Introduced by _____ Council Bill No. _____R 130-12_____

A RESOLUTION

authorizing an agreement for engineering services with TREKK Design Group, LLC for completion of the FY 2012 inflow and infiltration study of the sewer collection system.

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF COLUMBIA, MISSOURI, AS FOLLOWS:

SECTION 1. The City Manager is hereby authorized to execute an agreement for engineering services with TREKK Design Group, LLC for completion of the FY 2012 inflow and infiltration study of the sewer collection system. The form and content of the agreement shall be substantially as set forth in "Exhibit A" attached hereto and made a part hereof as fully as if set forth herein verbatim.

ADOPTED this _____ day of _____, 2012.

ATTEST:

_____ _____

City Clerk Mayor and Presiding Officer

APPROVED AS TO FORM:

_____

City Counselor

AGREEMENT
For
PROFESSIONAL ENGINEERING SERVICES
Between
THE CITY OF COLUMBIA, MISSOURI
And
TREKK Design Group, LLC

THIS AGREEMENT made as of _____ day of _____, 20___, by and between the City of Columbia, Missouri, hereinafter called the CITY, and TREKK Design Group, LLC of 1441 East 104th Street, Suite 105 Kansas City, MO 64131, hereinafter called the ENGINEER.

WITNESSETH, that whereas the CITY intends to make improvements as described below, hereinafter called the PROJECT, consisting of the following:

Professional engineering services to complete inflow and infiltration study - FY2012
(Description of Project)

NOW THEREFORE, in consideration of the mutual covenants set out herein the parties agree as follows:

ENGINEER shall serve as CITY's professional engineering consultant in those assignments to which this Agreement applies, and shall give consultation and advice to CITY during the performance of his services. All services shall be performed under the direction of a professional engineer registered in the State of Missouri and qualified in the particular field.

SECTION 1 - AUTHORIZATION OF SERVICES

1.1 ENGINEER shall not undertake to begin any of the services contemplated by this agreement until directed in writing to do so by CITY. CITY may elect to authorize the PROJECT as a whole or in parts.

1.2 Authorized work may include services described hereafter as Basic Services or as Additional Services of Engineer.

SECTION 2 - BASIC SERVICES OF ENGINEER

2.1 General

2.1.1 Perform professional engineering services as set forth in Attachment A -

"Scope of Basic Services", dated .

2.1.2 The ENGINEER will designate the following listed individuals as its project team with responsibilities as assigned. The ENGINEER shall dedicate whatever additional resources are necessary to accomplish the PROJECT within the specified time frame but will not remove these individuals from the assigned tasks for any reason within the control of the ENGINEER without the written approval of the CITY.

Name and Title	Assignment
Cliff Cate, P.E.	Project Manager
James Fisher	Project Engineer
Paul Anderson	Field Services Manager

All of the services required hereunder will be performed by the ENGINEER or under its supervision and all personnel engaged in the work shall be fully qualified and authorized or permitted under state and local law to perform such services.

None of the work or services covered by this Agreement shall be subcontracted without the prior written approval of the CITY and any work or services so subcontracted shall be subject to the provisions of this Agreement.

2.2 The ENGINEER shall furnish such periodic reports as the CITY may request pertaining to the work or services undertaken pursuant to this Agreement, the costs and obligations incurred or to be incurred, and any other matters covered by this Agreement.

2.3 The ENGINEER shall maintain accounts and records, including personnel, property and financial records, adequate to identify and account for all costs pertaining to the Agreement and any other records as deemed necessary by the CITY to assure proper accounting for all project funds. These records must be available to the CITY or its authorized representatives, for audit purposes, and must be retained for three (3) years after expiration or completion of this Agreement.

SECTION 3 - ADDITIONAL SERVICES OF ENGINEER

3.1 General

If authorized in writing by CITY and agreed to in writing by ENGINEER, ENGINEER shall furnish or obtain from others Additional Services of the following types which are not considered normal or customary Basic Services. The scope of Additional Services may include:

3.1.1 Financial Consultation
Consult with CITY's fiscal agents and bond attorneys and provide such engineering data as required for any bond prospectus or other financing requirements

3.1.2 Property Procurement Assistance
Provide consultation and assistance on property procurement as related to professional engineering services being performed.

3.1.3 Obtaining Services of Others
Provide through subcontract the services or data set forth in attachment A

3.1.4 Preliminary or final engineering design of capital facilities except as specifically identified herein.

3.1.5 Preparation of reports, data, application, etc., in connection with modifications to FEMA floodplain definition and/or mapping.

3.1.6 Extra Services
Services not specifically defined heretofore that may be authorized in writing by CITY.

SECTION 4 - RESPONSIBILITIES OF CITY

4.1 Provide full information as to CITY's requirements for the PROJECT.

4.2 Assist ENGINEER by placing at ENGINEER's disposal available information pertinent to the assignment including previous reports and other data relative thereto, including the items outlined in Attachment A - "Scope of Basic Services", dated July 15, 2012.

4.3 Guarantee access to and make all provisions for ENGINEER to enter upon public and private property as required for ENGINEER to perform his services under this Agreement.

4.4 Examine all studies, reports, sketches, estimates, Bid Documents, Drawings, proposals and other documents presented by ENGINEER and render in writing decisions pertaining thereto.

4.5 Provide such professional legal, accounting, financial and insurance counseling services as may be required for the PROJECT.

4.6 Designate John D. Glascock, P.E., Director of Public Works, as CITY's representative with respect to the services to be performed under this Agreement. Such

person shall have complete authority to transmit instructions, receive information, interpret and define CITY's policies and decisions with respect to materials, equipment, elements and systems to be used in the PROJECT, and other matters pertinent to the services covered by this Agreement.

4.7 Give prompt written notice to ENGINEER whenever CITY observes or otherwise becomes aware of any defect in the PROJECT.

4.8 Furnish approvals and permits from all governmental authorities having jurisdiction over the PROJECT and such approvals and consents from others as may be necessary for completion of the PROJECT.

4.9 Furnish ENGINEER data such as probings and subsurface explorations, with appropriate professional interpretations; property, boundary, easement, right-of-way, topographic and utility surveys; zoning and deed restriction; and other special data or consultations, all of which ENGINEER may rely upon in performing his services under this Agreement.

SECTION 5 - PERIOD OF SERVICE

5.1 This Agreement will become effective upon the first written notice by CITY authorizing services hereunder.

5.2 This Agreement shall be applicable to all work assignments authorized by CITY subsequent to the date of its execution and shall be effective as to all assignments authorized.

5.3 Services shall be started within 10 calendar days of Notice to Proceed and completed within 365 calendar days from the issuance of the Notice to Proceed. CITY shall have the right to establish performance times for individual phases or elements of the PROJECT by delivering a written schedule setting out the performance times to the ENGINEER.

SECTION 6 - PAYMENTS TO ENGINEER

6.1 Amount of Payment

6.1.1 For services performed, CITY shall pay ENGINEER the sum of amounts determined as follows:

6.1.1.1 For time spent by personnel, payment at the hourly rates indicated in the "Schedule of Hourly Labor Billing Rates" Form No. 1 (attached). Such rates include overhead and profit. The schedule is effective to December 31, 2012, and may be revised thereafter.

6.1.1.2 For outside expenses incurred by ENGINEER, such as authorized travel and subsistence, commercial services, and incidental expenses, the cost to ENGINEER.

6.1.1.3 For reproduction, printing, long-distance telephone calls, company vehicle usage, testing apparatus, computer services and computer-assisted drafting (CAD), amounts will be charged according to the ENGINEER's standard rates in effect at the time service is provided.

6.1.1.4 For professional services rendered by others as subcontractor(s) to ENGINEER such as surveying, real property descriptions, soil borings, subsurface investigations, laboratory testing, field quality control tests, progress photos, or other activities required or requested by CITY, will be billed at the cost to ENGINEER.

6.1.1.5 For time spent by outside individual professional consultants employed by ENGINEER in providing services to CITY, the cost to ENGINEER. Expenses incurred by such outside consultants in service to CITY shall be reimbursable in accordance with 6.1.1.2 above.

6.1.2 Total payment for the Scope of Services described herein **shall not exceed $723,971.**

6.2 Statements: See Notes on the attached "Schedule of Hourly Labor Billing Rates," Form No. 1 (attached).

6.3 Payments

6.3.1 The ENGINEER shall submit an invoice for services rendered to the CITY not more than once every month. Upon receipt of the invoice and progress report, the CITY will, as soon as practical, pay the ENGINEER for the services rendered, provided the CITY does not contest the invoice, to the extent of ninety-five percent (95%) of the uncontested amount earned. Upon completion and acceptance of the final plans by the CITY, the five percent (5%) of these services retained by the CITY will be paid to the

ENGINEER.

SECTION 7 - GENERAL CONSIDERATIONS

7.1 Insurance

7.1.1 ENGINEER'S INSURANCE: ENGINEER agrees to maintain, on a primary basis and at its sole expense, at all times during the life of this contract the following insurance coverages, limits, including endorsements described herein. The requirements contained herein, as well as CITY's review or acceptance of insurance maintained by ENGINEER is not intended to and shall not in any manner limit or qualify the liabilities or obligations assumed by ENGINEER under this contract

Commercial General Liability ENGINEER agrees to maintain Commercial General Liability at a limit of liability not less than **$2,000,000** combined single limit for any one occurrence covering both bodily injury and property damage, including accidental death. Coverage shall not contain any endorsement(s) excluding nor limiting Contractual Liability or Cross Liability. If the contract involves any underground/digging operations, the general liability certificate shall include X, C and U (Explosion, Collapse and Underground) coverage.

Professional Liability ENGINEER agrees to maintain Professional (Errors & Omissions) Liability at a limit of liability not less than **$2,000,000** per claim and **$2,000,000** aggregate. For policies written on a "Claims-Made" basis, ENGINEER agrees to maintain a Retroactive Date prior to or equal to the effective date of this contract. In the event the policy is canceled, non- renewed, switched to an Occurrence Form, retroactive date advanced; or any other event triggering the right to purchase a Supplemental Extended Reporting Period (SERP) during the life of this contract, ENGINEER agrees to purchase a SERP with a minimum reporting period not less than two **(2)** years. The requirement to purchase a SERP shall not relieve ENGINEER of the obligation to provide replacement coverage.

Business Automobile Liability ENGINEER agrees to maintain Business Automobile Liability at a limit of liability not less than **$2,000,000** combined single limit for any one occurrence and not less than $150,000 per individual, covering both bodily injury, including accidental death, and property damage, to protect themselves from any and all claims arising from the use of the ENGINEER's own automobiles, and trucks; hired automobiles, and trucks; and automobiles both on and off the site of work. Coverage shall include liability for Owned, Non-Owned & Hired automobiles. In the event ENGINEER does not own automobiles, ENGINEER agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Workers' Compensation Insurance & Employers' Liability ENGINEER agrees to take out and maintain during the life of this contract, Employers' Liability and Workers' Compensation Insurance for all of their employees employed at the site of the work, and in case any work is sublet, the ENGINEER shall require the subcontractor similarly to provide Workers' Compensation Insurance for all the latter's employees unless such employees are covered by the protection afforded by the ENGINEER. Workers' Compensation coverages shall meet Missouri statutory limits. Employers' Liability minimum limits shall be $500,000 each employee, $500,000 each accident and $500,000 policy limit. In case any class of employees engaged in hazardous work under this contract is not protected under the Workers' Compensation Statute, the ENGINEER shall provide and shall cause each subcontractor to provide Employers' Liability Insurance for the protection of their employees not otherwise protected.

Excess/Umbrella Liability The above liability limits may be satisfied by any combination of primary and excess/umbrella liability policies.

Additional Insured ENGINEER agrees to endorse CITY as an Additional Insured with a CG 2026 Additional Insured – Designated Person or Organization endorsement, or similar endorsement, to the Commercial General Liability. The Additional Insured shall read "City of Columbia."

Waiver of Subrogation ENGINEER agrees by entering into this contract to a Waiver of Subrogation for each required policy herein except professional liability. When required by the insurer, or should a policy condition not permit ENGINEER to enter into an pre-loss agreement to waive subrogation without an endorsement, then ENGINEER agrees to notify the insurer and request the policy be endorsed with a Waiver of Transfer of Rights of Recovery Against Others, or its equivalent. This Waiver of Subrogation requirement shall not apply to any policy, which includes a condition specifically prohibiting such an endorsement, or voids coverage should ENGINEER enter into such an agreement on a pre-loss basis.

Certificate(s) of Insurance ENGINEER agrees to provide CITY with Certificate(s) of Insurance evidencing that all coverages, limits and endorsements required herein are maintained and in full force and effect. Said Certificate(s) of Insurance shall include a minimum thirty **(30)** day endeavor to notify due to cancellation or non-renewal of coverage. The Certificate(s) of Insurance shall name the City as additional insured in an amount as required in this contract and contain a description of the project or work to be performed.

Right to Revise or Reject CITY reserves the right, but not the obligation, to review and revise any insurance requirement, not limited to limits, coverages and endorsements based on insurance market conditions affecting the availability or affordability of coverage; or changes in the scope of work / specifications affecting the applicability of coverage. Additionally, the CITY reserves the right, but not the obligation, to review and reject any

insurance policies failing to meet the criteria stated herein or any insurer providing coverage due of its poor financial condition or failure to operating legally.

7.1.2 HOLD HARMLESS AGREEMENT: To the fullest extent not prohibited by law, ENGINEER shall indemnify and hold harmless the City of Columbia, its directors, officers, agents and employees from and against all claims, damages, losses and expenses (including but not limited to attorney's fees) arising by reason of any negligent act or failure to act, or willful misconduct, of ENGINEER, of any subcontractor (meaning anyone, including but not limited to consultants having a contract with ENGINEER or a subcontractor for part of the services), of anyone directly or indirectly employed by ENGINEER or by any subcontractor, or of anyone for whose acts the ENGINEER or its subcontractor may be liable, in connection with providing these services except as provided in this Agreement. This provision does not, however, require ENGINEER to indemnify, hold harmless or defend the City of Columbia from its own negligence, except as set out herein.

7.1.3 Professional Oversight Indemnification

The ENGINEER understands and agrees that CITY has contracted with ENGINEER based upon ENGINEER's representations that ENGINEER is a skilled professional and fully able to provide the services set out in this Agreement. In addition to any other indemnification set out in this Agreement, ENGINEER agrees to defend, indemnify and hold and save harmless the CITY from any and all claims, settlements and judgments whatsoever arising out of the CITY's alleged negligence in hiring or failing to properly supervise the ENGINEER.

The insurance required by this Agreement shall include coverage which shall meet ENGINEER's obligations to indemnify the CITY as set out above and the CITY shall be named as co-insured for such insurance.

7.2 Professional Responsibility

7.2.1 ENGINEER will exercise reasonable skill, care, and diligence in the performance of its services and will carry out its responsibilities in accordance with customarily accepted good professional engineering practices. If the ENGINEER fails to meet the foregoing standard, ENGINEER will perform at its own cost, and without reimbursement from CITY, the professional engineering services necessary to correct errors and omissions which are caused by ENGINEER's failure to comply with above standard, and which are reported to ENGINEER within one year from the completion of ENGINEER's services for the PROJECT.

7.2.2 In addition, ENGINEER will be responsible to CITY for damages caused by its negligent conduct during its activities at the PROJECT site or in the field.

7.3 Estimates and Projections

Estimates and projections prepared by ENGINEER relating to construction costs and schedules, operation and maintenance costs, equipment characteristics and performance, and operating results are based on ENGINEER's experience, qualifications and judgment as a design professional. Since ENGINEER has no control over weather, cost and availability of labor, material and equipment, labor productivity, construction contractor's procedures and methods, unavoidable delays, construction contractor's methods of determining prices, economic conditions, competitive bidding or market conditions and other factors affecting such estimates or projections, ENGINEER does not guarantee that actual rates, costs, performance, schedules, etc., will not vary from estimates and projections prepared by ENGINEER.

7.4 On-Site Services

PROJECT site visits by ENGINEER during construction shall not make ENGINEER responsible for construction means, methods, techniques, sequences or procedures; for construction safety precautions or programs; or for any construction contractor(s') failure to perform its work in accordance with the plans and specifications.

7.5 Changes

CITY shall have the right to make changes within the general scope of ENGINEER's services, with an appropriate change in compensation, upon execution of a mutually acceptable amendment or change order signed by an authorized representative of the CITY and the President or any Vice President of the ENGINEER.

7.6 Suspension of Services

Should CITY fail to fulfill its responsibilities as provided under Section 4 to the extent that ENGINEER is unduly hindered in his services or if CITY fails to make any payment to ENGINEER on account of its services and expenses within ninety (90) days after receipt of ENGINEER's bill therefor, ENGINEER may, after giving seven (7) days' written notice to CITY, suspend services under this Agreement until CITY has satisfied his obligations under this Agreement.

7.7 Termination

Services may be terminated by the CITY at any time and for any reason, and by the ENGINEER in the event of substantial failure to perform in accordance with the terms hereof by the CITY through no fault of the ENGINEER, by ten (10) days' notice. If so terminated, CITY shall pay ENGINEER all uncontested amounts due

ENGINEER for all services properly rendered and expenses incurred to the date of receipt of notice of termination.

7.7.1 In the event of CITY's termination of the Agreement pursuant to the above section, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports prepared under this Agreement, shall at the option of the CITY become its property.

Further, the ENGINEER shall not be relieved of any liability to the CITY for any damages sustained by the CITY by virtue of any breach of this Agreement by ENGINEER and the CITY may withhold any payments due the ENGINEER for the purpose of set-off until such time as the exact amount of damages to the CITY, if any, is determined.

7.8 Publications

Recognizing the importance of professional development on the part of ENGINEER's employees and the importance of ENGINEER's public relations, ENGINEER may prepare publications, such as technical papers, articles for periodicals, and press releases, pertaining to ENGINEER's services for the PROJECT. Such publications will be provided to CITY in draft form for CITY's advance review. CITY will review such drafts promptly and will provide comments to ENGINEER. CITY may require deletion of proprietary data or confidential information from such publications but otherwise will not unreasonably withhold its approval. The cost of ENGINEER's activities pertaining to any such publication shall be paid entirely by the ENGINEER.

7.9 Nondiscrimination

During the performance of this Agreement, the ENGINEER agrees to the following:

7.9.1. The ENGINEER shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, handicap, or national origin. The ENGINEER shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, age, handicap, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The ENGINEER agrees to post notices in conspicuous places, available to employees and applicants for employment.

7.9.2 The ENGINEER shall, in all solicitation or advertisements for employees placed by or on behalf of the ENGINEER, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, handicap, or national origin.

7.9.3 The ENGINEER shall comply with all provisions of State and Federal Laws governing the regulation of Equal Employment Opportunity including Title VI of the Civil Rights Act of 1964.

7.10 Successor and Assigns

CITY and ENGINEER each binds himself and his successors, executors, administrators and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of such other party, in respect to all covenants of this Agreement; except as above, neither CITY nor ENGINEER shall assign, sublet or transfer his interest in the Agreement without the written consent of the other.

7.11 Rights and Benefits

ENGINEER's services will be performed solely for the benefit of the CITY and not for the benefit of any other persons or entities.

7.12 Compliance with Local Laws

The ENGINEER shall comply with all applicable laws, ordinances and codes of the state and city.

7.13 Law; Submission to Jurisdiction Governing.

This Contract shall be governed by, interpreted and enforced in accordance with the laws of the State of Missouri and/or the laws of the United States, as applicable.
The venue for all litigation arising out of, or relating to this Contract Document, shall be Boone County, Missouri or the United States Western District of Missouri. The parties hereto irrevocably agree to submit to the exclusive jurisdiction of such courts in the State of Missouri and waive any defense of forum non conveniens

7.14 Employment of Unauthorized Aliens Prohibited

7.14.1 ENGINEER agrees to comply with Missouri State Statute section 285.530 in that they shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri.

7.14.2 As a condition for the award of this contract the ENGINEER shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. The ENGINEER shall also sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

7.14.3 ENGINEER shall require each subconsultant to affirmatively state in its contract with ENGINEER that the subconsultant shall not knowingly employ, hire for employment or continue to employ an unauthorized alien to perform work within the state of Missouri. ENGINEER shall also require each subconsultant to provide ENGINEER with a sworn affidavit

under the penalty of perjury attesting to the fact that the subconsultant 's employees are lawfully present in the United States.

7.15 Entire Agreement

This Agreement represents the entire and integrated Agreement between the ENGINEER and CITY relative to the Scope of Services herein. All previous or contemporaneous agreements, representations, promises and conditions relating to ENGINEER's services described herein are superseded.

[Signatures on Following Page]

CITY OF COLUMBIA, MISSOURI

By: _____
Mike Matthes, City Manager

ATTESTED BY:

_____
Sheela Amin, City Clerk

APPROVED AS TO FORM:

_____
Fred Boeckmann, City Counselor

555-6330-643.44-90

CERTIFICATION: I hereby certify that the above expenditure is within the purpose of the appropriation to which it is charged, Account No. ✓, and that there is an unencumbered balance to the credit of such appropriation sufficient to pay therefor.

_____
Director of Finance

ENGINEER

By: _____
Kimberly Robinett/Managing Partner*(Name/Title)*

By: _____
Cliff Cate/Water/Wastewater Manager*(Name/Title)*

NOTICE TO VENDORS
Section 285.525 – 285.550 RSMo Effective January 1, 2009

Effective January 1, 2009 and pursuant to RSMo 285.530 (1), No business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri.

As a condition for the award of any contract or grant in excess of five thousand dollars by the state or by any political subdivision of the state to a business entity, or for any business entity receiving a state administered or subsidized tax credit, tax abatement, or loan from the state, the business entity shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity shall sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. [RSMO 285.530 (2)]

An employer may enroll and participate in a federal work authorization program and shall verify the employment eligibility of every employee in the employer's hire whose employment commences after the employer enrolls in a federal work authorization program. The employer shall retain a copy of the dated verification report received from the federal government. Any business entity that participates in such program shall have an affirmative defense that such business entity has not violated subsection 1 of this section. [RSMO 285.530 (4)]

For vendors that are not already enrolled and participating in a federal work authorization program, E-Verify is an example of this type of program. Information regarding E-Verify is available at:
http://www.dhs.gov/xprevprot/programs/gc_1185221678150.shtm.

CITY OF COLUMBIA, MISSOURI
WORK AUTHORIZATION AFFIDAVIT
PURSUANT TO 285.530 RSMo
(FOR ALL BIDS IN EXCESS OF $5,000.00)

Effective 1/1/2009

County of Jackson)
)SS.
State of Missouri)

My name is Kimberly R. Robinett. I am an authorized agent of TREKK Design Group, LLC (Bidder). This business is enrolled and participates in a federal work authorization program for all employees working in connection with services provided to the City of Columbia. This business does not knowingly employ any person who is an unauthorized alien in connection with the services being provided. **Documentation of participation in a federal work authorization program is attached to this affidavit.**

Furthermore, all subcontractors working on this contract shall affirmatively state in writing in their contracts that they are not in violation of Section 285.530.1 RSMo and shall not thereafter be in violation. Alternatively, a subcontractor may submit a sworn affidavit under penalty of perjury that all employees are lawfully present in the United States.

Affiant

Kimberly R. Robinett
Printed Name

Subscribed and sworn to before me this 25th day of July, 2012.

Linda S Dodson
Notary Public

LINDA S DODSON
Notary Public-Notary Seal
State of Missouri, Jackson County
Commission # 10991560
My Commission Expires Jun 30, 2014

Attachment-A
Scope of Services
Inflow & Infiltration (I&I) Study – FY2012
City of Columbia, MO
(CITY)
TREKK Design Group, LLC
(TREKK)
July 15, 2012

TREKK will furnish the necessary labor, supervision, equipment and material to provide flow monitoring in 6 locations, smoke testing of approximately 150,000 linear feet of sanitary sewer, GPS surveying of approximately 770 manhole rims, internal and external inspections on approximately 2,075 buildings and televise approximately 7,500 linear feet of sewer mains and 70 sewer service lateral lines as outlined in this document In addition, TREKK will provide hydraulic modeling of basins CHB_A, FB_A and FB_B.

Project Administration and Kick-off Meeting – The CITY's Project Manager, will be kept informed weekly of our progress via email updates. TREKK will meet with the CITY staff during an initial "kick-off" meeting. The purpose of the initial meeting will be to discuss the CITY's project goals and objectives, establish project limits, review smoke testing and building inspection format and forms. All interested parties would be requested to attend this meeting, including the street and police departments to discuss traffic control issues and procedures.

During the field work of the Project, TREKK will participate in monthly (6) progress meetings. Prior to the monthly meetings, a "Project Update" memo will be distributed to interested and involved parties. The memo would include:

- Progress to Report This Period (including updated invoicing, budget and payments)
- Contract Issues
- Progress Anticipated Next Period
- Issues Resolved
- Issues Unresolved

Public Relations – Notification to all property owners will be done by placement of door hangers on homes and businesses. The notice will include a detailed description of the inspection and testing activities. A telephone number will be provided enabling residents to contact TREKK for more information or with any special needs and concerns they may have.

TREKK will prepare a project brochure to be approved by the CITY. The project brochure will provide a description of inflow and infiltration, typical sources and what inspections are being conducted to identify I&I. TREKK will provide printing of the information brochure (2,075 copies) to be either mailed to property owners by the CITY or to be handed out to the property owners during building inspections.

Meter Site Assessment/Installation (6): TREKK shall install six (6) flow monitors at the outlets of CHB_A, FB_A, FB_B, MC_A and HM_B. A site assessment of potential flow monitoring sites will be made to determine, in general, the most suitable flow monitoring and rain gauge locations based on the following conditions:

- Suitability for Accurate Metering - The accuracy of the open channel flow metering will depend on numerous variables and it is imperative that they be controlled as much as possible. For this reason, the reconnaissance inspections will be performed to identify the best sites for metering and to minimize such error-causing factors as changes in pipe alignment and size, interruption of channel flow by side inlets and turbulence caused by uneven channels.

- Safety - It is equally important that the proposed sites conform to TREKK's requirements for safe operating conditions. If the site falls outside of these requirements, alternate sites that are suitable based on safety requirements will be selected upon further consultation with the CITY.

TREKK shall complete site assessment forms for each flow monitoring location. TREKK shall provide six (6) electronic depth/velocity flow monitors (ISCO 2150). These units will be initially installed and the site calibrated for the 60-day monitoring period.

Flow Monitoring (0-60 day period): The flow monitors shall be maintained by TREKK on a weekly basis. Weekly maintenance shall include the upload and interrogation of all flow data, meter calibration (as needed), weekly velocity profiling, and other diagnostic checks. Flow monitors shall remain in place for a continuous 60-day base period. TREKK shall remove all monitors at the conclusion of the monitoring period.

Upon completion of the base period, TREKK will remove the meters unless it is recommended and approved by the CITY to keep them in place. Justification for extended metering will be due to insufficient rainfall, or dry days, during the monitoring period. Compensation for additional flow metering service and calibration shall be at the unit price to be negotiated between the CITY and TREKK.

Rainfall Monitoring (0-60 day period): TREKK will install, service, and maintain three (3) continuous recording, electronic rain gauges within the study areas during the same 60-day base monitoring period. The gauges will record rainfall to one-hundredths of inch increments. The instruments will be checked and downloaded weekly by TREKK. Data collected from rain gauges will be analyzed by TREKK to correlate dry-weather and seasonal peak system flows to rainfall intensity and duration as further discussed in this scope of work. TREKK shall complete site assessment forms for each rainfall monitoring location.

Flow Data Analysis: The Engineer will evaluate the results of the flow monitoring program as follows:

- Base flow, infiltration (groundwater-induced) and inflow (rainfall-induced) will be determined for each monitoring site. Relationships between rainfall intensity and peak system flows for each site under "non-bypassing" conditions and saturated ground conditions will be determined. This is called the "Q vs. i" method of hydraulic analysis and will become the primary method of ranking sites.
- System curves will be developed for each site by comparing maximum rainfall intensity "i" expressed in inches/hour and peak system flow "Q" expressed in gallons per minute. Separate curves will be developed for both inflow and rainfall-induced infiltration, including projected flow hydrographs for the design storm events.
- Rainfall intensity distribution using the TP-40 method will be used.

Hydraulic Model Network Development: The CITY's existing Hydra model will be updated with new information and discrepancies corrected between the existing model database and the current sewer system database in the areas of this study. Missing network sections and attributes will be incorporated utilizing information provided by TREKK, including survey data that will be included in the model to provide for more precise pipe invert and slope information. The hydraulic network shall include physical characteristics such as diameter, length, invert elevations, slope and Manning roughness coefficient "n" for each pipe equal to or greater than 8" in diameter. The resultant hydraulic model networks will be prepared by TREKK for County House Branch Basin A and Flat Branch Basin B.

Hydraulic Model Calibration: Hydraulic model calibration shall be conducted at the flow monitoring locations for the CHB_A, FB_A and FB_B. Separate models shall be analyzed for both dry- and wet-weather conditions. The initial base flow model shall be calibrated to the measured diurnal flow rate measured during dry-weather conditions. A connectivity check will be conducted in the model by inputing flows in the upper extremities of the system and running flow through the model while ensuring

the simulated flows did not overload the system and cause backups and/or overflows. The resultant output tables and graphs provide comparisons of inflow and outflow volumes for the simulation period and are utilized to successfully obtain network connectivity.

Once the model has been calibrated for dry weather conditions, unit rates for inflow and infiltration (I&I) will be added to the model in order to evaluate system hydraulic performance under wet weather events. Wet-weather events shall include the statistical 5-year, 60-minute design storm or the CITY's recommended design storm. The model calibrated for the storm event shall represent current conditions with no reduction of extraneous I&I. Generally, the resultant model will size the parallel and/or replacement sanitary sewer required to transport peak wet-weather induced flows. All analysis will be provided in computer output format indicating the total peak design flow rate, percentage of existing pipe capacity utilized in transporting the remaining peak flow, and relief or replacement sewer needs.

Hydraulic Model I&I Reduction Scenarios: Once the hydraulic model has been calibrated for both dry and wet weather conditions, alternative scenarios for I&I reduction shall be conducted at 10% I&I removal rates. These scenarios will allow the CITY to identify lines lacking capacity under these scenarios. A comparison will then be conducted between relief/replacement needs to I&I reduction. Modeling results for each analysis will be mapped and displayed in a GIS format.

Smoke Testing (150,000 lf) – Smoke testing will be conducted on all line segments located within the CHB_E and B Basins to identify I&I sources from both the public and private sector. Each positively identified source is photographically documented, precisely located and referenced to allow for efficient repair. Defective service laterals will be identified for subsequent television inspections as describe herein.

The high rated smoke blowers combined with the use of liquid smoke allow for continuous and constant smoke production while the field crew canvasses the areas over and adjacent to the lines and conduct a perimeter check of all buildings in close proximity for evidence of smoke.

Smoke testing activities will include a minimum of 48 hours advance notification to all residents within the study areas. Notification will be done by placement of door hangers on homes and businesses. The notice will include general information about the testing; including instructions to fill infrequently used plumbing traps with water and a tablespoon of cooking oil to prohibit smoke from entering buildings via service lines.

Photographic records will be used to supplement and substantiate smoke testing observations. All smoke testing inspections will be recorded on TREKK's field forms and input into an ACCESS database compatible with ArcView GIS software.

Building inspections (2,075) – Smoke testing cannot locate and confirm every possible I&I defect on private property. For this reason, TREKK will conduct comprehensive inspections of all buildings located within the CHB_E and B Basins to identify sources of I&I entering the sewers. Advance notification to all residents will be done by placement of door hangers on homes and businesses. The inspection will be conducted by a two-person inspection team. An attempt will be made to obtain the history of basement flooding as reported by the owner or occupant. This will include detailed information such as flood dates, duration, suspected cause and action taken by owner or occupant. Both an internal inspection and an external inspection will then be conducted. Internal inspections will include the investigation of storm water connections discharging to the sanitary sewers through floor drains and/or sump pumps. An external inspection will include the investigation of storm water connections from down spouts, uncapped clean outs, area drains and/or stairwell drains.

Four (4) attempts shall be made to complete the building inspection. The first three attempts will be made with a phone call to schedule an appointment. If unresponsive, a fourth attempt will be made through a site visit. If after the fourth attempt the resident is unresponsive, an external inspection shall be completed at the time of the visit and shall be noted as "external only inspected." This shall be considered as the final attempt. Full compensation shall be made for the inspection.

CITY shall provide property owner information for the Study Area.

CCTV Inspection of Sanitary Sewer Main Lines (7,500 ft): All data gathered from smoke testing and manhole/visual pipe inspections shall be analyzed for further pipe cleaning and internal television (CCTV) inspections. It is estimated that approximately 7,500 linear feet of lines will require CCTV inspection, based on the age and pipe material in the area. CCTV inspections will be conducted utilizing a camera with pan and tilt capabilities. The pulling or pushing cable or tractor unit shall have a footage meter so that the location of the TV camera and point of observation will be known at all times with reference from the starting manhole. The camera shall pan to all service connections to allow for the evaluation of the condition of the connection and to view inside the service connection. The camera shall also pan to significant structural defects and/or I&I sources. The direction of the camera will be noted. The display will always begin with the numbering from upstream manhole to downstream manhole. If a reverse setup is attempted, the same numbering system shall be used; however the direction of camera shall be switched. In the event that an unrecorded manhole is encountered, television inspection will halt. A new manhole number will be assigned (i.e.: line segment 2-1 will become 2-2a and 2a-1). These changes will also be noted on maps and lists provided and submitted to the CITY at the conclusion of project work.

The camera shall be a self leveling type and moved through the sanitary sewer line in either direction at a uniform rate, stopping when necessary to insure proper documentation of the sewer condition and lateral connections, but in no case will the television camera be pulled at a speed greater than 30 feet per minute. If, during the inspection operation the television camera will not pass through the sewer line, the technician shall reset his equipment in a manner so that the inspection can be performed from the opposite direction. If, again, the camera fails to pass through the entire sewer, the location and cause of camera blockage will be documented and information provided to the CITY. The inspection shall be considered complete and no additional inspection work will be required.

All informational data on the pipes will be collected in NASSCO PACP format and delivered in hard copy and DVD or CD-ROM format to the CITY at the conclusion of the project. Computer generated television inspection reports created with Granite XP Software, or similar pipeline condition software, will be produced at the conclusion of the job and submitted with the videos. Written reports will contain upstream manhole, downstream manhole, street address, date, pipe diameter, pipe material, direction of inspection, line footage, lateral and observation locations, and digital photos of defects and their respective severity.

Television Inspection of Sanitary Sewer Service Laterals (70) – Approximately 70 of the buildings in the CHB_E and B Basins will be further investigated through the television inspection of their corresponding service lateral. Initial inspections will be based on service lateral defects identified through smoke testing. These inspections shall also be concentrated in areas with a higher percentage of lateral defects and/or storm sewer connections. In the event that additional inspections are needed, they will be randomly selected. TREKK shall furnish all labor, electronic equipment and technicians to perform the closed circuit television inspection of sanitary sewer service laterals.

Service laterals shall be inspected from either the house to the main or from the main to the house. The pushing cable shall have a footage meter so that the location of the TV camera and point of observation will be known at all times with reference from the main line or building served. The sewer service lateral address being televised will be displayed on the screen at all times. The main sewer in which the service lateral is connected will also be displayed.

The camera shall be moved through the service lateral line at a uniform rate, stopping when necessary to insure proper documentation of the sewer lateral's condition but in no case will the television camera be pulled at a speed greater than 30 feet per minute. A sonde locator device shall be connected to the service lateral inspection camera. The sonde will be used to locate the service lateral alignment in the field. Laths and flagging will be used to identify the service lateral at the main line and as it enters the building. A field sketch shall be completed identifying the approximate location of the service lateral. A

surface view digital picture of the service lateral alignment shall be taken from the main sewer to the building. The intent of the service lateral alignment picture or pictures is to show all structures that may interfere with open-cut replacement of the service. If, during the inspection operation, the television camera will not pass through the entire service lateral, TREKK shall note the location and cause of camera blockage and notify the CITY. The inspection of the service lateral shall be determined as complete.

A digital video shall be made on DVD or CD-ROM. The video submittal shall be capable of running on a Windows 95, 98, 2000 or NT platform. The video shall have record footage continuously throughout the video. The video submittal shall have the capability of selecting individual service lateral video by service lateral address. The CCTV inspection can be captured on VHS video cassettes and all images burned to DVD or CD-ROM.

Dye Water Testing (110 Private, 40 Public): Follow-up dyed water testing of suspected I&I sources identified during the smoke testing and building inspections conducted in the CHB_E and B Basins will be performed to verify direct connection to the sanitary sewer system and quantify leakage. A fluorescent dye will be washed down any suspected I&I connection. This will be accomplished by placing the dye directly into the identified source and running an adequate amount of water to ensure that the dye has a sufficient amount of time to be observed in the downstream manhole. Presence of dyed water in the system downstream of the test verifies the I&I source connection.

Public dye water testing shall be conducted in conjunction with the CCTV Inspection of the sanitary sewer main lines, as described herein.

Photographic records will be made of each confirmed source identified during dyed water testing. All dyed-water tests will be recorded on field forms and input into an ACCESS database compatible with ArcView GIS software.

Manhole Rim GPS Surveying (770): The manhole inspection crew will attempt a RTK GPS survey of rim elevations for all manholes in CHB_E and B Basins. If satellites are not attainable, the location shall be noted and an offset survey will be conducted.

Rehabilitation Recommendations and Report – TREKK shall provide results from the flow monitoring analysis, groundwater monitoring analysis, hydraulic modeling and field inspections. TREKK will compile a list of each defect identified. Defects shall then be prioritized based upon severity, structural integrity, safety and volume of I&I. Defect priority schedule shall be determined during the project "kick-off" meeting. A summary listing of each defect will be completed. The listing will, for each specific I&I source, include the following:

- Source type
- Source category (public sector, private sector)
- Number of such sources
- Source unit flow rate, based on one-year storm event
- Total one-year flow rate contributed by such sources
- Source unit repair cost
- Total repair cost for such sources
- Source cost/flow ratio (total repair cost divided by total one-year flow rate)

The final listing will be sorted in ascending order by source cost/flow ratio. Sources with low ratios are considered more cost-effective to repair than sources with higher ratios. Following the completion of the defect prioritization list, TREKK shall submit rehabilitation recommendations to the CITY, along with preliminary budget estimates.

Based upon the CITY's acceptance of the rehabilitation recommendations, TREKK shall prepare technical specifications for "general" repair methods. If repairs require additional design and surveying, TREKK and the CITY shall negotiate the additional compensation.

On-Call Engineering Services – TREKK shall be available for additional "on-call" services under this contract, as needed, not to exceed $47,363.

Compensation – The above scope of services is for a not-exceed contract amount of $723,971.

Form 1
2012 Schedule of Hourly Billing Rates[1]
Inflow and Infiltration Study – FY 2012
City of Columbia, MO
TREKK Design Group, LLC
(TREKK)

Project Services: **ENGINEER** shall be available for professional engineering services for tasks such as, but not limited to, Flow Monitoring, Groundwater Monitoring, Manhole Inspections, Smoke Testing, Building Inspections, Service Lateral Inspections, Main Line CCTV Inspections, Reporting, Rehabilitation Recommendations, Surveying, Construction Inspection, and Meetings at the request of the **CITY**.

The CITY's payment to the **ENGINEER** shall be due and payable as follows:

I. For Engineering Services, Plan Review, Surveying, Construction Inspection, and Meetings, when authorized and agreed upon in writing, an amount based upon hourly rates plus expenses, in accordance with Section III below, or a negotiated amount as agreed upon.

II. For **Other Services**, when authorized and agreed upon in writing, an amount based upon hourly rates plus expenses or unit rates, in accordance with Section III below, or a negotiated amount as agreed upon.

III. **Hourly Rates and Expenses:**

Project Principal	$170.00/hr
Project Manager	$170.00/hr
Assistant Project Manager	$125.00/hr
Project Engineer I	$112.00/hr - $125.00/hr
Project Engineer II	$71.50/hr - $93.00/hr
Office Technician I	$91.00/hr
Office Technician II	$65.00/hr
Office Technician III	$50.00/hr
Administration	$86.00/hr
Field Manager	$84.00/hr
Field Technician I	$76.00/hr
Field Technician II	$55.00/hr
Field Technician III	$50.00/hr
GIS Analyst I	$88.00/hr
Land Surveyor (RLS)	$102.00/hr
Survey Crew	$135.00/hr
Mileage	$00.50/mi
Meal Per Diem	$25.00/day
Hotel Per Diem	$60/stay
Out-of-Pocket Expenses, Supplies Reproductions, etc.	Cost

Unit Rates:
Table A – Locating, Inspecting and Evaluating of Facilities

Item	Description	Units	Cost per Unit
1	Flow Monitoring	Meter-day	$60
2	Rainfall Monitoring	Gauge-day	$12
3	Manhole Sub-Centimeter GPS (Rim Only)	Each	$35
4	Groundwater Monitoring	Meter-day	$8
5	Smoke Testing	Linear Foot	$0.42
6	Residential Building Inspections	Hourly	
7	Commercial/Institutional Building Inspections	Hourly	
8	Dyed-Water Testing (Private)	Hourly	
9	Dyed-Water Testing (Public)	Hourly	
10	Service Lateral Inspections (from House)	Each	$220
11	Service Lateral Inspections (from Main)	Each	$285

Table B – Sewer Cleaning and Television Inspection

Price per Linear Foot	Projects <2,501 LF		Projects 2,501 to 5,000 LF		Projects >5,000	
Pipe Size	Light Cleaning & CCTV	Heavy Cleaning & CCTV	Light Cleaning & CCTV	Heavy Cleaning & CCTV	Light Cleaning & CCTV	Heavy Cleaning & CCTV
Column	1	2	1	2	1	2
6" to 10"	2.16	3.06	2.16	3.06	1.75	3.06
12" to 15"	3.06	4.08	2.55	4.08	2.25	4.08
18" to 21"	4.08	6.10	3.57	6.10	3.38	6.10
24"	5.10	6.36	4.59	6.36	4.51	6.36
27"	5.10	9.01	4.59	9.01	4.51	9.01
30"	5.10	11.66	4.59	11.66	4.51	11.66
36"	5.10	13.78	4.59	13.78	4.51	13.78
42"	5.10	15.90	4.59	15.90	4.51	15.90
48"	5.10	19.08	4.59	19.08	4.51	19.08

There will be a mob and demob charge of $425.00 for all work orders that contain less than 5,000 ft. of cleaning and or CCTV inspection.

Table C – Miscellaneous Costs

Item	Description	Units	Cost per Unit
1	Debris Disposal	CY	$55
2	Bypass Pumping	Hour	$125*

*** per 6-inch pump***

Note 1: The above hourly rates and unit prices are good through December 31, 2012.

Source: Public Works

Agenda Item No:

To: City Council
From: City Manager and Staff

Council Meeting Date: Aug 6, 2012

Re: Engineering Services Contract for Inflow and Infiltration Study

EXECUTIVE SUMMARY:
Staff has prepared for Council consideration a resolution authorizing the City Manager to execute an agreement with TREKK Design Group, LLC of Kansas City, Missouri to provide engineering services associated with an Inflow and Infiltration (I&I) Study in an area shown on the attached diagram.

DISCUSSION:
City Council authorized an agreement with TREKK Design to perform a Sanitary Sewer Evaluation Study (SSES) for Flat Branch Basin D in October 2010. The scope of work for the Flat Branch Basin D project included smoke testing, GPS survey of manhole lids, and internal and external inspections of all the buildings in the basin. The following year three more basins were identified for study and were completed by TREKK Design. Four basins are complete and 278 I&I sources were found in these basins. City staff is currently working to get these I&I sources disconnected from the sanitary sewer system, and estimate that disconnecting these sources will reduce I&I by up to 1.27 million gallons per day.

As part of the Sewer Utility's citywide I&I reduction program, staff is now proposing to hire TREKK Design Group to perform an SSES in the next two (2) priority basins (County House Branch B & E). The proposed project will involve smoke testing of approximately 150,000 linear feet of sanitary sewer, GPS surveying of approximately 770 manhole rims, internal and external inspections of approximately 2,075 buildings, televising approximately 7,500 feet of public and private sewers, and updating the City's GIS data in an area as shown on the attached diagram.

This project is Phase 3 of a multi-year citywide I&I reduction program. The purpose of the study is to locate the sources of storm and groundwater entering the sewer system so the City can take the necessary measures to improve the sewer system. Future I&I study areas will be selected based upon frequency of basement backups, manhole overflows and peak flow ratios in a given sewer basin. If TREKK successfully completes this I&I study, staff will likely pursue additional engineering agreements with TREKK for I&I studies in future fiscal years pending budget and Council approval.

The City followed its normal consultant selection process which included the mailing of requests for proposals and formal interviews held in Columbia. Four (4) consulting firms were interviewed and TREKK Design Group was selected based on their understanding of the requirements of the project and their experience with similar projects.

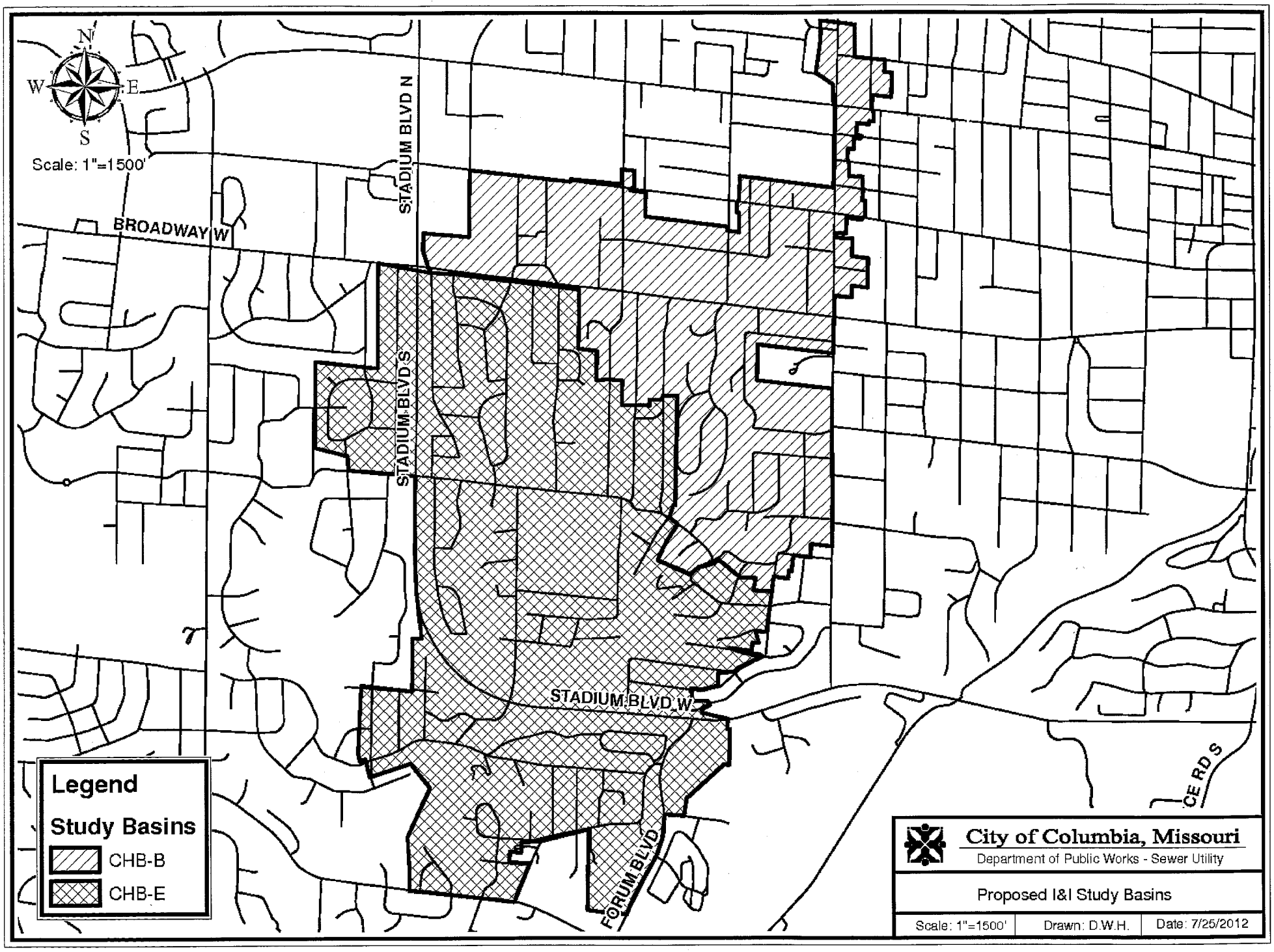
FISCAL IMPACT:
The total engineering contract not to exceed amount of $723,971 is within the usual and customary guidelines for this type of project. This project will be funded from sewer utility operations funds in the FY12 budget.

VISION IMPACT:
http://www.gocolumbiamo.com/Council/Meetings/visionimpact.php

Continuing to implement the City's I&I reduction program will help protect the water quality in local streams and help protect public health.

SUGGESTED COUNCIL ACTIONS:
Approve the resolution authorizing the City Manager to execute an agreement with TREKK Design Group, LLC.

FISCAL and VISION NOTES:					
City Fiscal Impact Enter all that apply		**Program Impact**		**Mandates**	
City's current net FY cost	$0.00	New Program/ Agency?	No	Federal or State mandated?	No
Amount of funds already appropriated	$723,971.00	Duplicates/Expands an existing program?	Yes	**Vision Implementation impact**	
Amount of budget amendment needed	$0.00	Fiscal Impact on any local political subdivision?	No	Enter all that apply: Refer to Web site	
Estimated 2 year net costs:		**Resources Required**		Vision Impact?	Yes
One Time	$0.00	Requires add'l FTE Personnel?	No	Primary Vision, Strategy and/or Goal Item #	9.1
Operating/ Ongoing	$0.00	Requires add'l facilities?	No	Secondary Vision, Strategy and/or Goal Item #	
		Requires add'l capital equipment?	No	Fiscal year implementation Task #	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CHB-E
City of Columbia, Missouri
Department of Public Works - Sewer Utility
Proposed I&I Study Basins
Scale: 1"=1500'
Drawn: D.W.H.
Date: 7/25/2012