

FINAL
LOCATION HYDRAULIC MEMORANDUM

US 301 (SR 43)

from SR 60 (Adamo Drive) to I-4 (SR 400)

Project Development and Environment Study



WPI Segment No. 430050-1

March 2018

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1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District Seven, conducted a Project Development and Environment (PD&E) study to evaluate the proposed widening of US 301 (SR 43) to six lanes from SR 60 (Adamo Drive) to the southern end of the eastbound I-4 (SR 400) on- and off-ramps in Hillsborough County. The total project length is approximately 3.3 miles in length and is illustrated in Figure 1.

2.0 PURPOSE

The purpose of the PD&E study is to document the need for additional transportation capacity within the study corridor, and to evaluate the costs and impacts associated with providing this additional capacity. Federal funds were not used for the PD&E study and nor is any anticipated on future project phases; therefore, it was conducted in accordance with the PD&E Manual, Part 1, Chapter 10, which addresses non-federal projects.

The purpose of this memorandum is to provide a location hydraulic study for the above project, in accordance with 23 CFR 650 Subpart A, Section 650.111. Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRMs) were utilized to determine location of highway encroachments on 100-year floodplains local to the study corridor. This report evaluates risks associated with the implementation of the project, impacts on natural and beneficial floodplain values, the support of incompatible floodplain development, and measures to minimize floodplain impacts.

3.0 PROJECT DESCRIPTION

The proposed action involves widening US 301 from the existing four-lane divided roadway to a six-lane divided roadway to provide additional capacity needed to accommodate the future travel demand that will be generated by the projected population and employment growth in eastern Hillsborough County. US 301 is a major north-south roadway that traverses all of Hillsborough County and provides connectivity to many of Florida's major roadways including SR 60 and I-4. This roadway is a vital link in the regional transportation network and serves as an emergency evacuation route.

US 301 is functionally classified as an "Urban Other Principal Arterial" and has a posted speed limit of 50 miles per hour (mph) within a majority of the project limits. The posted speed limit is reduced to 45 mph approaching SR 60 and approaching the on-ramp to eastbound I-4. Throughout most of the study corridor, US 301 exists as a four-lane divided roadway; however, three through lanes are provided in both the northbound and southbound directions in the vicinity of the intersection with SR 574 (Dr. Martin Luther King, Jr. Boulevard).

The existing right-of-way width ranges from 160 feet to 306 feet; however, a majority of the study corridor has a right-of-way width of 200 feet. Stormwater runoff is collected in roadside ditches and sidewalks were recently constructed along both the east and west sides of US 301 from SR 574 northward to I-4. Other sections of sidewalks exist intermittently from SR 60 to SR 574.



Figure 1 – Project Location Map

There are also seven bridges located within the project limits. Two bridges exist over the CSX Railroad's S-Line while two others are located over the CSX Railroad's A-Line and CR 574 (Broadway Avenue). There are also two bridges that cross over the Tampa Bypass Canal and one bridge culvert that crosses Bruce Creek.

The project is situated within Sections 1, 12, 13, and 24; Township 29 South; Range 19 East of the Public Land Survey System (PLSS). The vertical datum for the project is the 1929 NGVD based on the "As-Built" plans. Federal Emergency Management Agency (FEMA) floodplain elevations and the Hillsborough County Watershed Models are based on 1988 NAVD. NAVD 88 = NGVD 29 – 0.866 feet.

4.0 DRAINAGE PATTERNS

The existing drainage patterns were determined from Hillsborough County Watershed Management Plans, FDOT drainage maps for US 301, and Florida Department of Environmental Protection (FDEP) GIS information for impaired water bodies using their associated Water Body IDs (WBIDS). US 301 south of the Tampa Bypass Canal crossing is within the Hillsborough River/Tampa Bypass Canal watershed. The section of US 301 alignment north of the Tampa Bypass Canal crossing is in the East Lake Watershed.

The existing roadway alignment has a rural typical section and most of the stormwater runoff from the travel lanes and outside shoulder sheet flows into roadside ditches, except where there are shoulder gutters and drains along the bridge shoulders; however the bridge runoff discharges to the roadside ditches as well. Most of the grassed medians collect runoff within the medians and discharge via median drains to the roadside ditches. There is some curb and gutter existing along the median on the north side of the bridge at Bruce Creek with a curb inlet that drops into the bridge culvert at that location. The runoff is currently not treated in the ditches.

There are approximately nine existing roadway drainage basins along the project alignment.

**TABLE 1.0
ROADWAY DRAINAGE BASINS**

Basin	From Station	To Station
B1	100+00	113+00
B2	113+00	122+00
B3	122+00	132+00
B4	132+00	170+00
B5	170+00	181+00
B6	181+00	203+00
B7	203+00	237+00
B8	237+00	248+40
B9	248+40	262+00

Some the roadway basins may be combined during the design stage of the project. The project runoff ultimately drains into the Tampa Bypass Canal and East Lake basins. Neither

basin is classified as an Outstanding Florida Water (OFW) by the Florida Department of Environmental Protection (FDEP). However, these watersheds contain sub-basins having Impaired Water Bodies and the project corridor is located in the WBIDs listed in the following table.

**TABLE 2.0
PROJECT IMPAIRED WATER BODIES**

WBID	WATER BODY NAME	BASIS OF IMPAIRMENT LISTING
1536A	Unnamed Drain	<ul style="list-style-type: none"> • Fecal Coliform
1536B	Six mile Creek/Tampa Bypass Canal	<ul style="list-style-type: none"> • Dissolved Oxygen • Nutrients (Chlorophyll-a)
1536F	Six mile Creek/Tampa Bypass Canal	<ul style="list-style-type: none"> • Dissolved Oxygen • Nutrients (Chlorophyll-a)
1576	Mango Drain	<ul style="list-style-type: none"> • Dissolved Oxygen • Fecal Coliform • Nutrients(Chlorophyll-a)

5.0 ENCROACHMENTS ON 100-YEAR FLOODPLAIN

The latest revision of the Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) for Hillsborough County was adopted in 2013. Portions of the study area exist within the floodplain limits shown on FIRM Map Numbers 12057C0378J and 12057C0380J; both Map Revised September 27, 2013. Excerpts of the panels, in the form of FIRMettes, are provided in Appendix A.

Two locations along the study corridor are contiguous or situated within areas of Zone AE, which have base flood elevations determined from floodplain analyses of the 100-yr frequency storm event. The effected floodplains are associated with the Tampa Bypass Canal, a U.S. Army Corps of Engineers project, that alleviates major flooding along the Hillsborough River within Hillsborough County and the City of Tampa. It is operated and maintained by the Southwest Florida Water Management District (SWFWMD). Appendix C panel C1 shows the corridor crossing Tampa Bypass Canal Tributary 2, also known as Bruce Creek. Bruce Creek has a base flood elevation (BFE) of 17.0 (NAVD 1988) on the downstream west side of US 301 and a BFE of 18.0 (NAVD 1988) on the upstream east side. Panel C3 shows the corridor crossing the Tampa Bypass Canal, also known as Six-mile Creek, with a base flood elevation of 11.0 at both the upstream and downstream sides of the bridge.

The two floodplain crossings which occur along the existing US 301 alignment are short, transverse encroachments of freshwater or riverine floodplains. The floodplain encroachments will be minimal due to the proposed roadway alignment following the same

alignment as the existing roadway and headwaters staying within the channel banks. Floodplain compensation for any freshwater encroachments may be required by SWFWMD. Bruce Creek and the Tampa Bypass Canal are regulated floodways and will require preparation of “No Rise” Certifications during design.

6.0 CROSS DRAINS

Existing US 301 cross drains along the alignment include a double 10'x8' bridge culvert at Bruce Creek, and the Tampa Bypass Canal bridges, which are 675 feet in length. There are four other cross drains, for a total of six (6) cross drains, all of which are shown in Figures 2 and 3 and described in the following table.

**TABLE 3.0
CROSS DRAINS**

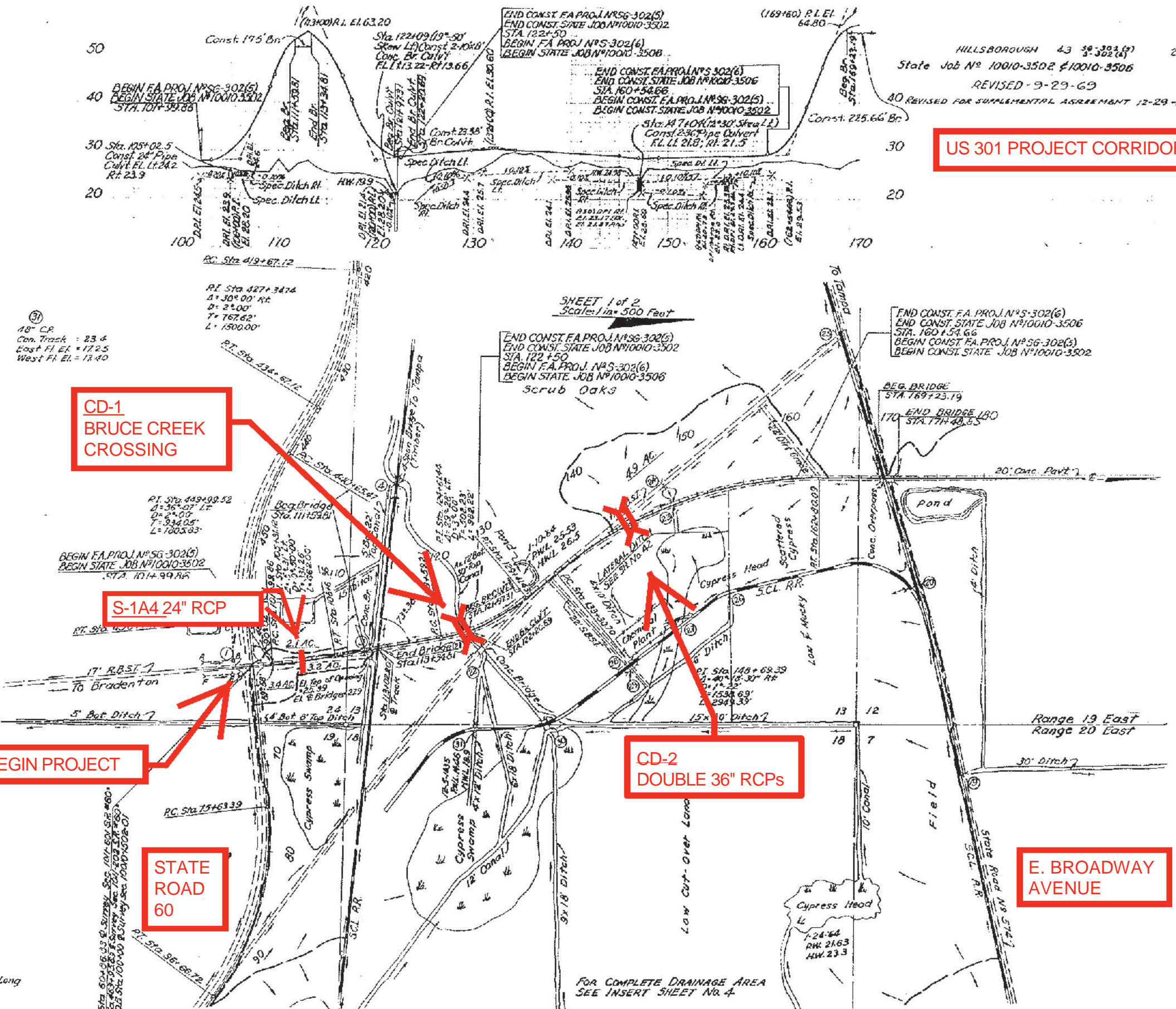
Inventory Drain Number	Station	Cross Drain	Bridge Number
S-1A4	105+03	24" RCP	Not Applicable
CD-1	122+09	Bruce Creek Double 10'x8' CBC Bridge Culvert	100574
CD-2	147+11	Double 36" RCP	Not Applicable
CD-3	175+49	2'x2' Culvert extended with 30" RCPs, each side	Not Applicable
CD-4	202+05	Tampa Bypass Canal Two (2) Bridges Northbound and Southbound	North Bound 100103 South Bound 100012
CD-5	248+42	10'x8' CBC	Not Applicable

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION. TYPICAL FIGURES 2 AND 3.

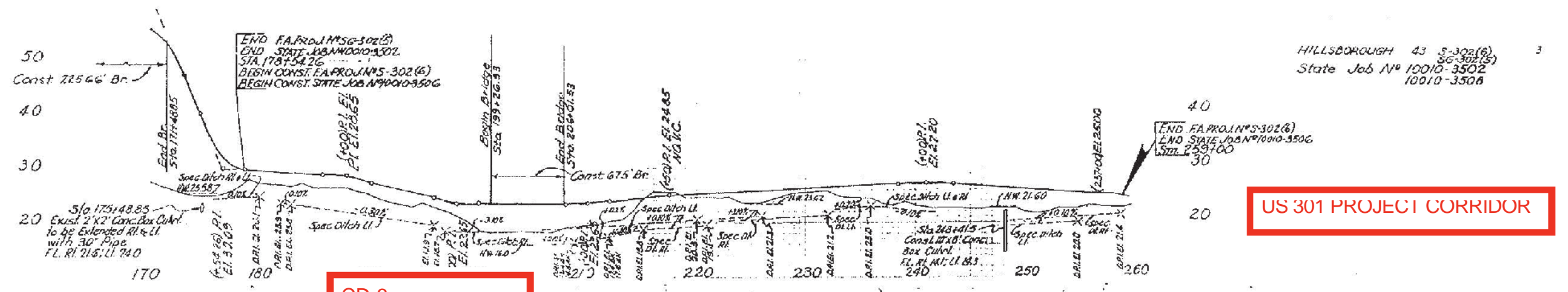
US 301 PROJECT CORRIDOR

EXISTING STRUCTURE INFORMATION

- ① 18" C.P. EL. 25.00
- ② C.B.
- ③ 18" C.P. EL. 26.58
- ④ 18" C.P. E. EL. 23.46
- ⑤ 18" C.P. S. EL. 23.64
- ⑥ 24" C.R. W. EL. 23.37
- ⑦ 24" C.R. E. EL. 20.84
- ⑧ 18" C.P. EL. 24.09
- ⑨ 18" C.P. EL. 24.79
- ⑩ 42" C.P.
- ⑪ 1-span Conc. Bridge
- ⑫ 4-span Timber Trestle
- ⑬ 2-40'x36" C.P.
- ⑭ 5'x3' Box Culvert
- ⑮ 15" C.P.
- ⑯ 24" C.P.
- ⑰ 18" C.P.
- ⑱ 30" Steel Pipe
- ⑲ 24" C.P.
- ⑳ 3-span Timber Trestle
- ㉑ 3-56"x36" C.M.P.
- ㉒ 15" C.P.
- ㉓ 18" C.P.
- ㉔ 2-10'x7' Box Culverts
- ㉕ 1-span Conc. Bridge
- ㉖ 2x2" Conc. Box Culvert
- ㉗ 26" C.P.
- ㉘ 24" C.P.
- ㉙ 18" C.P.
- ㉚ 15" C.M.P.
- ㉛ 10" C.P.
- ㉜ 18" C.P.
- ㉝ 48" C.P.
- ㉞ 15" C.P.
- ㉟ 18" C.P.
- ㊱ 2-10'x7' Box Culverts
- ㊲ 1-span Conc. Bridge
- ㊳ 2x2" Conc. Box Culvert
- ㊴ 18" C.P.
- ㊵ 24" C.P.
- ㊶ 18" C.P.
- ㊷ 15" C.M.P.
- ㊸ 18" C.P.
- ㊹ 15" C.M.P.
- ㊺ 3-span Timber Trestle



CROSS DRAIN LOCATIONS



US 301 PROJECT CORRIDOR

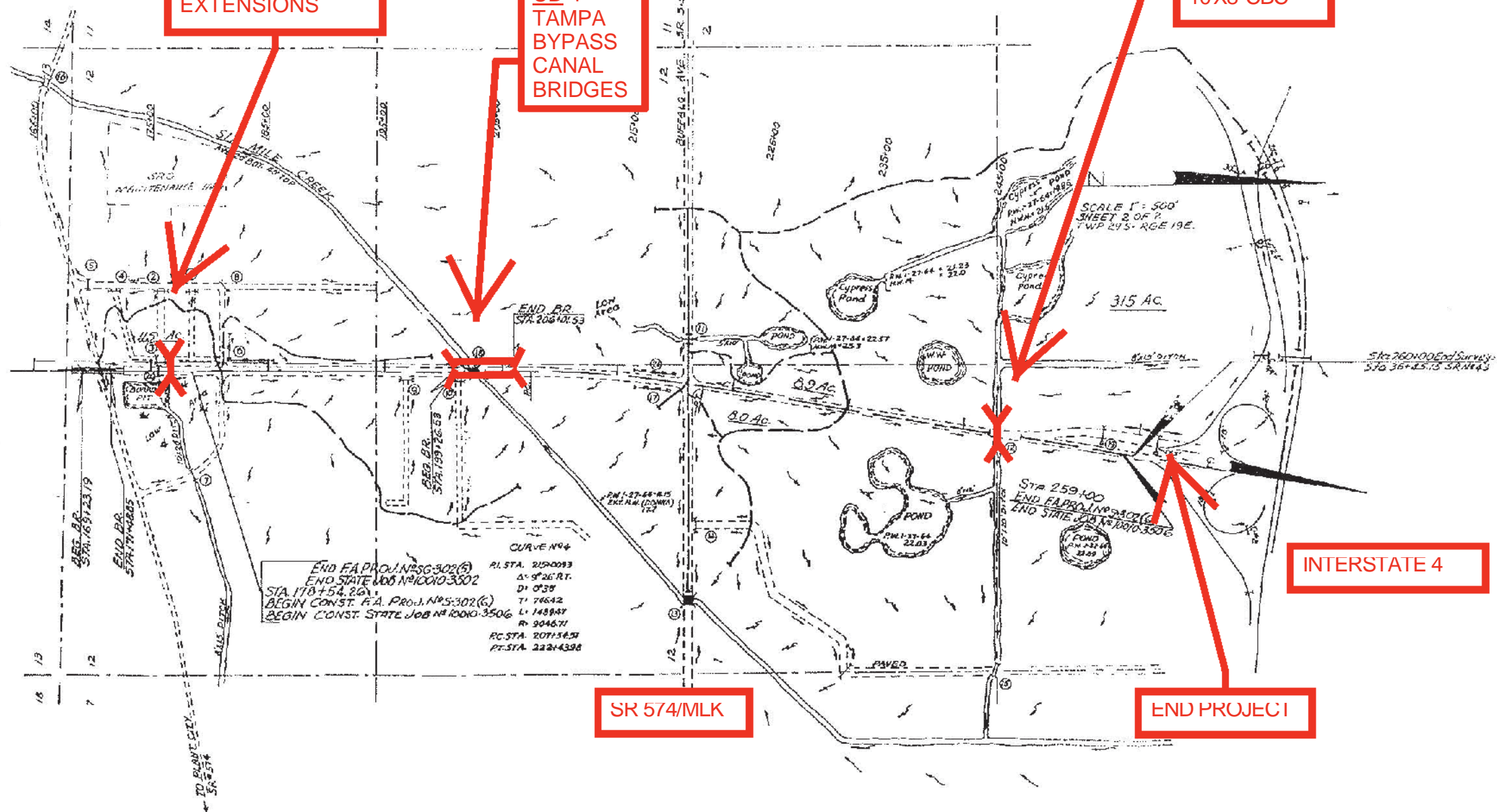
EXISTING STRUCTURE INFORMATION

① FL.N End 18" C.P. 23.46 FL.S End 18" C.P. 23.43	⑧ FL.N End 18" C.P. 24.25 FL.S End 18" C.P. 24.11
③ FL.N End 18" C.P. 23.19 FL.S End 18" C.P. 23.19	⑨ FL.N End 36"x22" C.M.P. 19.38 FL.S End 36"x22" C.M.P. 19.40
③ N.W. Cor. Inter. FL.W. End 12" C.P. 26.34 N.E. Cor. Inter. F.L.E. End 12" C.P. 24.39	⑩ FL.N End 24" C.P. 17.03 FL.S End 24" C.P. 17.43
④ S.W. Cor. Inter. FL.W. End 12" C.P. 26.25 S.E. Cor. Inter. F.L.E. End 12" C.P. 24.95	⑪ FL.S End 18" C.P. 21.10 FL.N End 18" C.P. 21.23 R.W. 1-27-64 22.00 H.W.M. 23.5 E.R.D. 25.04
④ FL.N End 18" C.P. 22.88 FL.S End 18" C.P. 22.83	⑫ 10'x4' Conc. Box Culvert E of Rd. 25.61 FL.W End 18.84 FL.E End 18.56 R.W. 1-27-64 19.13 H.W.M. 21.1
⑤ 2'x2' Conc. Box Culvert E. Rd. 25.57 FL.E End 21.20 FL.W End 21.20 P.W. 1-27-64 21.43 H.W.M. 21.5	⑬ 8 Span Conc. Bridge 800 Sq. Ft. of Opening E of Rd. 22.63 FL.EI 56 P.W. 1-27-64 1163 H.W. 18.9 El. Top of Opening 21.49
⑥ FL.W End 18" C.P. 24.12 Floor of M. C. Bsn. of 18" C.P. SW & N.E. 24.22 Grate Inlet 2660 Floor of Mid. C.B. North #18" C.P. N.E.S. 19.11 Grate Inlet 25.59 Floor of M. C. Bsn. of 18" C.P. N.E.S. 24.22 Grate Inlet 26.73 FL.N. End 18" C.P. 23.60	⑭ 3 Span Conc. Bridge 350 Sq. Ft. of Opening E of Bridge 21.53 P.W. 1-28-64 1030 H.W. 15.8 El. Top of opening 19.61 FL. EI. 7.9
⑦ 2'x2' Conc. Box Culvert E of Rd. 26.34 FL.W End 19.67 FL.E End 19.85 P.W. 1-24-64 24.39 H.W.M. 25.1 Ext. H.W. Mr. Risner 25.7	⑮ Grate in. Med 22.12 FL.C Bsn #15" C.P.W. 20.43 West Lane 25.00 FL.W. End 15" C.P. 20.16
⑩ 2'x2' Conc. Box Culvert E of Rd. 24.67 FL.E End 23.09 FL.W End 23.75 P.W. Pond Rt #1664 24.54 H.W.M. 25.6	⑯ FL.S End 18" C.P. Grate in. S.C. Bsn Floor #18" C.P. N.E.S. Gr. in Mid. S.C. Bsn. Floor #18" C.P. N.E.S. Gr. in Mid. N.C. Bsn Floor #18" C.P. N.E.S. Gr. in N.C. Bsn. Floor #18" C.P.S.
⑪ 2'x2' Conc. Box Culvert E of Rd. 21.83 FL.E End 17.42 FL.E End S. Pipe 17.17 FL.W End N. Pipe 17.11 FL.W End S. Pipe 17.17 P.W. 1-27-64 17.47 H.W. Mr. Collier 20.1	⑰ 12' Span Conc. Bridge 636 Sq. Ft. of Opening E of Bridge 17.01 R.W. 1-28-64 4.49 H.W. 7.8 El. Top of Opening 4.05 FL. EI. 2.6

**CD-3
2'x2' CBC
WITH 30" RCP
EXTENSIONS**

**CD-4
TAMPA
BYPASS
CANAL
BRIDGES**

**CD-5
10'x8' CBC**



INTERSTATE 4

SR 574/MLK

END PROJECT

**E. BROADWAY
AVENUE**

CROSS DRAIN LOCATIONS



FIGURE 3

7.0 DRAINAGE RELATED PROBLEMS

The FDOT District Seven Tampa Maintenance Yard was contacted concerning any existing flooding problems along the project corridor. FDOT Maintenance has reported no flooding problems due to inadequately sized cross drains. Maintenance staff noted several drainage issues that are not related to the cross drains and would typically be addressed by roadway and drainage during the design phase of the widening project.

8.0 PROPOSED ALTERNATIVES

The improvement alternatives considered during the PD&E Study featured widening US 301 from the existing four-lane divided arterial to a six-lane divided arterial. All cross drain structures will have to be longer to accommodate the requirements of the widened roadway. Based upon visual observations, it appears that the existing cross drains, if hydraulically suitable, are candidates for extension. However, it is recognized that some culverts may need to be replaced with hydraulically equivalent structures when they are analyzed in more detail (hydraulically and structurally) in the design phase.

The existing corridor is already heavily developed. The proposed project will not encourage additional floodplain development due to local FEMA floodplain and SWFWMD regulations. The project drainage design will be consistent with local FEMA, FDOT, and SWFWMD design criteria. Therefore, no significant change in the base flood elevation or limits will occur. The proposed roadway will follow the same general alignment as the existing roadway. Therefore, no natural or beneficial floodplain values will be significantly affected.

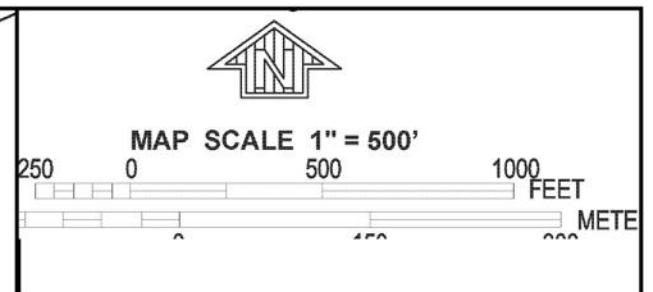
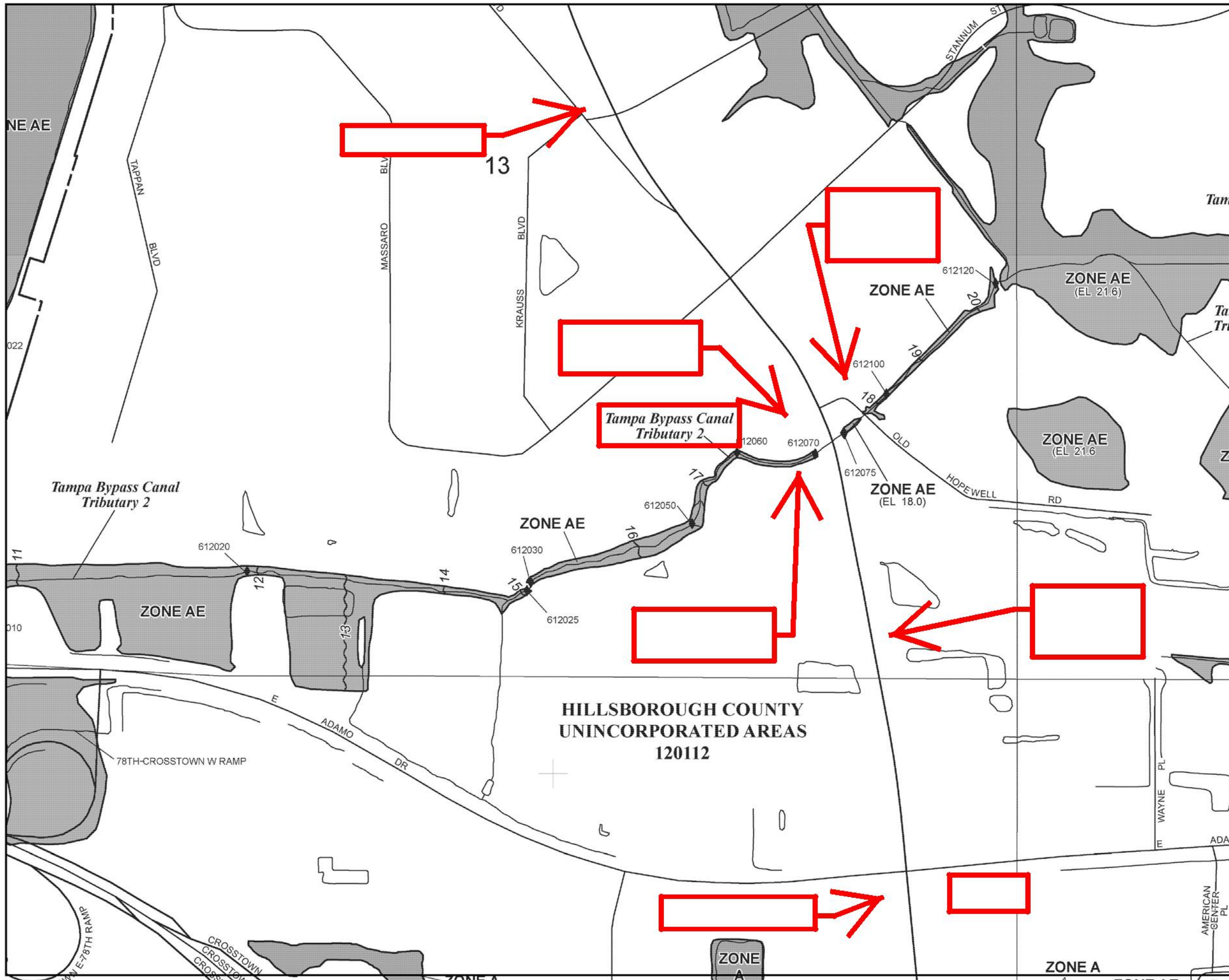
9.0 PROJECT STATEMENT

Based on the information collected during this study, the proposed improvements can be categorized as STATEMENT 3: PROJECTS INVOLVING MODIFICATIONS TO EXISTING DRAINAGE STRUCTURES, as defined in Chap. 24 of the FDOT PD&E Manual, Part 2, Figure 24.1.

“The modifications to drainage structures included in this project will result in an insignificant change in their capacity to carry floodwater. This change will cause minimal increase in flood heights and flood limits. These minimal increases will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will not be a significant change in the potential for interruption or termination of emergency service of emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.”

APPENDIX A

FEMA FLOODPLAIN INFORMATION



PANEL 0378J

FIRM
FLOOD INSURANCE RATE MAP
HILLSBOROUGH COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 378 OF 801
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0378	J
TAMPA CITY OF	120114	0378	J

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0378J
MAP REVISED
SEPTEMBER 27, 2013

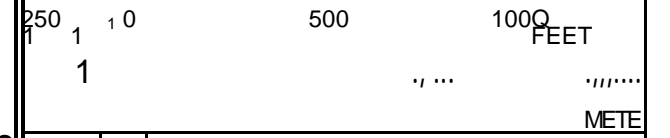
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

JOINS PANEL 0 380

540000

MAP SCALE 1" = 500'



NOTE: MAP AREA SHOWN WITHIN TOWNSHIP 29 TOWNSHIP 29 SOUTH,

BROADVIEW EAST MEADOW BLVD

ZONE AE (EL 21.6)

AGAILI A 9

HILLSBOROUGH INCORPORATED INSURANCE INDEX RATE MAP COUNTY, AREAS

COMMUNITY	NUMBER	PANEL
HILLSBOROUGH COUNTY TAMPA City OF	120112 120114	0378 0378
<p>Number shown below should be the Community Number Shown applications for the soiled</p>		
<p>MAP NUMBER</p>		

Federal Emergency Management Agency

14
11101111*
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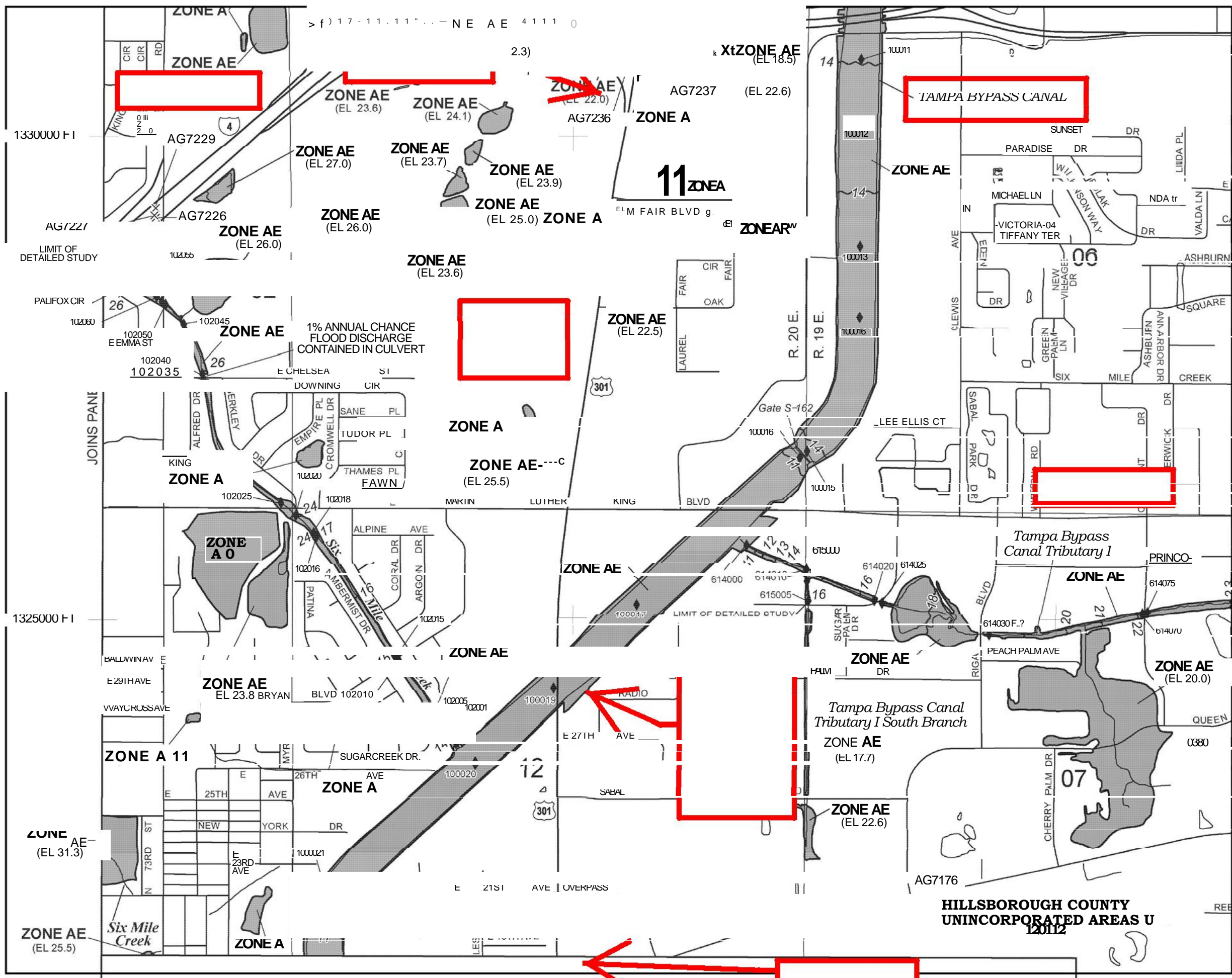
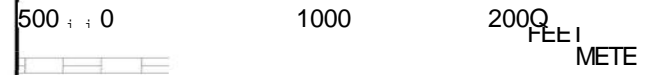
ZONE AE
612120
cv
/

ZONEAE (EL6)

This is an official copy of a portion of the above referenced Flood Map On-Line. This map does not reflect changes made subsequent to the date on the



MAP SCALE 1" = 1000'



NATIONAL FLOOD INSURANCE PROGRAM

PANEL U380J

FIRM FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 380 OF 801 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS COMMUNITY NUMBER PANEL MEM. HILLSBOROUGH COUNTY 120117 038C

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MAP NUMBER 12057C0380J

MAP REVISED SEPTEMBER 27, 2013

Federal Emergency Management Agency

HILLSBOROUGH COUNTY UNINCORPORATED AREAS U 120112

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NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood **control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Florida State Plane west zone (FIPZONE 0902). The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3, N9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov/>.

Base map was derived from multiple sources. Road centerlines were provided by the City of Tampa IT&S GIS section and Hillsborough County Geomatics Division. Political boundaries were provided by Hillsborough County Real Estate Department. PLSS data was provided by the Florida Geographic Data Library.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a **result, the Flood Profiles** and Floodway Data tables in the *Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index for an** overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **FEMA Map Service Center** website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov>.

Static elevations may be shown to the nearest tenth of a foot in modeled pending area based on modeled flow accumulation points (junctions). These junctions are shown as a diamond symbol connected by a flow pathway in between junction points. Boundary junctions, without an associated floodplain, are also shown. Users should refer to the Flood Insurance Study (FIS) for detailed flood elevation information.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AE1	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

rn1 OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary
Floodway boundary
Zone D boundary
COBS and OPA boundary

"h!"=V...1" Boundary dividing Special Flood Hazard Areas Of different Base Flood Elevations, flood depths or flood velocities.

5 1 3 Base Flood Elevation line and value; elevation in feet*

(El. 987) Base Flood Elevation value where uniform Mils zone; elevation in feet*

Referenced to the North American Vertical Datum of 1988 (NAVD 88)

O Cross section line

-----C) Transect line

97°07'10". 122210" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

4275000_N 10110-meter Universal Transverse Mercator grid ticks, zone 19

6000000 FT 5000-foot grid ticks; Florida State Plane coordinate system, west zone (FIPSZONF 0902), Transverse Mercator

DX5510. Bench mark (see explanation in Notes to Users section of this FIRM panel)

M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 28, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 27, 2013 - to update corporate limits, to change Special Flood Hazard Areas, to change zone designations, to incorporate previously issued Letters of Map Revision, to reflect updated topographic information, and to add Base Flood Elevations.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.