

SURVEYOR'S OFFICE

# Hamilton County

*Kenton C. Ward, CFM*  
 Surveyor of Hamilton County  
 Phone (317) 776-8495  
 Fax (317) 776-9628

Suite 188  
 One Hamilton County Square  
 Noblesville, Indiana 46060-2230

December 18, 2013

TO: Hamilton County Drainage Board

RE: William Lehr Drain

Attached are plans for a partial reconstruction of the William Lehr Drain. The proposed reconstruction is part of an overall maintenance project on the Lehr Open Ditch. During the preliminary work for the dredging of the open ditch it was found that the tile section of the drain at the drains headwaters was filled with soil and is inoperable. The portion of the partial reconstruction is located in Fall Creek Township.

The proposed reconstruction is located from Station 0+57 to Station 13+68 of the original 1901 drain description as approved for construction by the Hamilton County Board of Commissioners. The project will begin at a manhole structure installed by the City of Noblesville at Station 0+57 as part of a roundabout project by the city and field verified by this office on February 25, 2011. The project shall replace the existing 12" tile with a new 12" RCP for forty (40) feet. The drain shall then be excavated as an open ditch for 1,271 feet meeting the existing open ditch at Station 13+68. The open ditch shall follow the existing alignment of the drain.

The new open ditch shall be within the existing drainage easement. Therefore, no additional easement shall be required.

A twenty (20) foot filter strip shall be installed on both sides of the new open ditch located on parcel 13-11-22-00-00-019.000 owned by Bridge, LLC. Along with this filter strip additional filter strips shall be placed on the following tracts:

<u>Parcel</u>	<u>Owner</u>	<u>Problem</u>
13-11-22-00-00-020.000	Bridge, LLC	East and West bank
13-11-22-00-00-001.000	Kevin Dennis & Joann Renfro	East and West bank
12-11-15-00-00-012.000	Sue A & James A. Spaethe	East bank
20-11-10-00-00-012.000	Ellen M. Waterman	East and West bank
20-11-10-00-00-024.000	Corby D & Robert L. Thompson	East and West bank

These tracts are located on the section of drain over which the dredging will be occurring under maintenance.

Upon review of the proposal I do not believe that any damages shall result to the landowners affected by the proposed project. Therefore, damages shall be set at \$0.00.

The cost estimate for this project is as follows:

Dredging	1,271 feet x 6.00/ft	\$ 7,626.00
12" RCP	40 feet x 54.00/ft	\$ 2,160.00
Seeding	3 acres x 2,000.00/ac	\$ 6,000.00
Filter Strip seeding	5.2 acres x 1,200.00/ac	\$ <u>6,240.00</u>
Subtotal		\$ 22,026.00
15% Contingency		\$ <u>3,303.90</u>
Total		\$ 25,329.90

At this time the maintenance fund has a balance of \$536,884.91. I recommend the Board transfer the amount above cost estimate for this work to a reconstruction fund to cover the cost of the proposed reconstruction as per IC 36-9-27-45.5.

I recommend the Board set a hearing on this for January 27, 2014.

Sincerely,



Kenton C. Ward, CFM  
Hamilton County Surveyor

KCW/pll



This calculation is to remove the existing 18" CMP and install an open channel from 141<sup>st</sup> North to the upper end of the William Lehr open channel. 141<sup>st</sup> Street is the upper end of the drainage shed. The town of Fishers has a release rate after development of 0.10 cfs/acre for a 2/10 yr storm the 100 yr release rate is 0.30 cfs per acre

	<u>Q<sub>10</sub></u>	<u>Q<sub>100</sub></u>
Westminster release rates to the north to Lehr	4.9 cfs	14.5 cfs
Grover Property / Canyon Ridge	5.86	23.60 cfs
	10.8 cfs	38.1 cfs

Length of proposed open channel = 1300 LF

upstream outlet elev. on north side of 141<sup>st</sup> ST = 805.79'

proposed flow line elevation of dredged Lehr = 801.0'

$$\text{slope of proposed channel to headwall} = \frac{805.79 - 801.0'}{1300 \text{ LF}} = 0.37\%$$

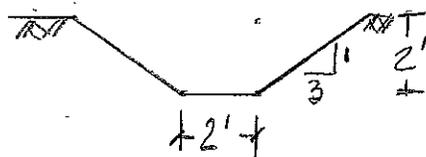
An additional 27 acres, north of 141<sup>st</sup> street drain to the proposed channel.

$$Q_{10} = 21 \text{ cfs}$$

$$Q_{100} = 30 \text{ cfs}$$

$$\text{total } Q_{10} = 10.8 \text{ cfs} + 21 \text{ cfs} = 31.8 \text{ cfs}$$

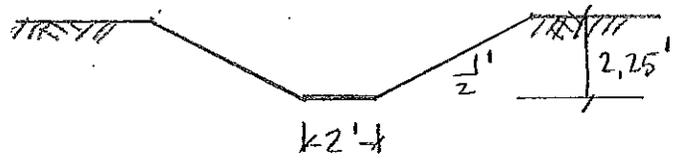
$$Q_{100} = 38.1 \text{ cfs} + 30 \text{ cfs} = 68.1 \text{ cfs}$$



b = 2' height = 2'  
side slopes 3/1

Will carry 100 yr storm  
SF = 16 SF

At 2:1 side slopes  $b = 2'$   
 $h = 2.25'$  to carry  $Q_{100}$



# Channel Report

Hydraflow Express Extension for AutoCAD® Civil 3D® 2010 by Autodesk, Inc.

Wednesday, Dec 4 2013

## Proposed Lehr, north of 141st Street

### Trapezoidal

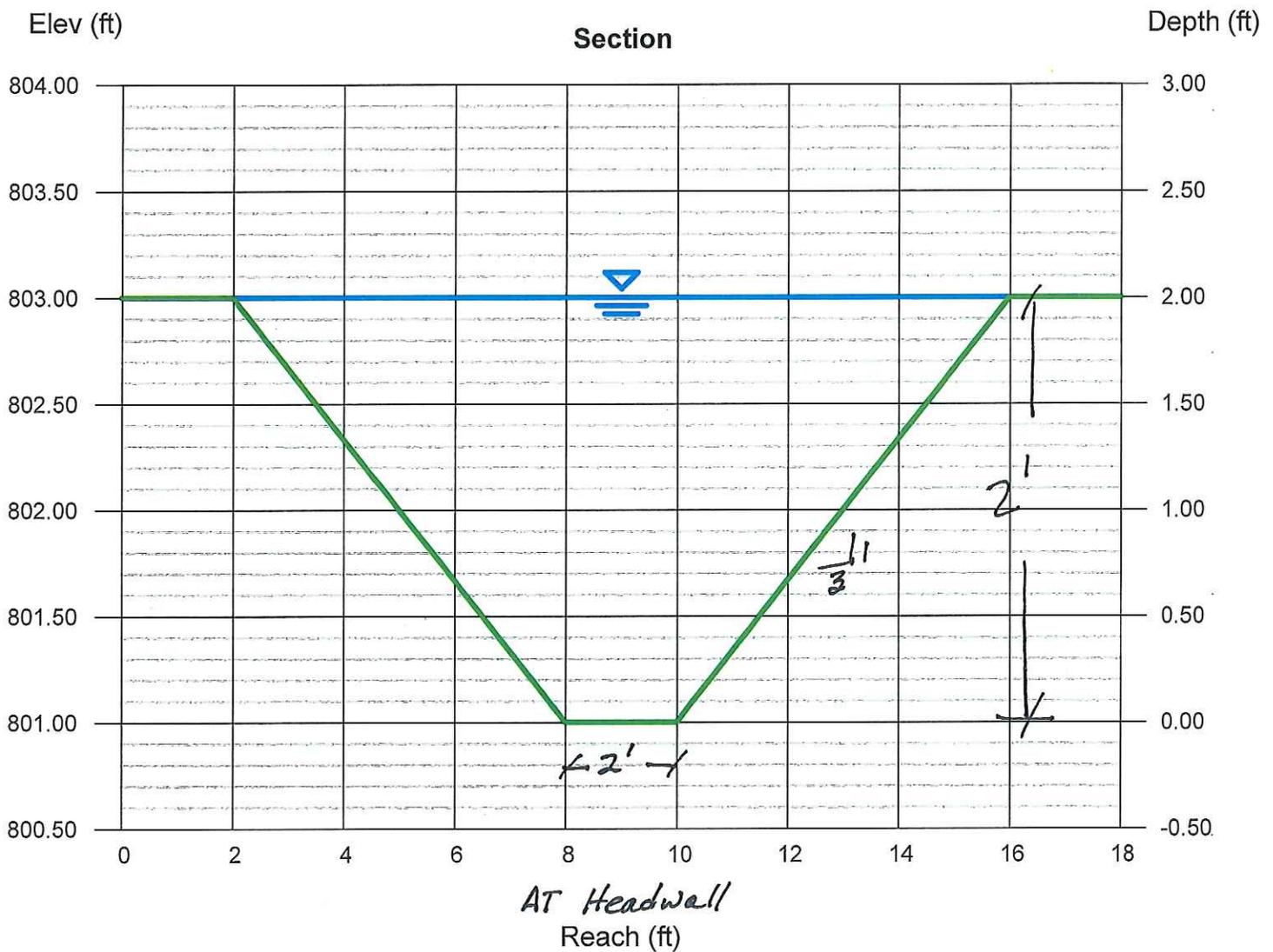
Bottom Width (ft) = 2.00  
 Side Slopes (z:1) = 3.00, 3.00  
 Total Depth (ft) = 2.00  
 Invert Elev (ft) = 801.00  
 Slope (%) = 0.37  
 N-Value = 0.022

### Highlighted

Depth (ft) = 2.00  
 Q (cfs) = 69.72  
 Area (sqft) = 16.00  
 Velocity (ft/s) = 4.36  
 Wetted Perim (ft) = 14.65  
 Crit Depth, Yc (ft) = 1.54  
 Top Width (ft) = 14.00  
 EGL (ft) = 2.30

### Calculations

Compute by: Q vs Depth  
 No. Increments = 10



# Channel Report

<Name>

### Trapezoidal

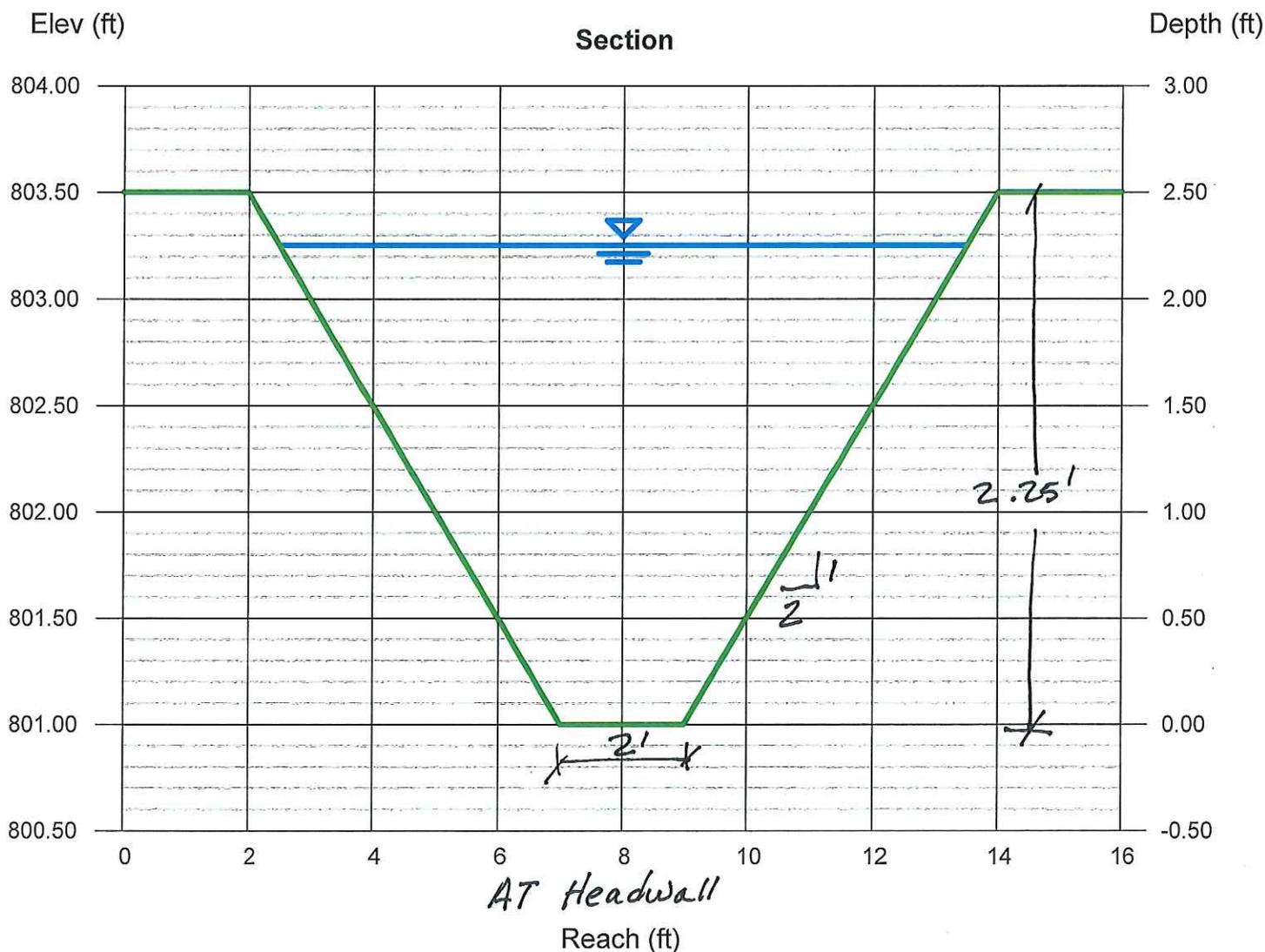
Bottom Width (ft) = 2.00  
 Side Slopes (z:1) = 2.00, 2.00  
 Total Depth (ft) = 2.50  
 Invert Elev (ft) = 801.00  
 Slope (%) = 0.37  
 N-Value = 0.022

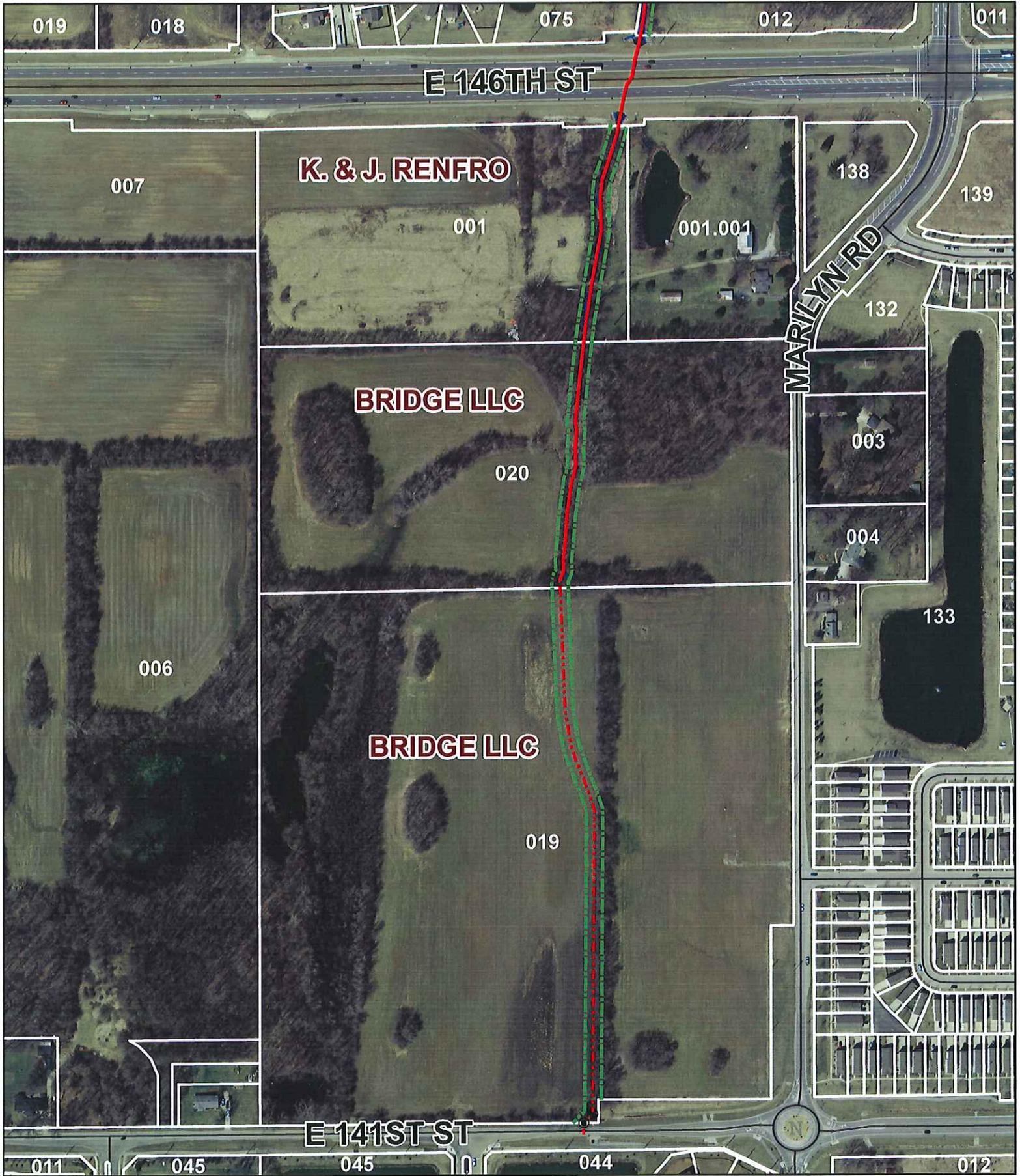
### Highlighted

Depth (ft) = 2.25  
 Q (cfs) = 68.33  
 Area (sqft) = 14.63  
 Velocity (ft/s) = 4.67  
 Wetted Perim (ft) = 12.06  
 Crit Depth, Yc (ft) = 1.69  
 Top Width (ft) = 11.00  
 EGL (ft) = 2.59

### Calculations

Compute by: Q vs Depth  
 No. Increments = 10





N



NO SCALE

# WILLIAM LEHR - FILTER STRIPS

Date: 12/18/2013

Author: SUZANNE L. MILLS

## REGULATED DRAIN

- - - CLOSED
- - - 20' FILTER STRIP
- OPEN
- - - Streams



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