



# CITY of NOVI CITY COUNCIL

## Agenda Item G December 17, 2018

**SUBJECT:** Approval to award engineering design services to OHM Advisors for Phase II of the Footing Drain Disconnection Feasibility Study in the amount of \$24,000.

**SUBMITTING DEPARTMENT:** Department of Public Works, Water & Sewer Division

**CITY MANAGER APPROVAL:** *PA*

<b>EXPENDITURE REQUIRED</b>	<b>\$ 24,000</b>
<b>AMOUNT BUDGETED</b>	<b>\$ 278,200</b>
<b>APPROPRIATION REQUIRED</b>	<b>\$ 0</b>
<b>LINE ITEM NUMBER</b>	<b>592-592.00-976.051</b>

### BACKGROUND INFORMATION:

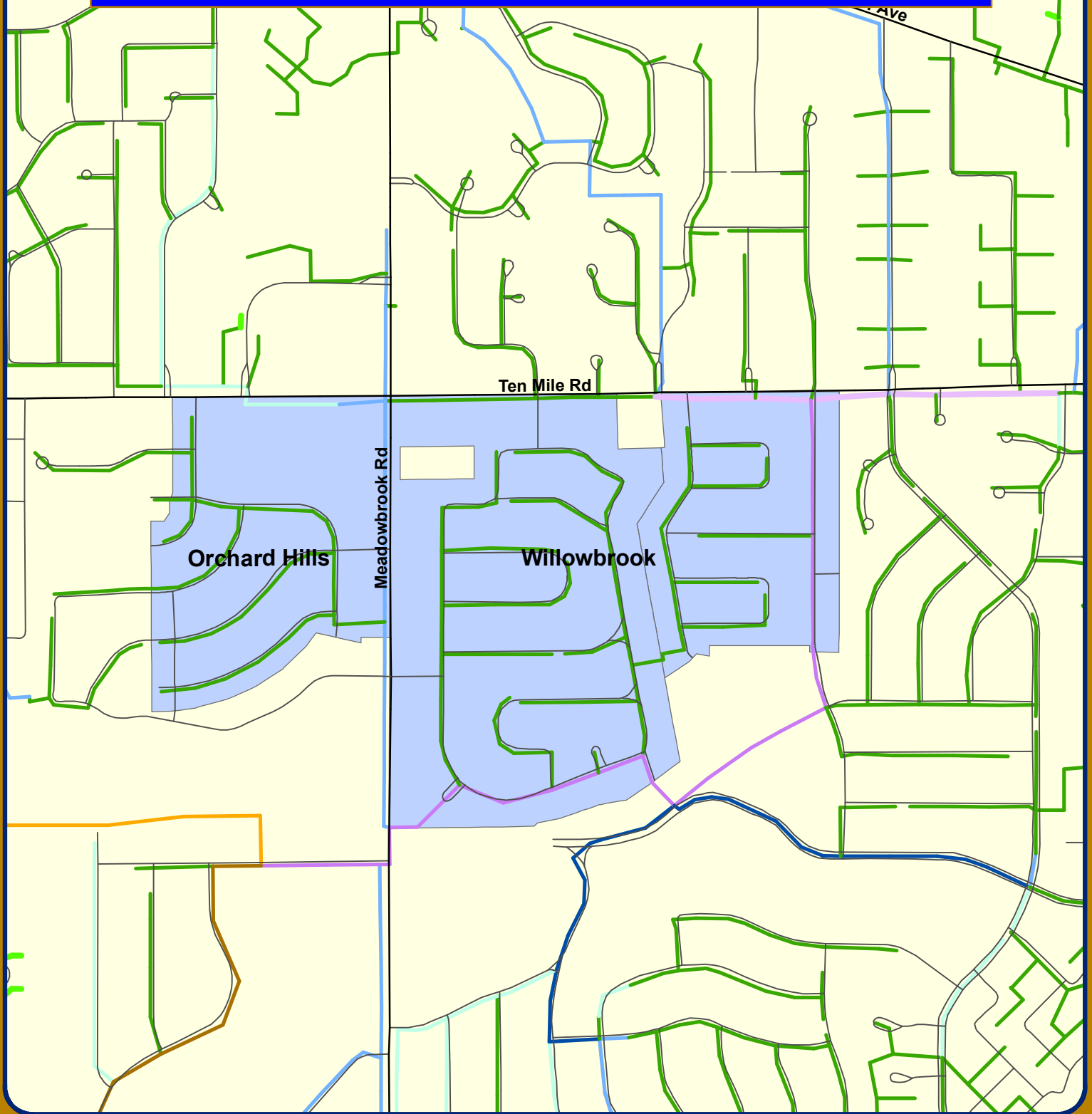
In an effort to reduce inflow from residential footing drains directly connected to the sanitary sewer system, the Water and Sewer Division and OHM Advisors (Orchard, Hiltz & McCliment) have been working on a feasibility study to determine the potential benefit of a footing drain disconnection (FDD) program at multiple subdivisions throughout the city. A successful FDD program has the potential to reduce flow significantly, and minimize contract capacity exceedances the city has experienced in the past. The attached map shows the locations of the subdivisions targeted for the program.

Phase I of the study involved flow metering at select locations to determine the system's response to rainfall. With the metering finished, the next steps of the study can be completed, which involve a visual survey of the homes in the selected subdivisions (approximately 200 homes), followed by smoke testing of the sanitary sewer within the subdivisions (see attached information related to the smoke testing procedure) to help identify direct sources of inflow to the sanitary sewer. OHM has provided the attached proposal for Phase II of the feasibility study including the above mentioned tasks, along with some further research to develop the final technical report. With a complete study, staff will be able to determine the number of homes connected and the viability a footing drain disconnection program.

**RECOMMENDED ACTION:** Approval to award engineering design services to OHM Advisors for Phase II of the Footing Drain Disconnection Feasibility Study in the amount of \$24,000.

# Phase II Study Area for Footing Drain Disconnection Program

## Location Map



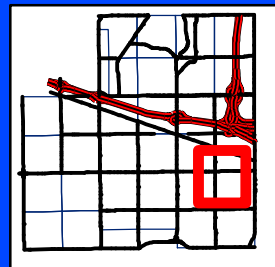
Map Author: Croy  
Date: 12/6/18  
Project: FDD  
Version #: v2.0

### MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

### Map Legend

 FDD Candidates



## City of Novi

Engineering Division  
Department of Public Services  
26300 Lee BeGole Drive  
Novi, MI 48375  
cityofnovi.org

0 170 340 680 1,020  
Feet

1 inch = 833 feet





ARCHITECTS. ENGINEERS. PLANNERS.

October 29, 2018

City of Novi, MI  
Ben Croy, Water and Sewer Senior Manager  
26300 Lee BeGole Drive  
Novi, Michigan 48375

**RE: Proposal for I&I Quantification in Orchard Hills and Control Area - Footing Drain Disconnection with Green Infrastructure Feasibility Study**

Dear Mr. Ben Croy:

Thank you for the opportunity to submit this proposal for professional services based on our September 27, 2018 meeting at your office to discuss the initial findings of the *Footing Drain Disconnection Feasibility Study*. This letter presents our proposed scope of services and fee for Phase II of this investigation, to begin fall of 2018. The tasks described below are designed to further quantify the contribution footing drain to overall wet weather sanitary flow in the Orchard Hills and Control neighborhoods. This will provide the City with the basis for whether to proceed with a footing drain disconnection program in these neighborhoods.

### **Project Approach Overview**

This proposal outlines the tasks necessary to perform an investigation of directly connected footing drains and other sources of inflow and infiltration (I&I), as part of the Novi *FDD Feasibility Study*, that will be completed by OHM Advisors.

### **Scope of Services**

Task 1 focuses on evaluating the presence and magnitude of sources for inflow and infiltration in the Orchard Hills and Control neighborhoods.

#### **Task #1 Sidewalk Survey of Footing Drains (\$5,000)**

OHM will perform a *sidewalk survey* in each neighborhood, consisting of approximately 200 houses, to estimate the number of homes with directly connected footing drains. The survey will focus on determining if homes have basements and, if so, if there is a visible sump line exiting the home. Observations made during the sidewalk survey will be recorded on a tablet with GIS capabilities.

Results from the *sidewalk survey* will be prepared in a summary table and provide an estimation of the number of homes with directly connected footing drains.

#### **Task #2 Performing Smoke Testing (\$10,000)**

OHM will perform smoke testing throughout the neighborhoods to identify direct sources of inflow into the sanitary sewer. Deliverables will include a tabulation of the smoke sources, summary map, and estimate of I&I from each source.



**Task #3      Reviewing Past Studies      (\$3,000)**

OHM will review past studies related to the presence and magnitude of I&I in the two neighborhoods. It is assumed that these studies will consider:

- the City of Novi’s Capacity, Management, Operations, and Maintenance Program prepared by OHM advisors in 2005.
- I&I related defects that were identified in the two neighborhoods during the City’s Stormwater, Asset Management, and Wastewater (SAW) Project.

**Task #4      Develop a Water Budget of Footing Drain and Other I/I Sources      (\$2,000)**

Water budgets will be prepared based on the flow contribution of footing drains and the other I&I sources identified in Tasks 1-3. This task will result in a table that shows the breakdown of each flow component and an estimate of its contribution to peak wet weather flows. This will be useful for determining if a footing drain disconnection program is feasible.

**Task #5      Prepare Results in a Brief Technical Memo      (\$4,000)**

All work included in the tasks above will be summarized and presented in the format of a technical memo. Such memos typically include 2-5 pages of written report along with all relevant tables and figures necessary to provide clear and concise information to the City.

**Budget**

<i>#</i>	<i>Bidding Tasks</i>	<i>Fee</i>
<i>Task #1</i>	<i>Sidewalk Survey of Footing Drains</i>	<i>\$5,000</i>
<i>Task #2</i>	<i>Performing Smoke Testing</i>	<i>\$10,000</i>
<i>Task #3</i>	<i>Reviewing Past Studies</i>	<i>\$3,000</i>
<i>Task #4</i>	<i>Develop a Water Budget</i>	<i>\$2,000</i>
<i>Task #5</i>	<i>Prepare Results in a Brief Technical Memo</i>	<i>\$4,000</i>
	<b><i>Grand Total =</i></b>	<b><i>\$24,000</i></b>



**Contract Terms and Conditions**

Work will be performed through our existing as-needed contract with the City of Novi Department of Public Services.

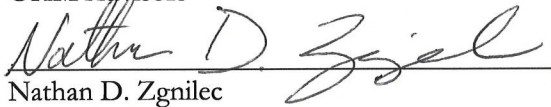
**Acceptance**

If this proposal is acceptable to you, a signature on the last page of this letter will serve as our authorization to proceed.

Thank you for giving us the opportunity to be of service. We look forward to working with you on this project.

Sincerely,

OHM Advisors



Nathan D. Zgnilec  
nathan.zgnilec@ohm-advisors.com  
D: 734.466.4449

Authorization to Proceed

\_\_\_\_\_  
Signature Date

\_\_\_\_\_  
Printed Name Title

**ATTENTION**  
**Sanitary Sewer Smoke Testing**

Inspection crews working for the City of Novi will be conducting **smoke testing** of the sanitary sewer system in your area by the end of December. This work is weather dependent, will only take place on work days, and yard signs will be posted the day before to serve as a reminder. Smoke testing involves blowing smoke through the sanitary sewers to find potential areas of inflow and infiltration of storm water into the sanitary sewer system. You may see smoke coming from vent stacks on buildings or holes in the ground. The smoke varies in color from white to gray depending on density and lighting. It is NON-TOXIC, NON-STAINING, HAS A SLIGHTLY SWEET ODOR AND CREATES NO FIRE HAZARD. The smoke should not enter your home or business unless the plumbing is not functioning properly. If you have any seldom-used drains, please pour water in the drain to fill the trap prior to the test to prevent smoke from entering the building.

Homeowners or business owners do not need to be present during the investigation, which will be conducted during normal business hours. Workers will not be inside your home. However, you **MUST POUR WATER DOWN SELDOM USED DRAINS PRIOR TO THE TESTING**; especially **floor drains** in your home or business. This should prevent smoke from entering your home and setting off smoke alarms unnecessarily.

Smoke testing will be conducted by OHM Advisors. Crews will be in marked vehicles and have identification. Your cooperation is greatly appreciated.

**Questions may be directed to:**  
Derek Klenke  
OHM – Project Engineer  
derek.klenke@ohm-advisors.com  
(734) 274-1828

Ben Croy  
City of Novi  
Water and Sewer Senior Manager  
(248) 735-5661

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