




HISTORIC
FRANKLIN
TENNESSEE

ITEM #10
WRKS
06/10/14

MEMORANDUM

May 28, 2014

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator 
David Parker, City Engineer/CIP Executive
Paul P. Holzen, Director of Engineering
William Banks, Staff Engineer

SUBJECT: **100-Block Battle Avenue Drainage Improvements Project – Preliminary Design Presentation**

Purpose

The purpose of this memorandum is to update the Board of Mayor and Aldermen (BOMA) and the local neighborhood residents on the preliminary design of the 100-Block Battle Avenue Drainage Improvements Project.

Background

For years, there have been properties in the Battle Avenue area that have experienced localized flooding, adjacent to both Alicia Drive and Academy Street. During the May 2010 flood, there were approximately 10 properties that reported damage. A Professional Service Agreement (COF Contract No. 2012-0144) with Neel-Schaffer, Inc. was approved on July 24, 2012, for the Battle Avenue Drainage Study. It included the development of a hydrologic and hydraulic model to determine existing conditions, flows and elevations, and the development of alternative options to reduce the localized flooding for the 100-Block and 400-Block of Battle Avenue. On November 26, 2013, BOMA approved a Professional Services Agreement with Neel-Schaffer, Inc. for the final design of the 100-Block of Battle Avenue (COF Contract No. 2013-0180). The specific properties included in the design are 109 through 115 Battle Avenue.

The 100-Block Battle Avenue final design is nearing completion. We have a viable design/solution to reduce the flooding impacts to the area. Staff invited the neighborhood residents to this presentation to help show progress is being made.

The 100-Block Battle Avenue project incorporates the following items in its design:

- Expansion of Existing Detention Basin –
There is one significant man-made detention basin, within the 100-Block of Battle Avenue, for a self-storage facility located at 110 Fairground Street. The existing basin does not have an outlet or outlet control structure. Storm water runoff stored in the existing basin is pumped to an existing storm sewer system at the intersection of Fairground Street and Columbia Avenue. The pump station includes one primary pump, without an auxiliary or emergency pump. If the primary pump fails for any reason, it is possible the detention basin would overflow into the adjacent low area to the north. The recommended alternative for improving drainage and reducing flooding within the 100 block area of Battle Avenue includes expansion of the existing pond approximately 100 feet to the north, which increases available storage to contain storm water runoff. With the pond expanded, an auxiliary pump would be installed and drawdown after a rainfall event regulated to ensure that capacity of the existing storm water system, where the water is pumped, is not exceeded. The expanded detention pond would be placed on an isolated parcel of land located behind 1408 Columbia Avenue and 107 Battle Avenue, owned by Ms. Mary Fagan Chester. See EXHIBIT A.



- EXHIBIT B shows the extent of existing flooding within the 100 block of Battle Avenue and the proposed reduction in flooding that results from implementation of the current design. Additional storage volume of the expanded detention basin would provide enough volume to reduce flooding and drainage issues at all five residences in the 100-Block of Battle Avenue during the 100-year storm event. Any storm event larger than a 100-year storm, like the May 2010 Flood, may still have some flooding impacts to properties in the area. This is mainly because of the downstream storm water system, and its capacity constraints.
- Stormwater catch basins/area drains will be installed at the low points near 113 and 114 Battle Avenue to eliminate the roadway ponding / hydroplaning concern. This system will be piped between 113 and 115 Battle Avenue to the City owned alley behind these properties. The Stormwater will then continue being piped along the alley to the expanded detention pond. See EXHIBITS B and C.
- The backyards of 109 through 115 will be re-graded to allow ponding stormwater to drain towards the alley. A new swale will be created in the alley that will properly convey the backyard stormwater to the expanded detention pond. See EXHIBIT B and C.

Financial Impact

Engineer's Construction Estimate for a 100-Year Level of Protection Project (Gabion Wall or Redi-Rock Wall - Expanded Detention Area)

Construction Bid Estimate	\$495,117.95
10% Contingency	\$50,000.00
Engineering, Permitting, & Geotechnical	\$20,000.00
CEI (7%)	\$34,658.26
Easement Preparation	\$7,000.00
<u>Property Acquisition (\$6.00/S.F.)</u>	<u>\$104,676.00</u>
PROJECT TOTAL	\$711,452.21

Property Acquisition will encompass multiple drainage easements and temporary construction easements. The City hopes these will be donated because of the improvements we are making to their properties. The parcel required for the expanded detention pond (owned by Ms. Chester) will need to be purchased in its entirety. We have estimated a cost above, but its value will be determined by a formal property appraisal. Condemnation proceedings may be needed to acquire this parcel.

Also, a second project alternative was discussed in prior meetings that included a complete roadway storm water infrastructure system which would eliminate the need for a detention pond. This alternative was estimated at \$2.7 Million, so it was deemed too expensive.

Total project funding included as part of FY2015 Stormwater Budget under Capital; 89410 Drainage; Various at \$1,500,000. The remaining funds can be applied to other Stormwater projects, e.g. the Figuers Drive Drainage Improvements Project.

Recommendation

It is recommended that the City move forward with the project as designed. Additional BOMA input is welcome regarding this project.

Exhibit A
100-Block Battle Ave Design
Update



POND EXPANSION
107 Battle Ave.
Parcel ID: 078J G 02101 000090780

Legend

	Pond Expansion
	Proposed Detention Basin
	Parcels

CITY OF FRANKLIN
BATTLE AVENUE DRAINAGE DESIGN
100 BLOCK

NEEL-SCHAFFER
Solutions you can build upon

RECOMMENDED
ALTERNATIVE

EXHIBIT A

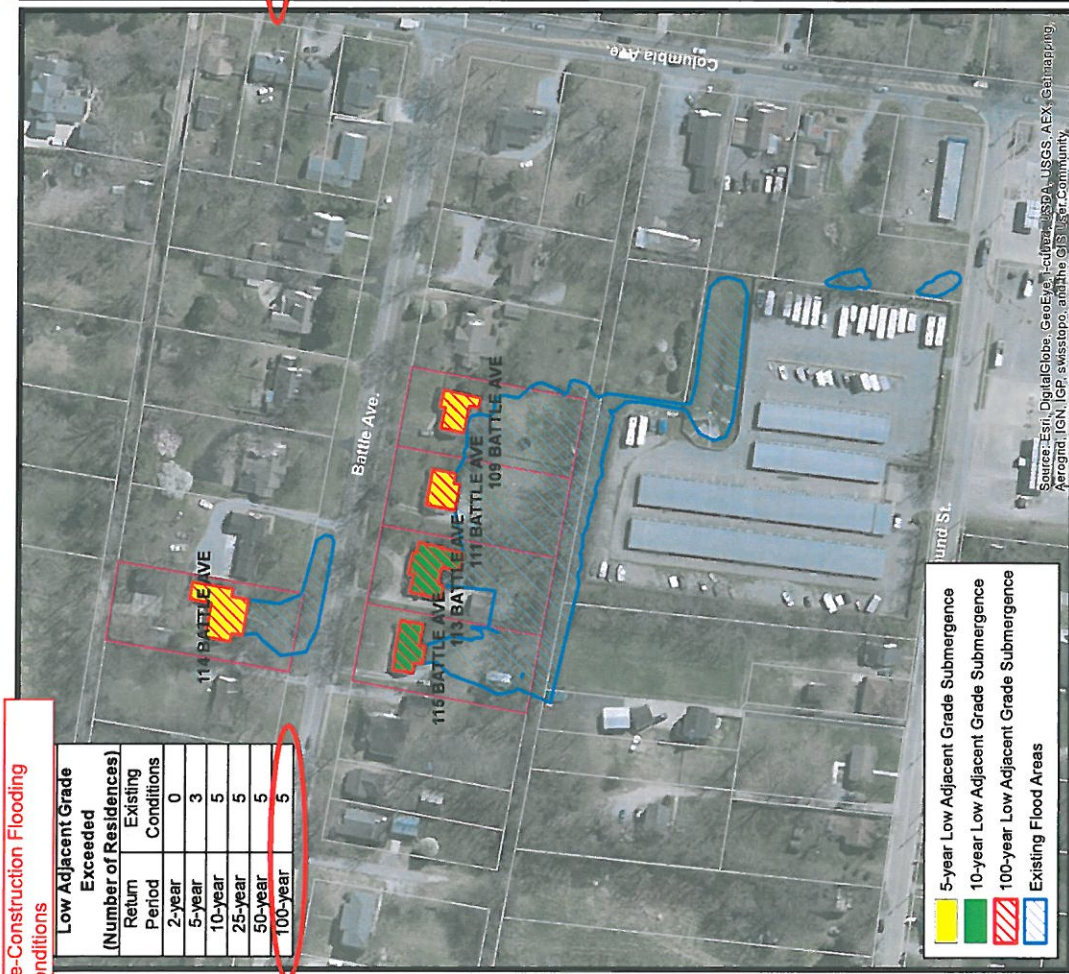
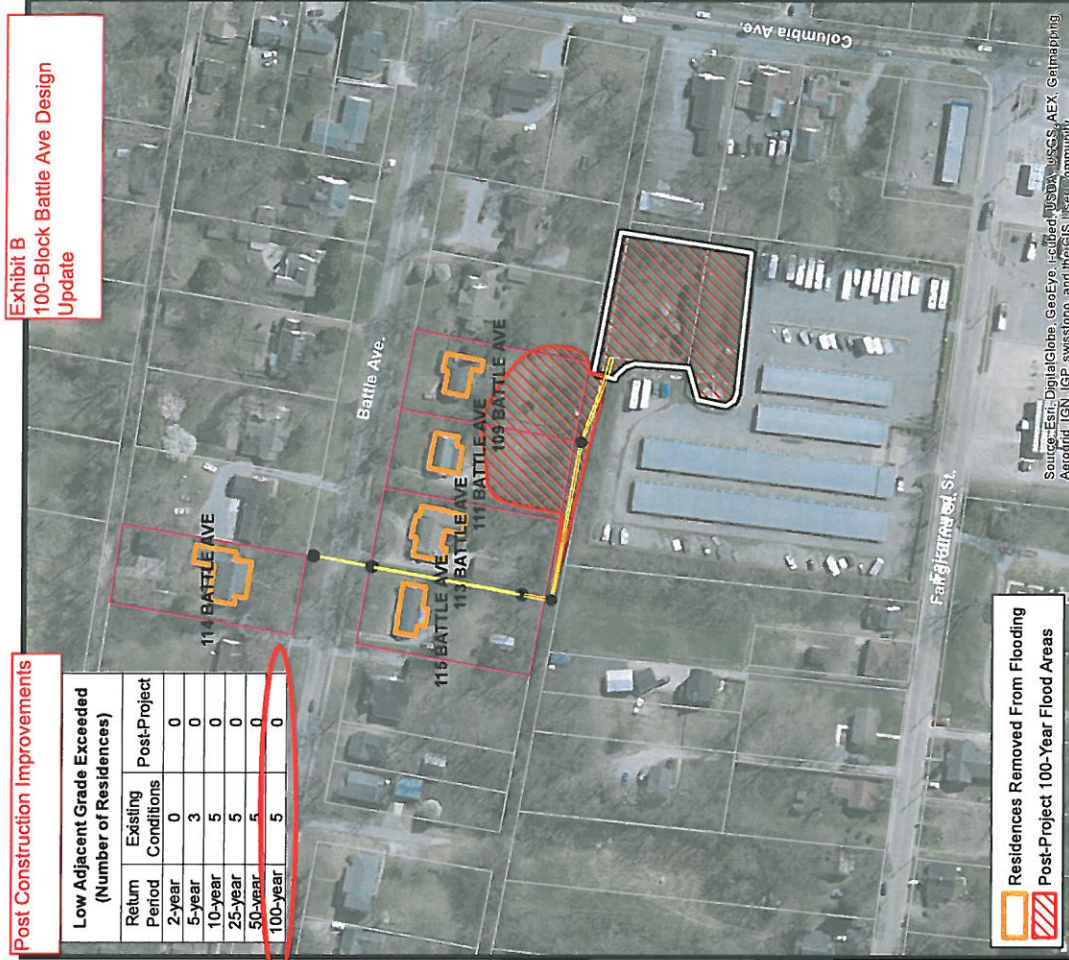
Pre-Construction Flooding Conditions

Low Adjacent Grade Exceeded (Number of Residences)	
Return Period	Existing Conditions
2-year	0
5-year	3
10-year	5
25-year	5
50-year	5
100-year	5

Post Construction Improvements

Low Adjacent Grade Exceeded (Number of Residences)		
Return Period	Existing Conditions	Post-Project
2-year	0	0
5-year	3	0
10-year	5	0
25-year	5	0
50-year	5	0
100-year	5	0

**Exhibit B
100-Block Battle Ave Design Update**



Legend

- Parcels
- Areas of Interest
- Post-Project 100-Year Flood Areas
- Proposed Detention Pond Expansion
- Proposed Manholes/Area Drains
- Proposed Pipes
- Residences Removed From Flooding

CITY OF FRANKLIN
PROPOSED BATTLE AVENUE DRAINAGE IMPROVEMENTS
100 BLOCK

NEEL-SCHAFFER
Solutions you can build upon

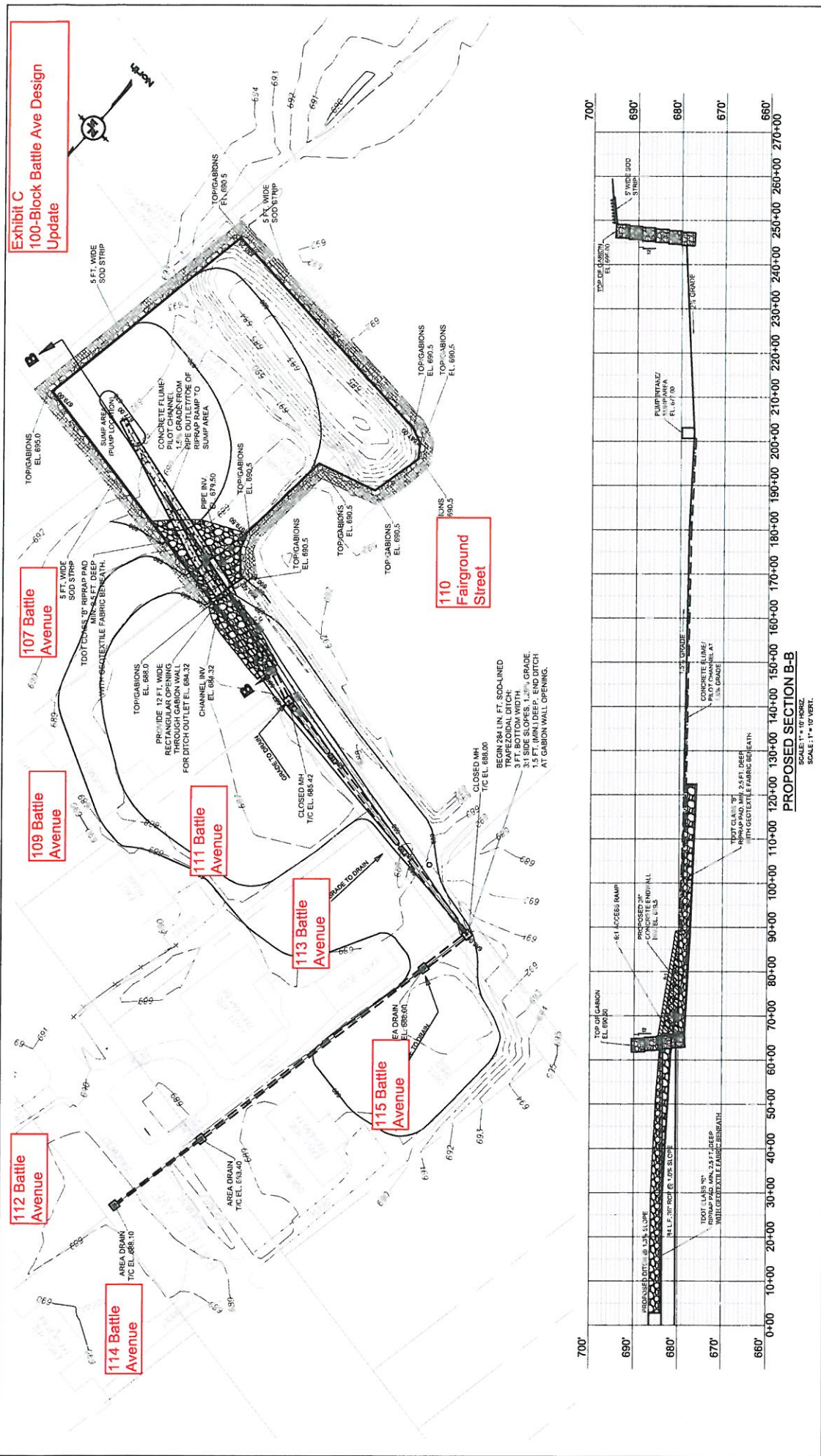
RECOMMENDED ALTERNATIVE
LOW ADJACENT GRADE EXCEEDANCE

EXHIBIT B

Residences Removed From Flooding
Post-Project 100-Year Flood Areas

Source: Esri, DigitalGlobe, GeoEye, iSat, USDA, USGS, AEX, Geomatics, AerGRID, IGN, iGP, swisstopo, and the GIS User Community

Exhibit C
100-Block Battle Ave Design
Update



RECOMMENDED
ALTERNATIVE
PLAN & PROFILE

NEEL-SCHAFFER
Solutions you can build upon
 210 29th Avenue North, Suite 600
 Nashville, TN 37203
 PH: 615-383-3420 F: 615-333-9964

CITY OF FRANKLIN, TENNESSEE
100 BLOCK BATTLE AVENUE
DRAINAGE IMPROVEMENTS

DRAWING INFORMATION		REVISIONS	
N.S. PROJECT NO.:	NS 1918.002	NO.	DATE
PREPARED BY:	WORKING DESIGN, REV7	DESCRIPTION	
SCALE:	1" = 30'-0"		
DRAWN BY:			
CHECKED BY:			
DATE:	05/21/14		
DATE:	05/21/14		
DATE:			
DATE:			

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