

CITY OF ANN ARBOR

REQUEST FOR PROPOSAL



**Project Management Services Unit
Sump Pump Installations Modifications Project**

RFP No. 938

**Proposal Due Date: Friday, November 13, 2015
At or Before 10:00 A.M. (Local Time)**

**Prepared By:
OHM Advisors**

**Issued By:
City of Ann Arbor
Procurement Unit
City Hall, 301 East Huron Street
Ann Arbor, Michigan 48107-8647**

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SECTION I
GENERAL INFORMATION

A. OBJECTIVE

The purpose of this Request for Proposal (RFP) is to select qualified contractors to pre-qualify for contracting services for the: "Sump Pump Installation Modifications Project." The prequalified contractors will contract with individual homeowners to perform work at their homes. The work will involve modifying previously performed footing drain disconnections at homes that participated in the City's FDD program which are reportedly having issues with some aspect of those installations. Modifications will be detailed by OHM Advisors after onsite inspections that will create individual work plans for each home. This possibly includes work at the footing drain, sump and its cover, pump, internal and external piping and/or electrical. OHM Advisors will review the design of interior plumbing and sump system modifications to comply with City standards for approval.

Please Note Homeowners will select the Contractor of their choice based on the cost estimate for each home, quality and timeliness of work, customer satisfaction with the contractor, and other factors important to the homeowner. The homeowner is required to obtain a minimum of two estimates for the work, one of which must be from a pre-qualified contractor.

B. QUESTIONS ABOUT AND CLARIFICATIONS OF THE RFP

All questions regarding this RFP shall be submitted via email. Emailed questions and inquiries will be accepted from any and all prospective respondents in accordance with the terms and conditions of this RFP.

All questions shall be submitted on or before 10:00 A.M. (Local Time), Friday, November 6, 2015 and should be addressed as follows:

Scope of Work/Proposal content questions emailed to [Greg Marker, P.E. at
Greg.Marker@OHM-Advisors.com](mailto:Greg.Marker@OHM-Advisors.com)

RFP Process questions to Colin Spencer, Purchasing Manager at
cspencer@a2gov.org

Should any prospective Respondent be in doubt as to the true meaning of any portion of this RFP, or should the Respondent find any ambiguity, inconsistency, or omission therein, the Respondent shall make a written request for an official interpretation or correction. Such requests must be received via email to Justin.Woods@OHM-Advisors.com, and Greg.Marker@OHM-Advisors.com on or before Friday, November 6, 2015 by 10:00 A.M. (Local Time).

C. PRE-PROPOSAL MEETING

No pre-proposal meeting will be held for this project.

D. ADDENDUM

All interpretation or correction, as well as any additional RFP provisions that the City may decide to include, will be made only as an official addendum that will be posted to www.a2gov.org and www.mitn.info and it shall be the Respondent's responsibility to ensure they have received all addenda before submitting a Proposal. Any addendum issued by the City shall become part of the RFP and will be incorporated in the Proposal.

To avoid any miscommunications, each Respondent must acknowledge in its proposal, all addenda which it has received, but the failure of a Respondent to receive or acknowledge receipt of any addenda shall not relieve the Respondent of the responsibility for complying with the terms thereof.

The City will not be bound by oral responses to inquiries or written responses other than official written addenda.

E. PROPOSAL FORMAT

To be considered, each firm must submit a response to this RFP using the format provided in Section III. No other distribution of proposals is to be made by the Respondent. The proposal must be signed in ink by an official authorized to bind the Respondent to its provisions. Each proposal must remain valid as long as the life of the project from the due date of this RFP.

Proposals should be prepared simply and economically providing a straightforward, concise description of the Respondent's ability to meet the requirements of the RFP. Each total submittal should not be more than 50 sheets (100 sides), not including required attachments and resumes. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed in ink by the person signing the proposal.

Each person signing the Proposal is required to certify that he/she is the person in the Respondent's firm/organization responsible for the decision as to the fees being offered in the Proposal and has not participated and will not participate in any action contrary to the terms of this provision.

F. SELECTION CRITERIA

Responses to this RFP will be evaluated using a point system as shown in Section III. The evaluation will be completed by a selection committee comprised of staff from the City of Ann Arbor and OHM Advisors.

At the initial evaluation, the fee proposals will not be reviewed. After initial evaluation the City will determine top respondents, and open only those fee proposals. All

Proposals submitted may be subject to clarifications and further negotiation. All agreements resulting from negotiations that differ from what is represented within the RFP or in the Respondent's response shall be documented and included as part of the final contract.

G. SEALED PROPOSAL SUBMISSION

All Proposals are due and must be delivered to the City Procurement Unit c/o Customer Service on, or before, **Friday, November 13, 2015 by 10:00 a.m.** (local time). Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Respondent must submit in a sealed envelope one (1) original Proposal, four (4) additional Proposal copies, one (1) digital copy of the Proposal, and two (2) copies of the Fee Proposal **in a separate sealed envelope marked fee proposal** contained within respondent's sealed proposal. Proposals submitted must be clearly marked: RFP No. 938 - Sump Pump Installation Modifications Project and then list Respondents name and address.

Proposals must be addressed and delivered to:

City of Ann Arbor
Procurement Unit
c/o Customer Service Desk
First Floor, Guy C. Larcom
Building 301 East Huron Street
P.O. Box 8647
Ann Arbor, MI 48107

All Proposals received on or before the Due Date will be publicly opened and recorded immediately. No immediate decisions are rendered.

Hand delivered Proposals will be date/time stamped by the Procurement Unit at the address above in order to be considered. Delivery hours are 9:00 a.m. to 3:00 p.m. Monday through Friday, excluding Holidays.

The City will not be liable to any Respondent for any unforeseen circumstances, delivery, or postal delays. Postmarking on the Due Date will not substitute for receipt of the Proposal. Each Respondent is responsible for submission of their Proposal. Additional time will not be granted to a single Respondent; however, additional time may be granted to all Respondents when the City determines that circumstances warrant it.

A Proposal will be disqualified if:

1. If the Fee Proposal is not contained within a separate sealed envelope.
2. If the Fee Proposal is submitted as part of the digital copy. Provide Fee Proposal in hardcopy only.

H. DISCLOSURES

Under the Freedom of Information Act (Public Act 442), the City is obligated to permit review of its files, if requested by others. All information in a Respondent's proposal is subject to disclosure under this provision. This act also provides for a complete disclosure of contracts and attachments thereto.

I. TERM

Because of the undetermined volume of work associated with this project, the City intends for contractor pre-qualification to remain in effect for one year but may extend that pre-qualification for up to two one-year extensions in order to achieve the satisfactory completion of all the work associated with this project.

J. CONFLICT OF INTEREST DISCLOSURE

The City of Ann Arbor Purchasing Policy requires that prospective Vendors complete a Conflict of Interest Disclosure form. A contract may not be selected as a pre-qualified contractor unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, contractors may be pre-qualified on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined that pre-qualification is in the best interest of the City and the homeowners. A copy of the Vendor Conflict of Interest Disclosure Form is found in Appendix B.

K. COST LIABILITY

The City of Ann Arbor assumes no responsibility or liability for costs incurred by Respondent prior to the selection of contractors for the pre-qualified contractors list. By submitting a Proposal, a Respondent agrees to bear all costs incurred or related to the preparation, submission and selection process for the Proposal.

L. DEBARMENT

Submission of a proposal in response to this RFP is certification that the Respondent is not currently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal departments or agency. Submission is also agreement that the City will be notified of any changes in this status.

M. AWARD PROTEST

All Proposal protests must be in writing and filed with the Purchasing Agent within five (5) business days of the selection action. The respondent must clearly state the reasons for the protest. If a respondent contacts a City Service Area/Unit and indicates a

desire to protest a pre-qualification decision, the Service Area/Unit shall refer the respondent to the Purchasing Agent. The Purchasing Agent will provide the respondent with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee whose decision shall be final.

N. SCHEDULE

The proposals submitted should define an appropriate schedule in accordance with the requirements of the Proposed Work Plan in Section III. The following is the solicitation schedule for this procurement:

Activity/Event	Anticipated Date
Written Question Deadline	November 6, 2015 by 10:00 am
Proposal Due Date	November 13, 2015 by 10:00 am
Contractor Selection/Negotiate Final Professional Services Agreement (PSA)	November 20, 2015
PSA Execution, Award and Notice to Proceed	Early December 2015

The above schedule is for information purposes only and is subject to change at the City’s discretion. Proposals submitted shall further define an appropriate project schedule in accordance with the requirements of the proposed work plan. The final schedule will be negotiated based on the final scope of work and work plan agreed to by the City and the selected firm.

O. IRS FORM W-9

The selected Respondent will be required to provide the City of Ann Arbor an IRS form W-9.

P. INDEPENDENT FEE DETERMINATION

1. By submission of a proposal, the Respondent certifies, and in the case of joint proposal, each party thereto certifies as to its own organization, that in connection with this proposal:
 - a) They have arrived at the fees in the proposal independently, without consultation, communication, or agreement, for the purpose of restricting competition as to any matter relating to such fees with any other proposal Respondent or with any competitor.
 - b) Unless otherwise required by law, the fees which have been quoted in the proposal have not been knowingly disclosed by the Respondent and will not knowingly be disclosed by the Respondent prior to award directly or indirectly to any other prospective Respondent or to any competitor.
 - c) No attempt has been made or shall be made by the proposal Respondent to

induce any other person or firm to submit or not submit a proposal for the purpose of restricting competition.

- d) Each person signing the proposal certifies that she/he is the person in the proposal Respondent's organization responsible within that organization for the decision as to the fees being offered in the proposal and has not participated/will not participate in any action contrary to 1.a), b), or c) above.
2. A Respondent will not be considered for pre-qualification if the sense of the statement required in the Fee Analysis portion of the proposal has been altered so as to delete or modify 1.a), c), If 1.b) has been modified or deleted, the proposal will not be considered for award unless the Respondent furnishes with the proposal a signed statement which sets forth in detail the circumstances of the disclosure and the City determines that such disclosure was not made for the purpose of restricting competition.

Q. RESERVATION OF RIGHTS

1. The City reserves the right in its sole and absolute discretion to accept or reject as pre-qualified contractors any or all Respondents.
2. The City reserves the right to waive, or not waive, informalities or irregularities in bids or bidding procedures, and to accept or further negotiate cost, terms, or conditions of any proposal determined by the City to be in the best interests of the City and the homeowners.
3. The City reserves the right to request additional information from any or all Respondents.
4. The City reserves the right not to consider any Proposal which it determines to be unresponsive and deficient in any of the information requested within RFP.
5. The City reserves the right to determine whether the scope of the project will be entirely as described in the RFP, a portion of the scope, or a revised scope be implemented.
6. The City reserves the right to select as pre-qualified one or more Respondents to.
7. The City reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether the Respondent who submitted that proposal is selected. Submission of a proposal indicates acceptance by the firm of the conditions contained in this Request for Proposals, unless clearly and specifically noted in the proposal submitted.
8. The City reserves the right to disqualify Proposals that fail to respond to any requirements outlined in the RFP, or failure to enclose copies of the required documents outlined within RFP.

SECTION II BACKGROUND AND SCOPE OF WORK

BACKGROUND

The following scope of services is to provide construction services to private homeowners for the Sump Pump Installation Modifications Project.

During 2013 and 2014, the City of Ann Arbor (City) undertook the Sanitary Sewer Wet Weather Evaluation (SSWWE) Project, which included three main goals:

- 1) Evaluate the effectiveness of the City's Footing Drain Disconnection (FDD) Program, which had been in place since approximately 2002.
- 2) Assess future risk of basement backups in the City.
- 3) Evaluate alternatives and set direction for addressing future basement backup risks.

The City hired Orchard, Hiltz & McCliment (OHM Advisors) to perform the work on the SSWWE Project in January of 2013, and the project was completed in December of 2014. A copy of the final report can be found/obtained at: a2gov.org/SSWWE.

As part of the SSWWE Project, a Citizens Advisory Committee (CAC) was formed to work with the consulting team to review the work being performed by OHM and use the results to make policy recommendations regarding how to handle wet weather flow in the sanitary sewer system in the future. One of the requests that came from the CAC early on in the process was to perform a survey of property owners who had already been through a footing drain disconnection in order to gauge their satisfaction with the City's FDD program and to identify problems that homeowners have had with their sump pump installations since the program went into effect.

In response, a survey was conducted by the consulting team. Surveys were mailed to approximately 2,350 homes and over 850 responses were received. While most respondents were satisfied with the program, a significant number (40%) reported a higher level of anxiety after the FDD program, and there were also a substantial number of reports of water problems in basements that reportedly did not exist prior to the footing drain disconnection.

In response to the survey results, OHM performed a follow-up investigation of the most serious reports of water in basements. Approximately 101 residents were contacted, which resulted in 77 interviews and/or site visits. Following these investigations, 10 locations were determined to have issues related to the FDD Program work (42 were determined to be unrelated to the FDD program work, and 25 were unclear).

As a result of this investigation, the City proposed to undertake a program to investigate and correct any FDDs performed by the City's program that were not done according to

specifications or in accordance with industry best practices. The City of Ann Arbor is seeking qualified contractors to modify previously performed footing drain disconnections reportedly having issues that participated in the City's FDD program. The required modifications will be detailed by OHM Advisors, who will create individual work plans for each home after onsite inspections. This may include, but not be limited to, work on the footing drain, sump and its cover, pump, internal and external piping, and/or electrical. Those elements and installations will be reviewed by OHM to make sure they comply with City standards for approval. This RFP is for providing the services to the individual residences to execute the items detailed in the work plans.

SCOPE OF WORK

Following is a description of the tasks and activities included in the program. If and when selected by a homeowner(s) to do the work on their property, the contractor will enter into a contract with the homeowner(s) for the work on that property. However, all work performed by the contractor shall be in accordance with the City's specifications and the Best Practices guidelines identified in the SSWWE Report (a2gov.org/SSWWE) and applicable residential/plumbing/building codes. The contractors proposing to perform work on this project must demonstrate extensive experience doing footing drain disconnects and exterior trenching work. The contractor will be responsible for locating utilities and pulling all required permits for each individual home. OHM Advisors will be observing the work during construction to ensure compliance with the construction specifications and the work plan; ensure homeowner satisfaction with the work; and coordinate payment to the contractor at the end of each project.

In case of a conflict among or between provisions of any documents listed below, the provisions of the document listed first shall prevail over any conflicting provisions of a document listed later.

- (1) The work plan for a property
- (2) Applicable residential/plumbing/building codes
- (3) The City's Standard Specifications
- (4) Contract between Contractor and Homeowner(s)
- (5) Current/Applicable FDD Specifications
- (6) SSWWE CAC Best Practices Guidelines
- (7) Bid price sheets
- (8) Bid Forms

Contractors who are pre-qualified are not guaranteed any volume or amount of work. A minimum of two bids will be required for each property and the homeowner(s) may choose the contractor they want, although only the amount of the lowest bid will be paid by the City; the

homeowner(s) will be responsible for paying the difference. If a homeowner wants to use a contractor that is not pre-qualified, one pre-qualified contractor will be asked to bid the work as well.

The following scope of work is intended as an outline only. Proposers should provide sufficient details on how they intend to implement each item of work.

A. Pre-Construction Site Walkthrough

This task includes the planning for the execution of the work. A pre-construction site inspection and walkthrough will be held between OHM Advisors (the Construction Manager) and the Contractor for all of the homes deemed as needing system modifications for their sump pump systems. The following steps will be applied for execution of the work:

- A valid letter will be mailed out to the homeowner explaining that their sump pump system qualifies for modifications
- If interested and the homeowner would like to participate to have modifications be made to their system the homeowner will contact OHM
- OHM will create a work-plan pertaining to the modifications that will need to be made and also for the contractor to follow
- OHM will provide a template contract for the homeowner to use when choosing a contractor
- Homeowner will select a contractor
- OHM will observe the contractor while doing the work to make sure the work plan is followed
- Once complete the homeowner will sign off on the work that was performed by the contractor
- The contractor will receive payment from the City for substantial completion (which pertains to all interior work).
- If applicable, once restoration for the exterior is completed within 2 growing seasons, the contractor will receive payment for final completion

A pre-project checklist will be created which will be reviewed by the contractor, OHM and the homeowner. The homeowner will sign off on this document. The site walkthrough will take place with the resident to describe and locate all aspects of the work and any impacted areas of the resident's home.

B. Homeowner/Contract

The resident will be provided a letter from OHM Advisors construction manager regarding the proposed work plan. The homeowner then has the option to respond if they would like to have the modifications made, and whether to participate or not. This letter will include a summary of the work and contact information along with anticipated cost. The work plan and schedule must be part of the contract between the contractor and the homeowner(s). OHM will verify that the contractor and homeowners(s) have reached agreement on a contract and that the final contract is signed between the contractor and the homeowner before work begins. A contract template that can be used is attached as Appendix E.

The City's role is limited to payment of the costs of the work in the approved work plan; the contract between the contractor and homeowner must not include language that changes the City's role or that can be interpreted to change the City's role.

C. Execution of Work

The work will be performed by the contractor at a time convenient to the Contractor, OHM Advisors, and the homeowner(s) within a window of any necessary inspections for the permits that the Contractor is required to pull in accordance with the work plan. OHM Advisors will observe all the work being performed to ensure compliance with the specifications, work plan, and any changes to the work plan agreed to between the contractor, homeowner(s), and OHM Advisors, and approved for payment by the City. OHM Advisors will not be responsible for reviewing or approving, and the City will not pay for, any additional work negotiated between the contractor and the homeowner(s) that is not necessary for or an approved change to the work plan.

OHM Advisors will provide construction layout services for improvements within the right of way (ROW). This will include providing line and grade of structures and curb drains. Any work performed in the ROW by the Contractor will require the Contractor to pull a separate ROW permit. The cost of the ROW permit will be waived.

SECTION III

MINIMUM INFORMATION REQUIRED

Respondents should organize Proposals into the following Sections:

- A. Professional Qualifications
- B. Past Involvement with Similar Projects
- C. Proposed Work Plan
- D. Fee Proposal (include in a separate sealed envelope clearly marked "Fee Proposal")
- E. Authorized Negotiator

The following describes the elements that should be included in each of the proposal sections and the weighted point system that will be used for evaluation of the proposals.

A. Professional Qualifications – 35 points

1. State the full name and address of your organization and, if applicable, the branch office or other subordinate element that will perform, or assist in performing, the work hereunder. Indicate whether it operates as an individual, partnership, or corporation. If as a corporation, include whether it is licensed to operate in the State of Michigan.
2. State history of the firm, in terms of length of existence, types of services provided, etc. Identify the technical details which make the firm qualified for this work.
3. Include the name of the professional personnel by skill and qualification that will be employed in the work, and specify the person that will act as the point of contact for the City and their consultant. Show where these personnel will be physically located during the time they are engaged in the work. Indicate which of these individuals you consider key to the successful completion of the different types of work that may be assigned. Qualifications are required for all proposed project personnel, including all subcontractors. Qualifications and capabilities of any subcontractors must also be included.

B. Past Involvement with Similar Projects – 35 points

The written proposal must include a list of specific experience and indicate proven ability in implementing similar projects for the firm and the individuals to be involved in the project. The proposal should also indicate the ability to have projects completed within the budgeted amounts. A summary of the last five projects the Contractor has completed with the original cost estimate versus the actual final cost is required with this section. A complete list of client references must be provided for similar projects recently completed; however the last five

projects recently completed must be included. It shall include the name, address, telephone number, project title, and contact person.

C. Fee Proposal – 30 points

Fee schedules shall be submitted in a separate, sealed, envelope as part of the proposal. Fee quotations are to include the names, title, hourly rates, overhead factors, and any other relevant details. Contractors shall be capable of justifying the details of the fee proposal relative to personnel costs, overhead, how the overhead rate is derived, material and time. There is an example in Appendix F of the anticipated unit prices that the Contractor will establish.

It is the intent of this project through the Fee Proposal to establish unit prices for Labor, Equipment, and Materials. The Contractor will put the units of the individual labor, equipment, and materials anticipated to be needed to execute each individual work plan. The totals of those unit prices will determine the cost to execute each work plan. The final determination of what units each home takes will be measured in the field by the OHM observer.

Any unit prices not established at the time of this proposal but later needed for an individual work plan, will be established by negotiation in agreement with OHM Advisors, or the current wage rate for that classification per the wage rate classification, the Kelly Bluebook Value, or the contractor's receipt or other record of payment for the material.

D. Authorized Negotiator

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to respond to questions from OHM Advisors.

E. Proposal Evaluation

A selection committee composed of City staff will evaluate each proposal by the above described criteria and point system (A and B, based on 70 points) to select the contractors who will be identified to homeowners as pre-qualified for this work. The City has not made any decision as to the number of firms it expects or hopes will be pre-qualified. The City reserves the right to not consider any proposal which it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the proposing firm will be selected as pre-qualified. The City may contact references to verify material submitted by the Respondents.

Appendix A

Legal Status of Respondent

ATTACHMENT
LEGAL STATUS OF PROPOSER

(The Respondent shall fill out the appropriate form and strike out the other two.)

By signing below the authorized representative of the Respondent hereby certifies that: The Respondent is:

- A corporation organized and doing business under the laws of the state of _____, for whom _____ bearing the office title of _____, whose signature is affixed to this proposal, is authorized to execute contracts on behalf of respondent.*

*If not incorporated in Michigan, please attach the corporation's Certificate of Authority

- A limited liability company doing business under the laws of the state of _____, whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.
- A partnership organized under the laws of the state of _____ and filed with the county of _____, whose members are (attach list including street and mailing address for each.)
- An individual, whose signature with address, is affixed to this RFP.

Respondent has examined the basic requirements of this RFP and its scope of services, including all Addenda (if applicable) and hereby agrees to offer the services as specified in the RFP.

Signature

Date: _____

(Print) Name _____ Title _____

Firm: _____

Address: _____

Contact Phone _____

Fax _____

Email _____

Appendix B

Vendor Conflict of Interest Disclosure Form



Vendor Conflict of Interest Disclosure Form

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

Certification: I hereby certify that to my knowledge, there is no conflict of interest involving the vendor named below:

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Vendor Name	Vendor Phone Number
Conflict of Interest Disclosure *	
Name of City of Ann Arbor employees, elected officials, or immediate family members with whom there may be a	<input type="checkbox"/> Relationship to employee _____ <input type="checkbox"/> Interest in vendor's company _____

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that the information provided is true and correct by my signature below:

Signature of Vendor
Authorized Representative

Date

Printed Name of Vendor Authorized
Representative

PROCUREMENT USE ONLY

Yes, named employee was involved in Bid / Proposal process.

No, named employee was not involved in procurement process or decision.

Appendix C

FDD Best Practices Guidelines from SSWWE CAC

The results of the investigation identified three sets of recommended Best Practices for the City of Ann Arbor to improve the FDD program going forward:

1. Best Practices for Customer Service
2. Best Practices for New Installations
3. Best Practices for Retroactive Work

Specific recommendations for each of the three categories are as follows. Please note that no attempt was made to rank recommendations in order of importance.

1. Best Practices for Customer Service

- a) Provide a single point of contact or “ombudsman” with the City or the Consultant that is present at the meetings between Contractors and residents. This person would be an Ombudsman for the residents that resolves any conflict, helps agree upon the scope of work in each home by being present at every Contractor and resident meeting, and ensures that all of the items in each contract are completed.

- b) Inspect external grading during pre-installation inspection and provide written recommendations to the homeowner for reduction of flow to the new sump. External grading dramatically affects how often a sump pump runs. Evaluating and notifying homeowners of grading that will increase the duration and frequency of sump pump operation is the first step in them understanding how the life of the pump can be lengthened by improved grading around the home.

- c) Improve responsiveness to resident concerns. The designated Ombudsman should return all phone calls within 48 hours, all emails should be answered within one week, and a process should be set up to ensure that all follow up is completed. In a significant number of instances in the FDD complaint evaluation, the resident has stated that their inquiries into a problem were not answered by the City or the Consultant. When that item/complaint was referred back to the team during the investigation, they state to have investigated the item, however may not have answered the resident, or if they did, didn't log the information in a communication log to record that follow up did occur.

- d) Improve the damage claim process. The FDD program needs a formal process that lays out how a resident makes a claim for damage, how that claim will be investigated (with time frames), and then how they can expect to be answered. It is recommended that claims are first investigated via phone and site visit, then the claim process is started with the resident if the item is not clear cut and addressed right there. In cases where the site investigation is relatively clear, it is recommended that the project team help the resident with the claim process.

- e) Provide more proactive service when problems arise. It is recommended that the residents' concerns be listened to carefully, documented, and action be taken swiftly if any problem appears to not be in compliance with the program requirements. It is recommended that delays in service by one contractor be serviced by another with that work back charged against the first.

- f) Maintain detailed records. Documentation for the program should be increased so anyone is able to reference what happened at each address. The file needs to include:

- i. Communication log of each and every contact between the resident and the

program with name/date/time/and description

- ii. Pre-inspection notes including pics/sketch/grading evaluation/video of agreed upon details inside and out
 - iii. Contractor's submittal of work plan and cost
 - iv. Signed Contract between the resident and the Contractor
 - v. Internal and external property video of existing conditions
 - vi. Executed permits signed off upon completion
 - vii. Contractor's statement of completion with record drawings of the external piping
 - viii. Residents initial agreement of 90% completion
 - ix. Payment of the 90% to the Contractor
 - x. Second season restoration sign off
 - xi. 10% payment to the Contractor
 - xii. O&M turn over documents with the homeowner sign off after the meeting going over the paperwork.
 - xiii. Development Offset Mitigation program should have the same documentation as the FDD.
- g) Review written maintenance recommendations with the Residents personally in a meeting with the homeowner as part of the O&M turnover of each system at the final inspection meeting. In many instances during the field investigation, the homeowner does not understand what they need to do to maintain the sump parts.
- h) Hold 10% of payment until work is completed and signed off by Resident. Require 90% payment upon initial completion of the work. Final 10% should not be paid until the end of the second growing season and until receiving a signature from the homeowner stating that all work is complete and acceptable. For example, if restoration is done before May 5th, acceptance by homeowner is November 1st. If restoration is done before October 10th, acceptance is June 1st.
- i) Require the Contractor to provide a 2-year warranty on sump pump system, including any damage resulting from failure. Pump and associated work should be warrantied for a minimum of two years from the date of final acceptance of the work at that home. Any damage in the home including catastrophe cleaning and restoration should be covered during the warranty period. It is recommended that this be tied to more proactive service response described above.
- j) Videotape all properties and ROW before construction starts. Contract between City and Contractors should state that all concerns unable to be verified on the videos will likely be the Contractors responsibility if the Engineer agrees construction likely caused the event. The onus for responsibility of damage to a property should be borne by the Contractor to show the condition was existing prior to construction via video when a damage claim is made.

2. Best Practices for New Installations

- a) Prohibit alternate footing drain tap locations (trench to location when alternate sump locations are needed). Disconnections must begin at the FD tie in to the sanitary, and the sump location must be trenched or tunneled to be eligible for payment. Tapping the FD somewhere

higher into the system and abandoning the lower portion of the system invites dampness and other water problems in the basement by trapping water under the floor in porous pipes that if more water pressure is on them, the pressure has to move uphill to make it to the sump.

b) Require wet saw to cut floors. The use of jack hammers in a basement without cutting first increases the risk of cracks being created or opening up further as a result of the work. It is recommended that all work areas be isolated from the rest of the house by using plastic rooms with positive ventilation.

c) Require exposed pipes to be painted. If a pipe is put on the outside of a wall, it should be painted to match walls as part of the negotiation.

d) Require Contractors to follow PVC pipe and glue manufacturer's installation instructions. The glue used for pipe connections needs to be allowed to cure for the amount of time listed in the PVC and glue manufacturer's installation instructions to minimize the risk of fittings pulling apart or leaking. This is especially important in cases in which the pipe assembly is subject to added stress of being pulled through a bored hole.

e) Require pipe installations to be televised to show that there are no bellies that may trap water and freeze in the winter. This specifically applies to drilled, bored, or moled external discharges.

f) Ensure pumps are installed to manufacturer recommendations. This includes holes in the discharge pipes, the wires tied to the discharge pipes, the pumps on blocks, the head on the system as a result of the piping for that installation, and the other items listed in the installation instructions.

g) Require certification of underground detention when used for sump discharge. If the use of underground detention (Cistern, drywell, or other) is employed, the City should require certification by an engineer of the following requirements. Representation at the negotiation of the work on behalf of the homeowner by the City Engineer is also recommended.

i. Design should be sized to detain a specific runoff volume, based on a design storm determined by the City.

ii. Design should result in infiltration at that location as calculated by the new WCWRC storm water revisions

iii. Inspection should be performed to verify that there is capacity to hold the required runoff volume in the well with actual sump operation after installation.

iv. Inspection should be performed during dry well during installation to ensure that it is at least 15 feet away from any foundation or utility trench.

3. Best Practices for Retroactive Work

a) Require pipe installations to be televised to show that there are no bellies that may trap water and freeze in the winter. This specifically applies to drilled, bored, or moled external discharges. Bellies, if present, should be below the frost line (42"); otherwise, the pipe should be replaced.

b) Ensure curb drains and service lead pipes have positive slope. Some curb drains follow road grade from tap-in location, resulting in low cover situations, which cause maintenance problems. Curb drains installed where the catch basin is less than 48" deep can go up stream at 1% grade and does not have to follow the slope of the road if it is more than 1%. This method

of installation allows the tap location for the service lead to be at the maximum possible depth. Service leads must have positive slope to ensure that freezing does not occur by the icicle effect when bellies are present. It is more important that positive slope be maintained, than depth.

c) Ensure pump systems have hole in pipe between check valve and pump and the wire is tied to the discharge.

d) Ensure pumps are installed on blocks to reduce the potential for debris to enter pump and cause subsequent damage.

e) Repair overflows that are not properly installed (e.g., discharge too close to foundation or other items as noted in inspection reports). In a few cases, overflows are either not present or buried, or tee for overflow is below 90 out of the house and should be candy cane style that guides overflow away from the foundation of the home.

f) Finish interior and exterior restoration items that have not been completed to-date.

Appendix D

Unit Prices

Insert Unit Prices Table (Refer to attached seperate Spreadsheet Handout)

Labor				
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	Name	Classification	Rate/hr	Notes
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2				
3				
4				
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20				

<u>Examples</u>				
	Name	Classification	Rate/hr	Notes
1	<i>John Smith</i>	<i>Supervisor/foreman - Operator, CDL</i>	<i>60</i>	
2	<i>Jim Smith</i>	<i>Laborer - operator</i>	<i>50</i>	
3	<i>Joe smith</i>	<i>Laborer - CDL</i>	<i>45</i>	
4	<i>Jake Smith</i>	<i>Laborer</i>	<i>40</i>	
5	<i>Jenny Smith</i>	<i>Estimator</i>	<i>50</i>	
6	<i>Jacqueline Smith</i>	<i>Carpenter</i>	<i>40</i>	
7	<i>James Smith</i>	<i>Painter/flooring</i>	<i>35</i>	
8	<i>Joan Smith</i>	<i>Electrician</i>	<i>50</i>	
9	<i>Judy Smith</i>	<i>Plumber</i>	<i>50</i>	

Equipment

Name	Description	Rate/hr Onsite	Rate/hr In Use	Notes
1				
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Examples

Name	Description	Rate/hr Onsite	Rate/hr In Use	Notes
1 Trencher	Vermeer RT100	0	60	
2 pickup truck with hand tools	F-250 with boxes	10	10	
3 Excavator	Cat 308	15	50	
4 Excavator	Cat 312 with thumb	20	65	
5 Skidsteer	Bobcat S770	10	40	
6 Video camera	Samsung HMX-F90		20	price is per each televised location
7 push rod camera	pearpoint P374	0	200	
8 Plate compactor	Wacker WP150	0	20	
9 Jumping Jack Compactor	DS-70	0	25	
10 Mighty Mole boring tool	McGlaughlin MCL24B	10	40	
11 piercing tool 5"	Hammerhead standard with Mole Trac	0	25	
12 HDD	Vermeer D6x6	10	50	
13 3 yard dump truck	Ford XXXX	10	0	
14 5 yard dump truck	Ford XXXX	10	0	
15 HDPE fusing equipment	Macelroy XXXX	0	20	

Examples of minor equipment not eligible for unit prices

Generator
chipping hammer and bits
Electric cut off saw and concrete
concrete coring tools < 3"
Auger bit for tunneling
five galon buckets
reciprocating saw
hammer drill and bits
hand tools

Materials

Description	Unit	Rate/Unit	Notes
1			
2			
3			
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Examples

Description	Unit	Rate/unit	Notes
1 1.5" PVC Sch 40	ft	2	
2 2" PVC sch 40	ft	3	
3 3" PVC Sch 40	ft	4	
4 4" PC Sch 40	ft	5	
5 6" HDPE DR 11	ft	20	
6 6" 45 deg bend HDPE DR 11	each	30	
7 4" fuse on saddle	each	50	
8 4" cleanout cap with metal lid	each	40	
9 2" check valve	each	5	
10 sump basin, 2.5' deep	each	50	
11 sump basin additional depth	vft	10	
12 sump cover sealed	each	50	
13 paint	quart	10	
14 vinyl tile	sft	5	
15 2x4	lft	1	
16 green board Drywall	sft	1	
17 12 gauge romex	ft	1	
18 4" HDPE corrugated with sock	lft	1	
19 3/4R peastone	cft	1	
20 3500 PSI concret	cft	3	
21 Light fixture and bulb	each	15	
22 light switch	each	10	
23 single gang single outlet plug	each	15	
24 1/2" conduit	lft	1	
25 Class II sand	cft	0.5	
26 screened topsoil	cft	1	
27 Seed	lb	0.5	
28 sod	sft	3	

Examples of minor materials not eligible for unit prices

1.5 and 2" clamps for piping

reducer bushing, bends, glue to thread fittings

Caulking

concrete sealer

tile glue

drywall mud

sanding paper

nails, screws, other hardware

Appendix E

Homeowner/Contractor Contract Template

Sump Pump Installation Modification Project

Homeowner—Contractor Work Agreement

The attached Contract may be used by the homeowner(s) and the contractor doing the sump pump installation modification work on their property. The homeowner(s) may choose to use another form of contract and negotiate those terms with the contractor, provided that the payment provisions for costs covered by the City, and the provisions for approval of that work and for the timing of payments for that work may not be modified.

This Contract (or a different form of contract agreed to by the homeowner(s)) is between the individual homeowner(s) and the Contractor hired by the homeowner(s) to do the work.

Neither OHM Advisors nor the City of Ann Arbor (City) is hiring the Contractor to do the work and this Contract is not a contract between the City, the Contractor, or OHM Advisors.

CONTRACT BETWEEN
HOMEOWNER AND CONTRACTOR
FOR
SUMP PUMP INSTALLATION MODIFICATION WORK

THIS CONTRACT (Contract) is made by and between _____
(Contractor), who will perform the work, and
_____, who is/are the owner(s) of
the property where the work will be done (Owner or Homeowner). The property where the
work will be done is located at _____, Ann Arbor, Michigan 4810_
(Property). The date of this Contract is the date it is signed by the parties, as written above
their signatures on the last page of the Contract.

ARTICLE 1. SCOPE OF THE WORK

The Contractor shall furnish all the materials and perform all of the work shown on the work plan for the Property attached as Exhibit A. The Contractor shall return the work area and the areas used to access the work area to a condition equal to or better than before the work was started.

The Owner has reviewed the work plan (Exhibit A), has had an opportunity to get answers to any questions the Owner has about the work plan, desires that the work in the work plan be done, and agrees that they are hiring the Contractor to do the work in the work plan.

The Contractor and Owner understand and agree that additions and/or deductions to the work plan may be made pursuant to work orders authorized by the City of Ann Arbor (City) and the City's representative, OHM Advisors, and agreed to by the Owner.

ARTICLE 2. TIME OF COMPLETION

The Owner and Contractor agree that time is of the essence, and therefore the work to be performed under this Contract shall start on or before the ____ day of _____, 20____, and shall be completed according to the following schedule.

- **Substantial completion**, meaning completion of all work on the work plan (Exhibit A), including any authorized additions and/or deductions to the work plan, except for lawn and landscape restoration, shall be finished on or before _____, 20____.
- The initial lawn and landscape restoration work shall be completed on or before _____, 20____.
- For purposes of lawn and landscape restoration work that is required, the Contractor and Owner understand and agree that there are two growing seasons each year: June 1 - June 15 and September 15 – November 15.
- The lawn and landscape restoration shall not be considered final until the end of the second growing season that follows the date when the initial restoration work is completed. Following completion of the initial lawn and landscape restoration work,

OHM Advisors will notify the Owner and Contractor in writing of the date when the second growing season after installation ends.

- The Owner understands that they are responsible for notifying the Contractor of any problems with the lawn and landscape restoration work, and that they must do so before the date identified as the end of the second growing season. The Contractor understands and agrees that it is responsible for any touching up, reseeding, or replanting that is needed to complete the lawn and landscape restoration work for final acceptance.
- If the Owner does not provide the Contractor with notice of any issues with the lawn and landscaping restoration work, the lawn and landscape restoration work shall be considered complete for purposes of final acceptance as of the date identified as the end of the second growing season.
- **Final acceptance** of the work done under the work plan, including any authorized additions and/or deductions to the work plan and including lawn and landscape restoration, shall be the date of acceptance of the lawn and landscape restoration, which shall be the date identified as the end of the second growing season.

ARTICLE 3. THE CONTRACT PRICE

The Owner and Contractor understand and agree that the Contract Price is the total of the unit price amounts, per unit or fraction thereof, listed in Exhibit B for the units of work and materials necessary to perform the sump pump modifications as detailed and quoted in the work plan (Exhibit A), subject to any additions and/or deductions made pursuant to work orders authorized by the City and OHM Advisors, and agreed to by the Owner.

The Owner and Contractor understand and agree that the City is responsible for and shall pay the Contractor the Contract Price in accordance with the provisions of Article 4 (Payments).

The Owner and Contractor understand and agree that if the Owner desires any additional work to be done that is not part of the work plan (Exhibit A), including additions and/or deductions made pursuant to work orders authorized by the City and OHM Advisors, the cost of that additional work is not part of the Contract Price and the City will not pay any of the cost of that additional work. The Owner and Contractor understand and agree that they must contract separately regarding the scope and cost of that additional work and all other terms governing that work.

ARTICLE 4. PAYMENTS

The Owner and Contractor understand that the Contract Price shall be paid in the following manner:

Upon substantial completion of all work other than lawn and landscape restoration, after inspection and approval by the Owner, the City, and OHM Advisors, the Contractor may submit for payment of 100% of the work done. Upon approval of the request for payment, the City will pay the Contract amount due, except that the City will retain 10% of the Contract payment until final acceptance of the lawn and landscape restoration at the end of the second

growing season. Inspection and approval by the Owner and OHM Advisors is required after the initial lawn and landscape restoration is done. Unless the Owner notifies the Contractor of a problem with the lawn and landscape restoration work, no additional inspection by OHM Advisors will be required.

The Owner understands that payment to the Contractor for the work requires approval by the Owner and agrees that they will neither delay approval of the work, nor unreasonably or in bad faith delay or deny approval of the work when requested for substantial completion and for final acceptance.

The Contractor will not seek payment from the Owner for work done as part of the work plan (Exhibit A), including additions and/or deductions made pursuant to work orders authorized by the City and OHM Advisors, and agreed to by the Owner.

ARTICLE 5. GENERAL PROVISIONS

1. All work shall be completed in a workman-like manner and in compliance with specifications in the work plan (Exhibit A), including additions and/or deductions, applicable building codes, and other applicable local, state, and federal laws and regulations.

2. To the extent required by law, all work shall be performed by individuals duly licensed and authorized by law to perform said work.

3. The Owner agrees that the Contractor may, at its discretion, engage subcontractors to perform portions of the work. The Contractor agrees that it shall fully pay said subcontractors and that it is and shall remain responsible for the proper completion of all of the work under this Contract both by it and by its subcontractors. The Contractor agrees that it is and shall remain responsible for compliance with and fulfillment of all other terms of this Contract both by it and by its subcontractors.

4. The Contractor agrees that it shall furnish Owner appropriate releases or waivers of lien for all work performed and materials provided at the time the Contractor requests approval of substantial completion and when the Contractor requests final acceptance.

5. The Owner and Contractor understand and agree that all work orders for additions to and/or deductions from the work plan in Exhibit A that will be paid by the City must be signed by the Owner, the Contractor, the City and OHM Advisors.

6. The Owner and Contractor agree that all work orders for additional work arranged between the Owner and Contractor and not paid for by the City, shall be a separate contractual arrangement between the Owner and Contractor.

7. The Contractor warrants it is adequately insured for injury to its employees and any others incurring loss or injury as a result of the actions of the Contractor, its subcontractors, and/or their employees.

8. The Contractor shall, at its own expense, obtain all permits and inspections necessary for the work to be performed.

9. The Contractor agrees to remove all debris and leave the Owner's Property in a clean condition, subject to determinations of acceptability by the Owner on the date of substantial completion and, if needed, on the date of final acceptance.

10. The Contractor shall not be in breach of this Contract due to any delay due to circumstances beyond the Contractor's control including strikes, casualty or general unavailability of materials.

11. Except for lawn and landscape restoration, which is warranted to the end of the second growing season, the Contractor warrants all work for a period of _____ months (12 or more) following the substantial completion date.

Signed this ____ day of _____, 20__.

Contractor

Owner

Owner

Ann Arbor Sump Pump Installation Modification Program
Roles and Responsibilities

The CONTRACTOR will:

- Execute the work plan as written up by OHM Advisors and approved by the homeowner
- Complete restoration of the interior and exterior of the home to return all surfaces of the home and any lawn/landscape impacted by the work to same or better condition than it was found
- Pull and close permits with the City of Ann Arbor

OHM ADVISORS will:

- Create a work plan for the home to detail the recommended alterations to be made
- Answer any questions the HOMEOWNER may have regarding the details of the work plan
- Answer any questions the CONTRACTOR may have regarding the details of the work plan
- Monitor and document the work as performed by the CONTRACTOR to ensure the work is performed in a workman-like manner and to plan
- Act as an agent for the CITY
- Provide professional opinion to the CITY
- Act as an ombudsman for the HOMEOWNER
- Detail changes to the work plan if needed to address issues that arise as the work progresses; help the CONTRACTOR and the HOMEOWNER agree to the changes in the work plan and ensure the changes are documented and signed off on

The HOMEOWNER will:

- Make reasonable accommodations to be available for the CONTRACTOR to perform the work
- Review and approve the work plan compiled by OHM ADVISORS
- Ask questions of OHM ADVISORS and CONTRACTOR to ensure understanding of the work plan
- Approve and accept completed work
- Accept exterior restoration work within 2 growing seasons
- Follow CONTRACTOR's advice and instruction for care of exterior restoration
- Report any issues with work or CONTRACTOR to OHM ADVISORS in a timely manner?

The CITY of Ann Arbor will:

- Pay for work detailed on the work plan by OHM ADVISORS and any approved changes
- Provide building, plumbing, or electrical inspection as required for permit closure and acceptance

Appendix F

Current/Applicable FDD Program Specifications

SECTION 15010

FOOTING DRAIN DISCONNECTION

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. Review footing drain configuration with Engineer and property owner and determine what work onsite is required.
- B. Contractor to prepare a unit price list for the work to be performed.
- C. Upon approval by OHM and in agreement with the homeowner, furnish all labor, materials, equipment, and incidentals required and install the following items of plumbing complete as shown on the details and specified herein:
 - 1. Floor drain(s) with backwater valve (if required)
 - 2. Laundry and sink backwater valve(s) (if required)
 - 3. Check valve with access pit for stool or dedicated line to a basement bathroom or whole- house backwater valve (if applicable)
 - 4. Footing drain sump (internal or external)
 - 5. Submersible sump pump
 - 6. Interior and exterior sump discharge piping including check valves
 - 7. Tap-in-place connection to the curb drain if stub has not been provided.
- D. Payment can be made for the work performed once the contractor has completed all task according to the work plan and the homeowner signs off on the work.

1.2 RELATED WORK

- A. Electrical work, concrete work, tile replacement, and trenching as required shall be provided as described below.
- B. New access doors or panels may be required where access to the sump location will be limited. If the only access to the sump location is from the exterior of the home or through an interior wall, and no other approved access is available, a minimum 16" x 24" access door shall be installed. A larger size may be required if no other access route can be used to transport the sump basin into the space. Access doors may be

custom made to match the condition of the home, or may be purchased from an access door supplier. The design and product must be approved by the construction management team and building department prior to installation.

- C. At all properties where floor tile must be removed, the contractor shall follow the removal steps described in *General Information and Methods for the Removal of Asbestos-Containing Floor Tile*, which is included in the FDD contractor prequalification materials.
- D. Contractor shall apply for and pay for the appropriate permits needed to complete this work.

1.3 SUBMITTALS

- A. Prior to beginning work in the FDD program, submit to the FDD Construction Management Team a list of materials and equipment, including cut sheets, product data, installation instructions, wiring diagrams, etc. to be furnished and installed as part of a general disconnect and installation job. The FDD Construction Management Team must approve any variations to this general plan as the contractor progresses through subsequent installations.

1.4 REFERENCE STANDARDS

- A. City of Ann Arbor rules, regulations, and codes shall be followed during the performance of this work.

PART 2 PRODUCTS

2.1 GENERAL

- A. The use of a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired. Different equipment may be used with notification and approval by the Project Management team.

2.2 ELECTRICAL EQUIPMENT

- A. Electrical panels and components shall be suitable for the environment and electrical classification for the space they are located in.

2.3 FLOOR DRAIN WITH ACCESSIBLE BACKWATER VALVE

- A. Furnish and install as shown in Figure 1 for all floor drains located in the basement that are determined to be connected to the sanitary sewer plumbing system.
- B. Units shall be mounted flush with the existing basement floor and connected to the existing basement floor drain plumbing with an appropriate connector. Replacement

drains shall be installed if existing drain is damaged either before or during backwater valve installation, and shall be of PVC construction.

C. Units are to have an accessible, removable top to allow maintenance of the check flap and seal.

D. Units shall be the following:

1. Canplas Industries Ltd., Part No. 3282
2. Jones Stephens Corp., Part No. B04-300K
3. Or equal

2.4 HORIZONTAL BACKWATER VALVE

A. Furnish and install as shown in Figure 2 for utility tubs and sinks as required.

B. Unit shall be placed in installations after the existing sink trap and above the basement slab where possible. Unit shall be connected using appropriate removable connectors so that the unit can be removed for maintenance.

C. Units are to have an accessible, removable top to allow maintenance of the check flap and seal.

D. Units shall be the following:

1. Canplas Industries Ltd., Part No. 3281
2. Flotec, Model FP212-257
3. Jones Stephens Corp., Part No. B04-200
4. Or equal

2.5 WATER CLOSET CHECK VALVE ASSEMBLY

A. Furnish and install as shown in Figure 3A where service to other existing facilities such as water closets and showers is required in the basement.

B. Check valve unit is to consist of a 4" PVC check valve placed on the sanitary drain line from the water closet or shower.

C. Units are to have an accessible, removable top to allow maintenance of the check flap and seal.

- D. Units shall be placed through a cast-in-place hand-hole or in a fiberglass or plastic vault in the basement floor and shall be connected into the existing plumbing system downstream from existing water closets and showers.
- E. The hand-hole or plastic vault shall have a removable cover that is mounted flush with the basement floor. The units shall be connected into the existing plumbing system using appropriate removable rubber connectors so that the units can be removed for maintenance.
- F. Units shall be the following:
 - 1. 4" backwater valve manufactured by NDS, Model CV04
 - 2. 4" backwater valve supplied through USA Bluebook, Plastic Backwater Valve PVC Body- New Style with Cleanout and 4" Plastic Lid Model #17085.
 - 3. 4" backwater valve manufactured by Canplas Industries Ltd., Part No. 3285
 - 4. 4" backwater valve manufactured by Jones Stephens Corp., Part No. B04-400K
 - 5. Or equal

2.6 WHOLE-HOUSE BACKWATER VALVE ALTERNATIVE

- A. When residence includes a lower level bathroom group, and when Single Backflow Valve Alternative Release has been signed and submitted by property owner, and when approved by the construction manager, installation of a whole-house backwater valve is allowed in place of individual check valves on all lower level sanitary connections.
- B. Furnish and install as shown in Figure 3B, for installations as described above.
- C. Check valve unit is to consist of a 4" PVC check valve placed on the sanitary drain line at a point downstream of all lower-level sanitary connections and upstream of cleanout.
- D. Units are to have an accessible, removable top to allow maintenance of the check flap and seal.
- E. Units shall be placed in a fiberglass or plastic vault in the basement floor or through a cast-in- place hand-hole and shall be connected into the existing plumbing system.
- F. The plastic vault or hand-hole shall have a removable cover that is mounted flush with the basement floor. The units shall be connected into the existing plumbing system using appropriate removable rubber connectors so that the units can be removed for maintenance.

G. Whole-House Backwater Valve Units shall be the following:

1. 4" backwater valve manufactured by NDS, Model CV04
2. 4" backwater valve supplied through USA Bluebook, Plastic Backwater Valve PVC Body- New Style with Cleanout and 4" Plastic Lid Model #17085.
3. 4" backwater valve manufactured by Canplas Industries Ltd., Part No. 3285
4. 4" backwater valve manufactured by Jones Stephens Corp., Part No. B04-400K
5. Or equal

H. Where the interior drain plumbing configuration does not allow for installation of an interior whole house backwater valve, an extendable exterior whole-house backwater valve shall be used. Units shall be the following:

1. 4" PVC backwater valve, manufactured by Clean Check, Inc.
2. Or equal

2.7 FOOTING DRAIN SUMP (INTERNAL)

- A. Furnish and install the sump as shown in Figure 5A in a location that will minimize impacts on the use or access to the basement by the homeowner.
- B. Sump shall be installed to accept flow from the basement footing drains and any house exterior stairwell drains. The sump location shall be chosen so that the footing drains flow to the sump in the same configuration as they flowed to the sanitary prior to disconnection.
- C. Where groundwater levels at the sump location prevent installation of the sump, perforations in the bottom or sides of the sump shall be made using a ¼" diameter or smaller drill bit to equalize the pressure during installation. If perforations are made in any part of the sump, filter fabric shall be used to wrap the exterior of the sump prior to backfill.
- D. All existing footing drain connections to the sanitary sewer shall be appropriately disconnected and plugged as shown in Figure 4. Non-destruct footing drain disconnect alternatives are described in section 2.15.
- E. Sump shall have a cylindrical shape with a minimum diameter of 18" or have a conical shape with minimum outside dimensions of 20" at the top and 14" at the bottom. Either shall have a minimum depth of 30". Depending on the depth of the footing drains, the contractor must be prepared to also include sump extensions up to a 42" sump depth. If a total sump depth greater than 42" is required, the construction

manager should be contacted to document the change. Sump shall have a sealed and gasketed lid that has the ability to be bolted into position. All protrusions through the lid will be air tight through the installation of appropriate rubber grommets.

- F. Gaskets shall be placed at the connection between the footing tile(s) and the sump to prevent any intrusion of pea-gravel/backfill into sump.
- G. After installation of the sump, concrete shall be replaced around the sump in a workmanlike fashion and the existing floor treatment restored. If tile is used, an approximate tile color match shall be made.
- H. Units shall be the following:
 - 1. Munro Model BSB24TS.
 - 2. AK Industries Model AKP50210
 - 3. Or equal

2.8 FOOTING DRAIN SUMP (EXTERNAL)

- A. Furnish and install as shown in Figure 5b in locations outside the home that minimize impacts on the property. The location shall be accessible by the property owner.
- B. Sump shall be installed to accept flows from the exterior basement footing drains and any house exterior stairwell drains.
- C. All existing interior and exterior footing drain connections to the sanitary sewer shall be appropriately disconnected as shown in Figures 4A-4C.
- D. Sump shall be cylindrical in shape with a minimum diameter of 24". The sump lid should be steel and should be securely bolted down.
- E. The discharge piping shall be configured to have an air gap within the sump as shown in Figure 5B. The piping at the air gap must be able to be disassembled easily so that the vertical piping and sump pump can be lowered and raised for installation and removal. An inline cleanout shall be installed close to the sump on the drainage piping.
- F. The electrical line to the sump shall be enclosed in conduit when underground and an exterior- grade outlet box shall be mounted to the wall of the sump at an elevation at least 12" above the discharge piping air gap. A dedicated circuit breaker shall be provided on the exterior wall of the home near the sump location.
- G. Sump shall include a safety shelf, to be installed 2' below ground level as shown in Figure 5B. The safety shelf shall include at least one access port large enough to lift out the sump pump using the discharge piping but no larger than half the diameter of the shelf itself. The safety shelf may be constructed from a sump lid with two 12" tall sump

extensions installed above the shelf up to ground level.

H. Any over-excavation shall be back filled with pea stone.

I. Units shall be the following:

1. ADS HDPE Series 35 pipe with end caps
2. Or equal

2.9 SUBMERSIBLE SUMP PUMP

A. Furnish and install as shown in either Figure 5a (internal) or 5b (external).

B. Submersible sump pump shall be provided to discharge flows from the new sump to a discharge point outside of the building. Sump pump shall include all electrical wiring for the unit and discharge piping to the discharge location.

C. Sump pump shall be of cast iron construction and shall use a float type switch.

D. Discharge piping shall include a check valve downstream from the sump pump discharge to limit backflow into the sump.

E. Units shall be capable of pumping at least 30 gallons per minute (GPM) with 15' of discharge head.

F. Units shall be the following:

1. Flotec Model SC3200A
2. Zoeller Model M-53 or BN-53
3. Hydromatic SW50 or VS50
4. Or equal.

G. The construction management team may identify certain homes where the peak flows are expected to approach or exceed the capacity of the above pumps. High-capacity pumps, rated to 45 GPM or greater at 15' of discharge head, shall be installed where recommended by the CM team.

H. High-flow pump units shall be the following:

1. Zoeller Model M-98
2. Flotec Model SC4550A

3. Or equal.

2.10 SUMP DISCHARGE PIPING

- A. Furnish and install Sump Discharge Piping from the sump pump to the Drainage Piping.
- B. An air gap shall be provided between the Sump Discharge Piping and the Drainage Piping as shown on Figures 6A-C, and a 2" minimum cleanout shall be installed such that it is accessible and visible at ground surface near the home exit point.
- C. The Sump Discharge Piping shall penetrate the home envelope above ground level and any openings through the home envelope shall be properly sealed with caulk.
- D. Sump Discharge Piping for interior sump installations shall be installed as shown in Figures 6A- C.
- E. Sump Discharge Piping for exterior sump installations shall be installed as shown in Figure 5B.

2.11 DRAINAGE PIPING

- A. Furnish and install Drainage Piping that accepts flow from the Sump Discharge Piping and conveys it to one of the following:
 1. City installed curb drain (if available).
 2. Either open channel or closed conduit storm drainage system.
 3. Approved alternative discharge location
- B. Drainage Piping shall be installed using either trenchless or open trench methods. The depth of the discharge point and the surface grade of along the proposed pipe route will determine the method based on the minimum available cover.
- C. Discharge lines installed by means of open trenching shall be 4" diameter HDPE or schedule-40 PVC pipe. Piping shall be installed at a slope of 1" of fall per 10' of run with a minimum cover of 18" throughout the entire length of the run.
- D. Working from the starting depth at the discharge point towards the home, the minimum slope (1":10') will be maintained until 30" of cover has been obtained, where at that point, the slope may then be increased to maintain 30" of cover. If for any reason the minimum slope (1":10') conflicts with the maximum cover of 30" due to surface grading, the contractor is responsible to maintain the minimum slope to depths greater than 30".

- E. If the depth of the curb drain or an adversely sloped lawn will result in less than 18" of cover for any section of the discharge line, the contractor should contact the construction management team so all other options for the discharge line and alternative discharge points can be evaluated.
- F. The contractor is able to install the discharge piping by combining open trenching and mole installations to avoid damage to heavily landscaped areas or to accommodate a homeowner request to minimize lawn damage. In situations where the curb drain is less than 24" deep, the contractor may install 4" pipe from the curb drain at the minimum slope by open trenching until the minimum cover for the trenchless method is met.. Discharge piping cannot decrease in diameter downstream. Trenchless installations shall be televised 30 days after installation.
- G. Discharge piping shall not be installed under a deck, patio, or other structure, or through a garage, unless no other reasonable option is available. This type of installation must be approved in advance by the construction management team and city building department.
- H. Discharge piping shall not be installed under driveways unless no other reasonable option is available. This type of installation must be approved in advance by the construction management team and city building department and will require 4' of cover below the driveway surface.
- I. Drainage piping for interior sump installations shall be installed as shown in Figures 6A-C.
- J. Drainage piping for exterior sump installations shall be installed as shown in Figure 5B.
- K. Connection of the Drainage Piping to the curb drain shall be performed using a previously- placed, thermally-welded saddle or tee as shown in Figures 7A-B. If a saddle or tee has not previously been installed or the location is not feasible for connection of the drainage piping, a tap in place connection to the curb drain shall be used, as described in section 2.14.
- L. Connection to an existing closed conduit storm drain shall be performed by the Water Utilities Department after the contractor has exposed the storm drain.
- M. If the drainage has a surface discharge point, the end of the pipe shall be completed as shown in Figure 8. For Drainage Piping using a surface discharge point, 4" diameter piping shall be used. There shall be a 3-5" drop from the invert of the installed pipe to the surface of the receiving pit. The receiving pit shall be constructed with a minimum 2 cubic feet filled of pea gravel. The end of the pipe shall be covered with ½"-spaced chicken wire (secured with stainless steel hose/band clamp) as an animal guard and shrouded with natural materials such as rocks or plants to provide visual screening.

2.12 CONDENSATE PUMP

- A. Furnish and install a condensate pump to re-route flows when a high-efficiency furnace, air conditioner or other acidic-flow condensate line is connected to the footing drain system and when using gravity discharge to a local sanitary plumbing fixture is not feasible.
- B. Existing connection to footing drains shall be removed and the remaining hole in floor shall be filled in and smoothed over with concrete.
- C. Condensate pump shall collect furnace condensate and pump automatically to a local sanitary plumbing fixture.
- D. Installation shall include discharge line and connections, as well as any electrical wiring or outlet necessary to provide service to the condensate pump.
- E. Condensate pump shall be suitable for handling acidic flows, and shall include a check valve.
- F. Units shall be the following:
 - 1. Little Giant Pump Co., model VCMA-15UL 115V 60HZ 6'
 - 2. Or equal.

2.13 TAP-IN-PLACE CONNECTION

- A. Furnish and install as shown in figure 7C where an existing thermally welded saddle has not been provided or the location is not feasible to connect to the curb drain.
- B. The tap-in-place connection requires a 5" diameter hole to be cut into the curb drain.
- C. Tap-in-place connection units must be in the following:
 - 1. Joints Tap-n-tee, P/N S004-5.
 - 2. Or equal.

2.14 NON-DESTRUCT FOOTING DRAIN DISCONNECTION

- A. When the connection from the footing drains to the sanitary sewer cannot be accessed to disconnect the pipe due to an obstruction on the floor or when an exceptional level of finish in the basement would not be restorable, a non-destruct footing drain disconnect alternative may be allowed. Advanced approval from both the construction management team and the building department is needed prior to implementing a non-destruct FDD alternative.
- B. If the sump is not located at the connection location, the property owner will be

required to sign an Alternative Sump Location Release form.

- C. Where the footing drains connect to the sanitary sewer through a p-trap with cleanout, the non-destruct disconnect shall be made by installing a 4" rubber plug as far into the trap as possible, then filling behind the plug with a fast-set concrete. This type of disconnect shall only be implemented during dry conditions with no footing drain flow.
- D. Where the footing drains connect to the sanitary sewer through a floor drain, the non-destruct disconnect shall be made by installing a 3" vertical extension from the drain trap up to the floor surface. The bottom of the original drain chamber shall be filled with at least a 2" depth of fast-set hydraulic cement to hold the extension piece in place and create a barrier to flow between the footing drains and the sanitary system. Additional concrete shall be used to fill in the chamber up to the bottom of the footing drain pipes. The footing drain pipes shall be left open to flow through the chamber by installing a 4" tall PVC coupling on the outside of the riser and a donut platform on top of the coupling. Concrete shall then be filled on top of the platform up to the rim of the original drain structure so that the original lid can be re-used.
- E. Non-destruct FDD configurations are shown in Figure 4C.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Acquire all required permits necessary for described work.
- B. Install all the items as called for in the Details.
- C. Perform the installations and complete all work within 90 days of the issuance of the contract.
- D. Coordinate installation with the individual homeowners to gain access to the homes and perform the work called for in this specification and on the drawings and details.
- E. Electrical supply shall be according to the applicable electrical code.
- F. All plumbing shall be installed according to the applicable plumbing code.
- G. After connection of all of the components and prior to placement of the concrete, an inspection by the Building Department must be performed and closed plumbing and electrical permits must be obtained. Provide a minimum of 24-hour notice so that these inspections can be provided in a timely fashion. Copies of these permits shall be provided as documentation with invoice submittal.
- H. After placement of concrete, contractor shall restore the floor to similar to pre-existing conditions. Tile shall be provided in locations where previously tiled. Smooth concrete

finishes shall be provided in locations where new concrete is installed. New floor drains shall have concrete sloped down to the drain in the area concrete was removed.

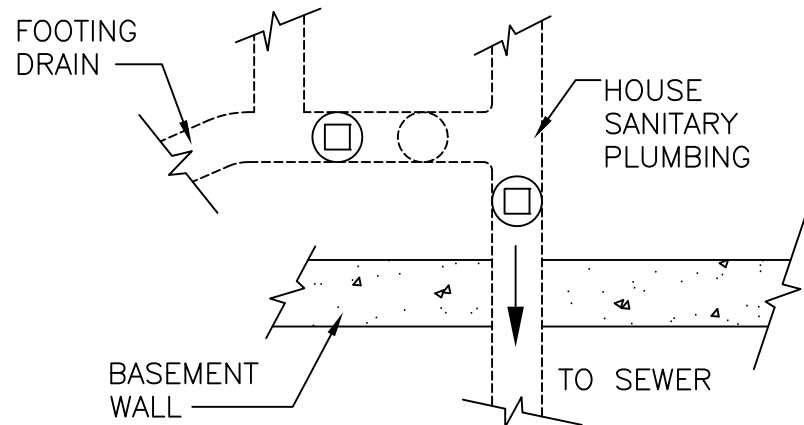
- I. After completion of the exterior work, including discharge piping and sump (if external sump), restore areas to pre-construction grade, provide topsoil, grass seed, and straw and stabilize as needed.

3.2 CLEANING

- A. Protection against production and tracking of dust through the home shall be provided. After installation is completed, dust, demolition material, and construction debris shall be properly removed. The associated dirt along the access route shall be appropriately cleaned.

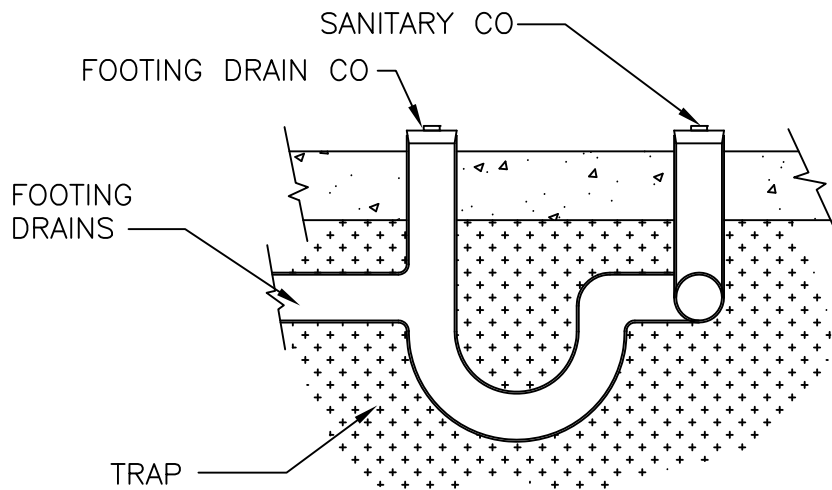
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EXISTING CONDITION



PLAN

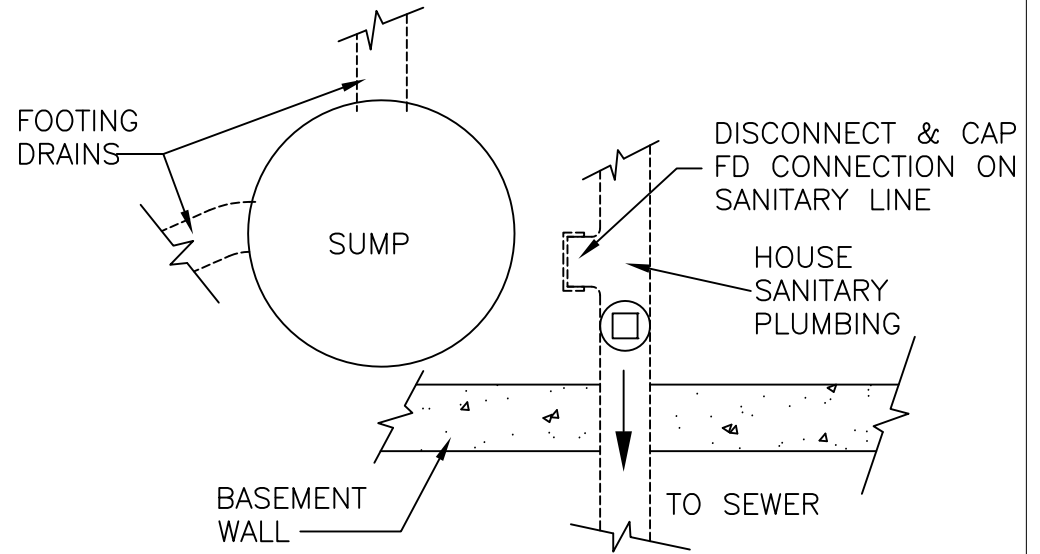
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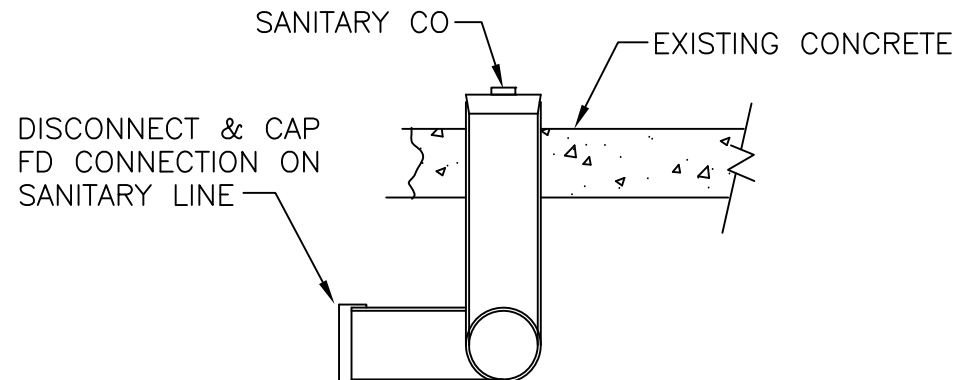
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DISCONNECTION



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