missouri, may take this factor into consideration if tie bids are received, in addition to the normal Terms and Conditions of the Invitation for Bid, enclosed herewith as a part of this bid.

Bidders are encouraged to extend contract prices to Municipalities and any other tax-supported entities.

If agreeable to the above, state the **minimum** dollar value *per order* you will require from a Municipality or any other tax-supported entity **(this shall not apply to Jefferson County, Missouri Government, Departments or Divisions):**

MINIMUM DOLLAR VALUE PER ORDER: \$_____

BY: _____

TITLE: _____

COMPANY: _____

CONTACT INFORMATION FOR COOPERATIVE AGREEMENT

Phone _____ **E-mail** _____

**THIS FORM WILL BECOME PART OF THE BID DOCUMENT PACKAGE SUBMITTED TO
JEFFERSON COUNTY, MISSOURI**