



# FLORIDA STATEWIDE REGIONAL EVACUATION STUDY PROGRAM



**DIRECTIONAL  
ATLAS**

**GILCHRIST COUNTY**

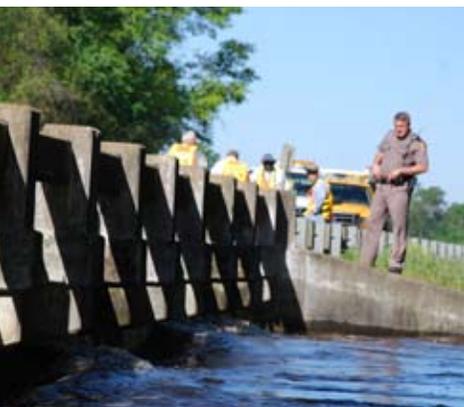
**VOLUME 10-3**

**BOOK 3B**

**SW-WNW DIRECTIONAL STORMS**

**FLORIDA DIVISION OF  
EMERGENCY MANAGEMENT**

**NORTH CENTRAL FLORIDA  
REGIONAL PLANNING COUNCIL**



**NORTH CENTRAL FLORIDA REGION**



**INCLUDES HURRICANE EVACUATION STUDY**



**2015**



**STATEWIDE  
REGIONAL  
EVACUATION  
STUDY PROGRAM**

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# NORTH CENTRAL FLORIDA STORM TIDE DIRECTIONAL ATLAS

## Volume 10-3 Book 3 B - Gilchrist County Directional Atlas: SW-WNW (Exiting) Storms

This Atlas is part of Volume 10 of the *Statewide Regional Evacuation Study Program* (SRESP), and one of three sets of county books in the *North Central Florida Storm Tide Directional Atlas* series. Book 1 covers Dixie County; Book 2 covers Taylor County; and Books 3 and 4 cover the two inland Counties which receive storm surge: Gilchrist and Lafayette. In each county, the primary volume presents an overview of the study and the methodology, while the Appendices, numbered from A to C, include the surge inundation maps for each of three directional storm clusters: N-ENE, SW-WNW, and WNW-N. The Atlas maps identify those areas subject to potential storm tide flooding from the five categories of hurricane on the Saffir-Simpson Hurricane Wind Scale, as determined by the National Oceanic and Atmospheric Administration (NOAA) numerical storm surge model, Sea, Lake and Overland Surges from Hurricanes (SLOSH). Volume 10 is unique in that it is based on the direction the storm is heading and depicts the resulting surge of storms approaching from that specific directional angle.

The *Storm Tide Directional Atlas* series supplements the original hazards analysis for storm tides (Volume 7-3) and depth (Volume 9-3), and enhances a key component of the SRESP. The *Technical Data Report* (Volume 1-3) was built upon the original storm tide analysis and includes the evacuation zones and population estimates, results of the evacuation behavioral data, shelter analysis and evacuation transportation analysis. The study, which provides vital information to state and local emergency management, forms the basis for county evacuation plans. The final study documents are available on the Internet at:

<http://www.ncfrpc.org/sres/directional/index.html>

This Atlas series was produced by the North Central Florida Regional Planning Council with funding from the Federal Emergency Management Agency, through the Florida Division of Emergency Management.

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# CREDITS AND ACKNOWLEDGEMENTS



Funding was provided by the Florida Legislature with funds from the Federal Emergency Management Agency (FEMA), through the Florida Division of Emergency Management (FDEM), 2555 Shumard Oak Boulevard, Tallahassee, 32399, [www.floridadisaster.org](http://www.floridadisaster.org).

The Council acknowledges and extends its appreciation to the following agencies and people for their cooperation and assistance in the development of this Atlas:

**National Oceanic and Atmospheric Administration** (NOAA/TPC-NHC) for the SLOSH numerical storm surge model developed by the late Chester L. Jelesnianski, the development of the 2009 Cedar Key and Florida Bay Basins under the management of Jamie Rhome, and for the storm tide computation and interpretation provided by the NOAA Storm Surge Modeling team.

**Florida Division of Emergency Management**

Bryan Koon, Director  
 Andrew Sussman, Hurricane Program Manager  
 Richard Butgereit, GIS Manager

**Northeast Florida Regional Council**

Elizabeth Payne, Project Manager

**Florida Emergency Preparedness Association**

For their support in this statewide effort

**County Emergency Management Agencies**

Scott Garner, Division Chief, Dixie County  
 Emergency Management  
 David Peaton, Director of Gilchrist County  
 Emergency Management  
 Marc Land, Director of Lafayette County  
 Emergency Management  
 Steve Spradley, Director of Taylor County  
 Emergency Management



## A. Storm Tide Directional Atlas

The surge inundation limits (directional maximum surge heights minus the ground elevations) are provided as GIS shape files and graphically displayed on maps in the *Directional Storm Tide Atlas for the South Florida Region*. The *Atlas* was prepared by the South Florida Regional Council under contract to the State of Florida, Division of Emergency Management, as part of this study effort. The maps prepared for the *Atlas* consist of base maps (1:24000) including topographic, hydrographic and highway files updated using current county and state highway data. Detailed shoreline and storm tide limits for each category of storm were determined using the region's geographic information system (GIS).

The purpose of the maps contained in this Atlas is to reflect a worst probable scenario of the hurricane storm tide inundation for a given cluster of compass directions that a storm would be heading and to provide a basis for the hurricane evacuation zones and study analyses. While the storm tide delineations include the addition of an astronomical mean high tide and tidal anomaly, it should be noted that the data reflects only still-water saltwater flooding. **Local processes such as waves, rainfall and freshwater flooding from overflowing rivers, are usually included in observations of storm tide height, but are not surge and are not calculated by the SLOSH model. It is incumbent upon local emergency management officials and planners to estimate the degree and extent of freshwater flooding as well as to determine the magnitude of the waves that will accompany the surge.**

Although the methodology used for surge determination in this Atlas does the most to reduce inconsistencies and human subjectivity, factors remain in the data itself that could show variations from previous efforts and results. Whenever a SLOSH basin is changed in any way, results can vary. Using MEOW (Maximum Envelope of Water) data as we do in this directional atlas, instead of the MOM (Maximum of Maximums) data, and choosing directional subsets of the maximums (MOMs) will indeed produce different results than other atlases – and this was expected. Other factors can include different elevation model data, as well as number and scope of selected SLOSH basin grid cells. Also, any data that is beyond the original extent or boundary of the basin is interpolation influenced by the modeling trend up to that location, and hand adaptation of basin extensions.

Figure 1 shows the projected surge inundation for each category of storm for storms moving in an SW-WNW direction. Figure 2 provides an index of the SW-WNW directional map series for Gilchrist County.

## B. Points of Reference

County emergency management agencies selected reference points, which include key facilities or locations critical for emergency operations. The Table 1 includes the map identification number, descriptions of the selected points, and the elevation of the site. The elevation is based on the digital elevation data provided by LiDAR. It should be noted that if the site is large, elevations may vary significantly. Table 1 also provides the storm tide value from the SLOSH value and the depth of inundation above ground (storm tide height minus the ground elevation) at the site.

Figure 1 Directional SW-WNW (Exiting) Storm Surge

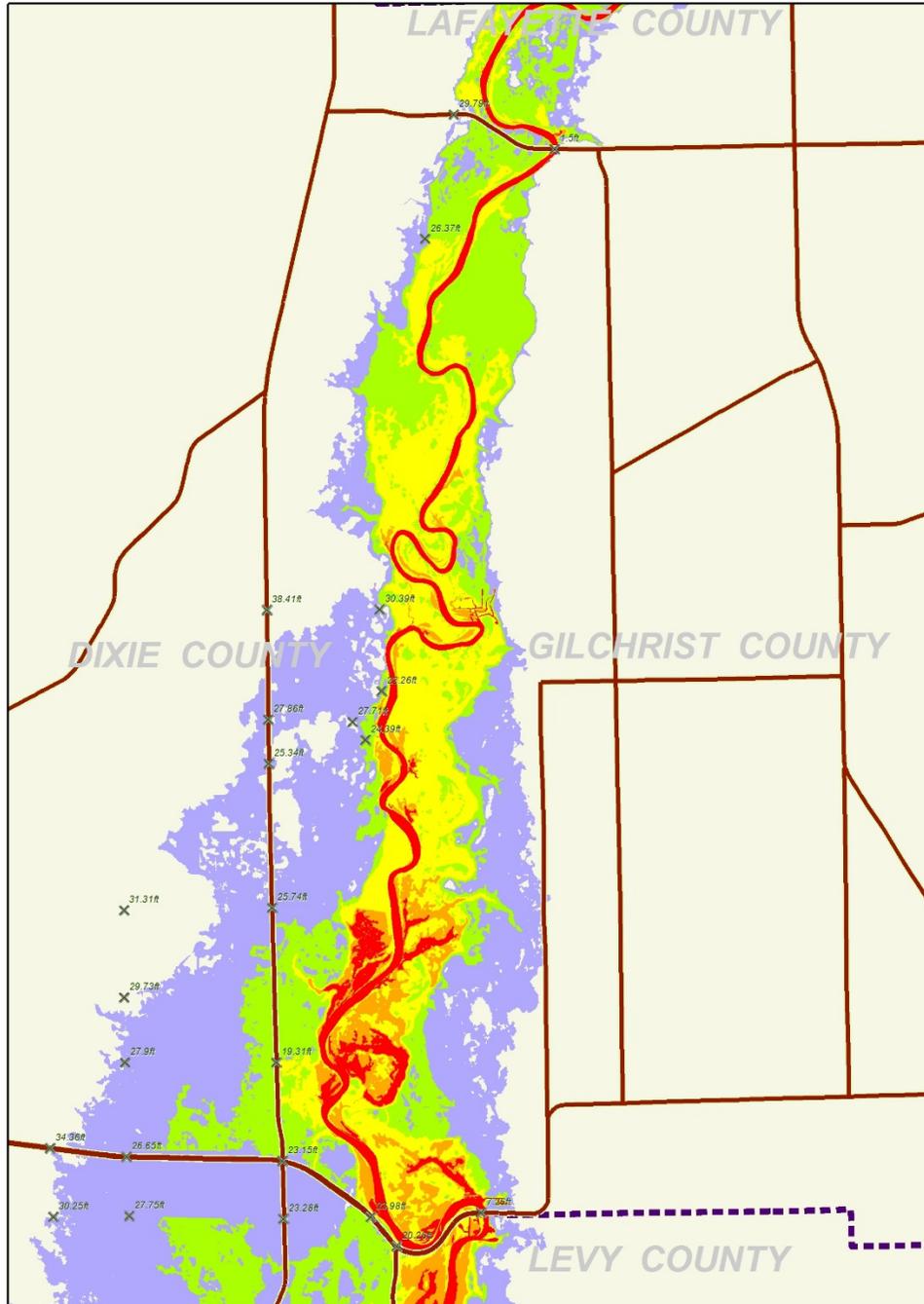


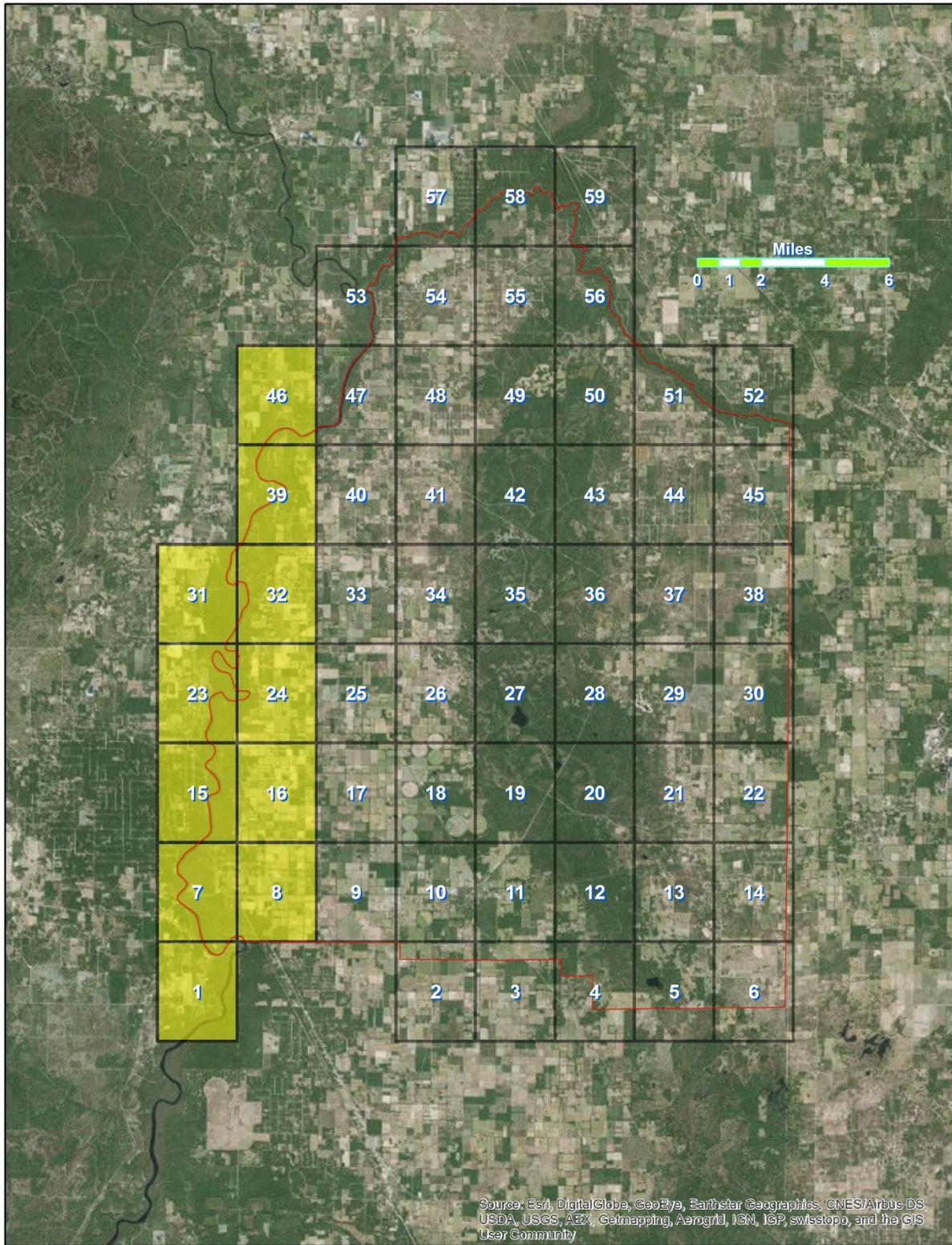
Table 1 Points of Reference, Surge Height and Inundation Depth Above Ground

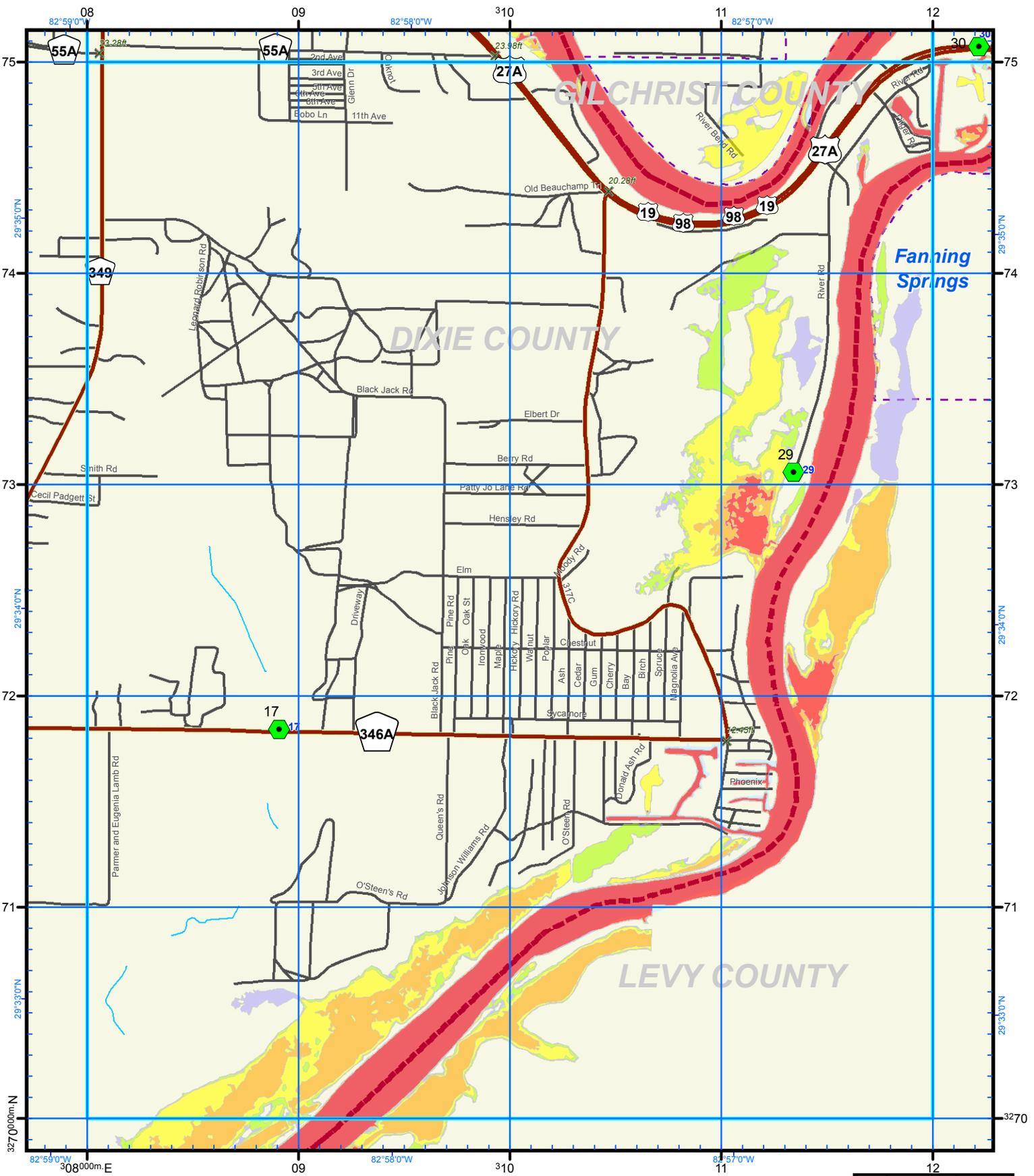
Map ID	Name	Elevation	C1 Depth <sup>1</sup>	C2 Depth	C3 Depth	C4 Depth	C5 Depth	C1 Surge <sup>2</sup>	C2 Surge	C3 Surge	C4 Surge	C5 Surge
32	Gilchrist	28.2	Dry	Dry	Dry	Dry	Dry	2.7	3.3	4.5	5.0	5.2
33	Gilchrist	27.7	Dry	Dry	Dry	Dry	Dry	2.2	3.2	4.9	5.7	6.1
34	Gilchrist	23.0	Dry	Dry	Dry	Dry	Dry	2.2	3.2	4.9	5.7	6.1
35	Gilchrist	20.9	Dry	Dry	Dry	Dry	Dry	2.2	3.2	4.9	5.7	6.1
36	Gilchrist	10.2	Dry	Dry	Dry	Dry	Dry	2.8	3.1	4.3	4.9	5.1
37	Gilchrist	7.9	Dry	Dry	Dry	Dry	Dry	2.8	3.1	4.3	5.0	5.1
38	Gilchrist	15.2	Dry	Dry	Dry	Dry	Dry	2.3	3.2	4.7	5.5	5.9
39	Gilchrist	22.3	Dry	Dry	Dry	Dry	Dry	2.3	3.1	4.7	5.5	5.8

<sup>1</sup> Depth refers to the depth of inundation at the site (storm surge value minus the ground elevation)

<sup>2</sup> Surge refers to the storm surge value from the SLOSH Model

Figure 2 SW-WNW (Exiting) Atlas Map Index





**US National Grid**  
100,000-m Square ID  
**LN**  
Grid Zone Designation  
**17R**

Datum = NAD 1983, 1,000-m USNG

*This map is for emergency planning purposes only. Hurricane evacuation decision-making and growth management implementation are local responsibilities. Please consult with local authorities.*



**Notes:**  
1. Surge limits are based on still water storm tide height elevation above NAVD88 at high tide with no wave setup.  
2. The Points of Reference are locations determined to be relevant to emergency management officials. The depths contained in the accompanying table were derived from Maximum of Maximums surge heights over LIDAR based digital elevation.

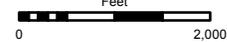
**ATLAS LEGEND**  
 Evacuation Routes  
 City Limits  
 NHD Lakes  
 Point of Reference

**Storm Tide Category**  
 Level 1  
 Level 2  
 Level 3  
 Level 4  
 Level 5

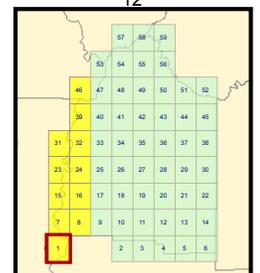
**SW-WNW (Exiting)**

**Directional Storm Tide Gilchrist County, 2015**

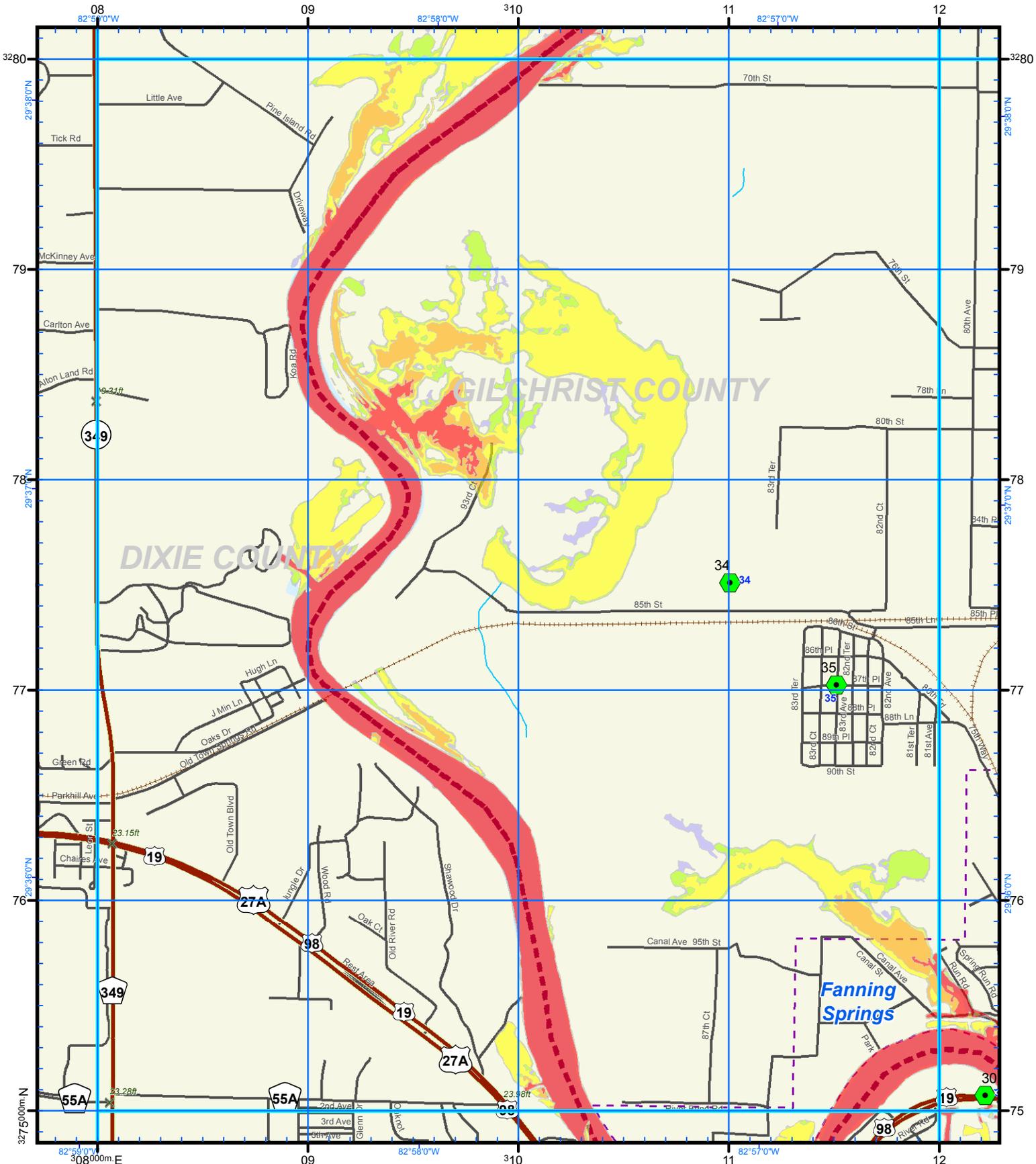
Scale 1:24,000



Map Plate 1



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**US National Grid**  
 100,000-m Square ID  
**LN**  
 Grid Zone Designation  
**17R**  
 Datum = NAD 1983, 1,000-m USNG

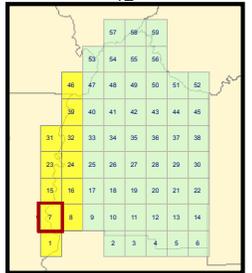


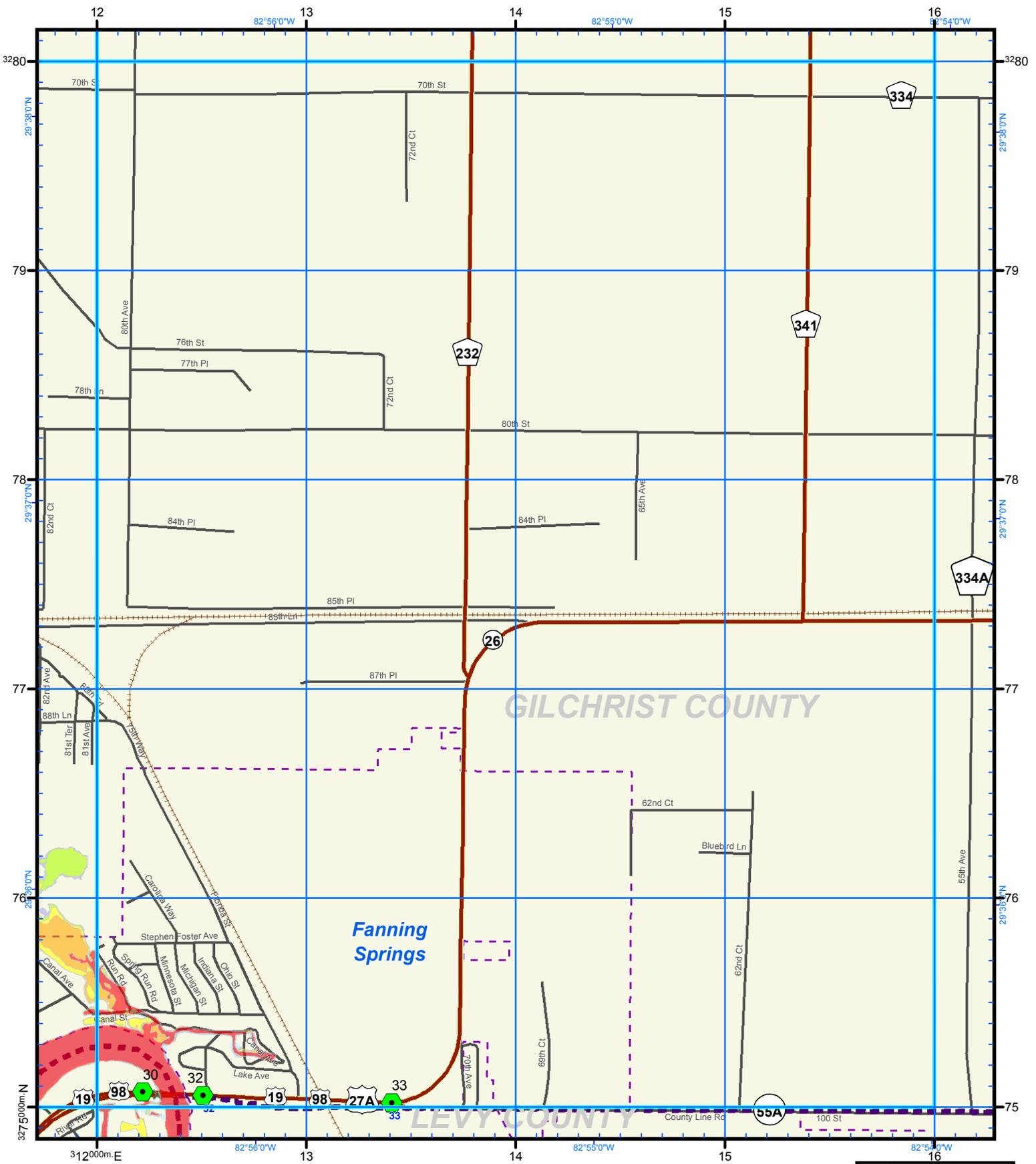
**Notes:**  
 1. Surge limits are based on still water storm tide height elevation above NAVD88 at high tide with no wave setup.  
 2. The Points of Reference are locations determined to be relevant to emergency management officials. The depths contained in the accompanying table were derived from Maximum of Maximums surge heights over LIDAR based digital elevation.

**ATLAS LEGEND**  
 - Evacuation Routes  
 - City Limits  
 - NHD Lakes  
 - Point of Reference

**Storm Tide Category**  
 - Level 1  
 - Level 2  
 - Level 3  
 - Level 4  
 - Level 5

**Directional Storm Tide Gilchrist County, 2015**  
 Scale 1:24,000  
 Feet  
 0 2,000  
**Map Plate 7**





**US National Grid**  
100,000-m Square ID  
**LN**  
Grid Zone Designation  
**17R**  
Datum = NAD 1983, 1,000-m USNG



**Notes:**  
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**ATLAS LEGEND**

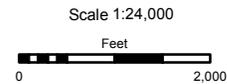
- Evacuation Routes
- City Limits
- NHD Lakes
- Point of Reference

**Storm Tide Category**

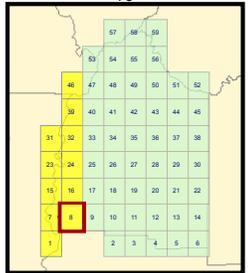
- Level 1
- Level 2
- Level 3
- Level 4
- Level 5

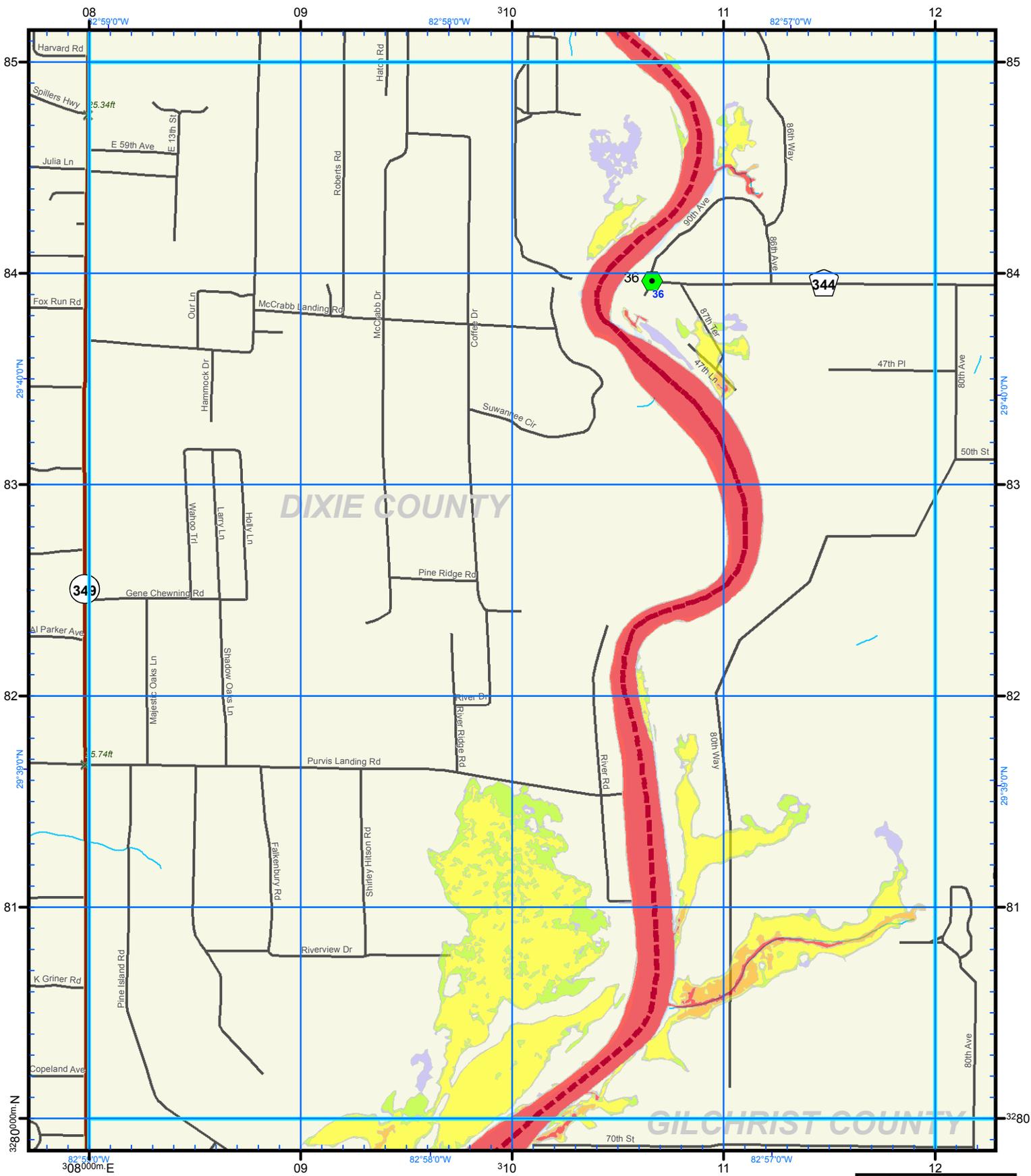
**SW-WNW (Exiting)**

**Directional Storm Tide Gilchrist County, 2015**



Map Plate 8





**US National Grid**  
100,000-m Square ID  
**LN**  
Grid Zone Designation  
**17R**

Datum = NAD 1983, 1,000-m USNG

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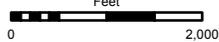
**Notes:**  
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2. The Points of Reference are locations determined to be relevant to emergency management officials. The depths contained in the accompanying table were derived from Maximum of Maximums surge heights over LIDAR based digital elevation.

**ATLAS LEGEND**  
 Evacuation Routes  
 City Limits  
 NHD Lakes  
 Point of Reference

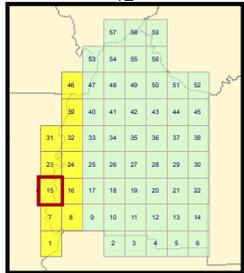
**Storm Tide Category**  
 Level 1  
 Level 2  
 Level 3  
 Level 4  
 Level 5

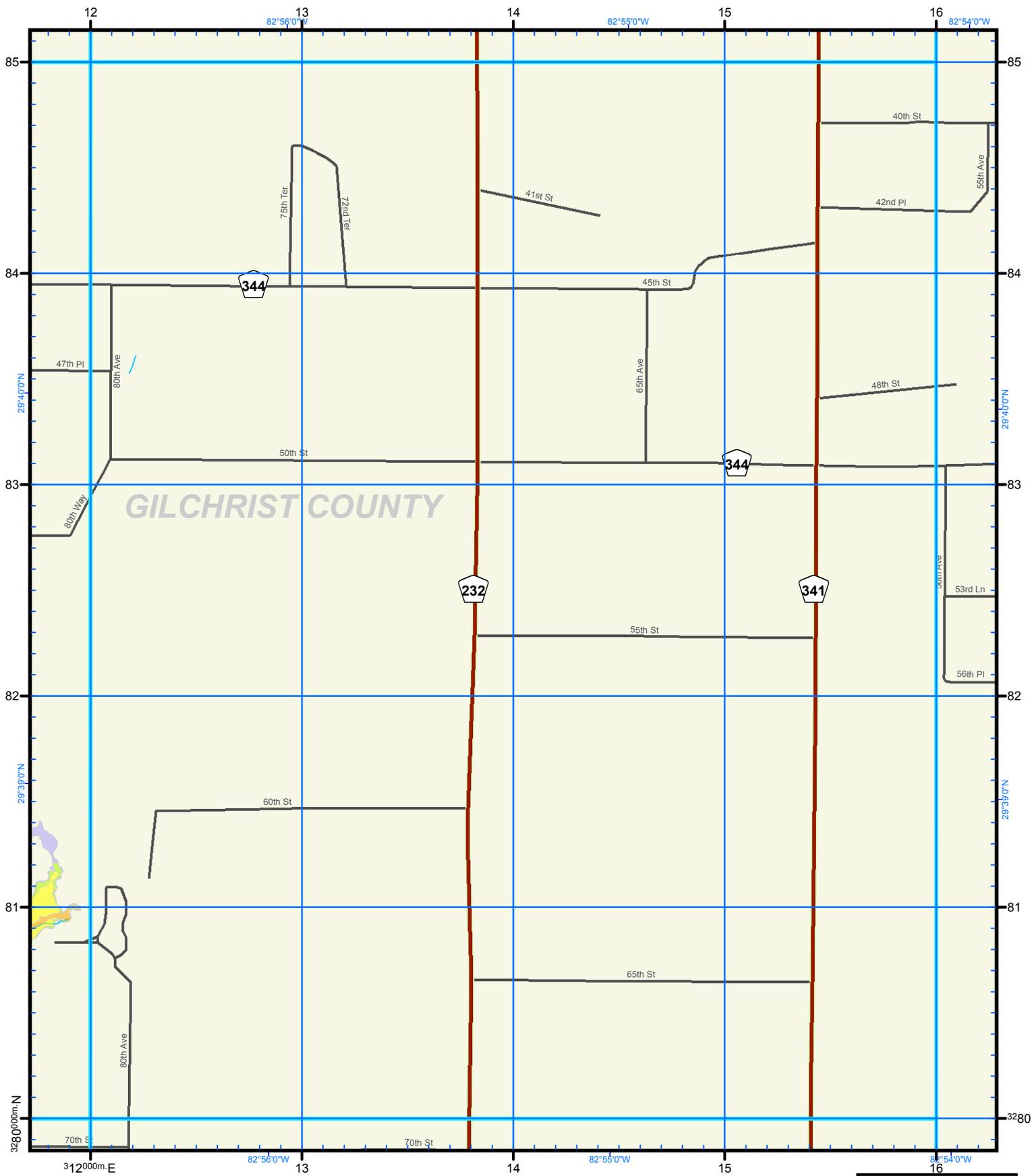
**Directional Storm Tide Gilchrist County, 2015**

Scale 1:24,000



Map Plate 15





GILCHRIST COUNTY

**SW-WNW (Exiting)**

US National Grid  
100,000-m Square ID  
**LN**  
Grid Zone Designation  
**17R**  
Datum = NAD 1983, 1,000-m USNG



Notes:  
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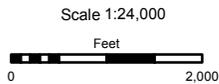
**ATLAS LEGEND**

- Evacuation Routes
- City Limits
- NHD Lakes
- Point of Reference

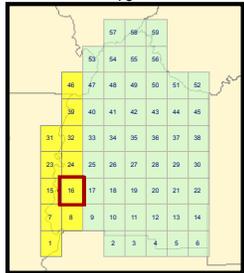
**Storm Tide Category**

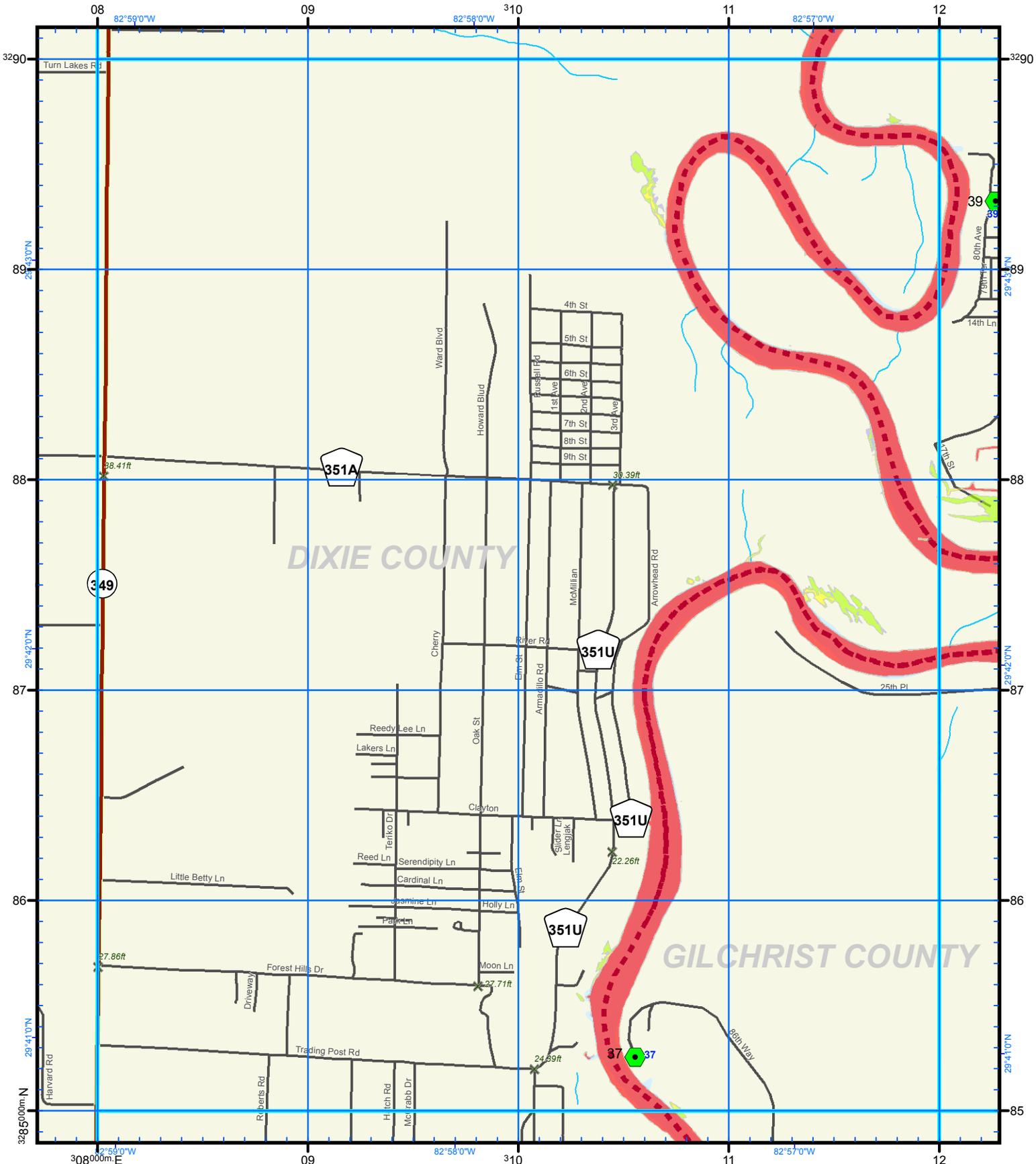
- Level 1
- Level 2
- Level 3
- Level 4
- Level 5

**Directional Storm Tide Gilchrist County, 2015**



Map Plate 16





**US National Grid**  
 100,000-m Square ID  
**LN**  
 Grid Zone Designation  
**17R**  
 Datum = NAD 1983, 1,000-m USNG



**Notes:**  
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**ATLAS LEGEND**

- Evacuation Routes
- City Limits
- NHD Lakes
- Point of Reference

**Storm Tide Category**

- Level 1
- Level 2
- Level 3
- Level 4
- Level 5

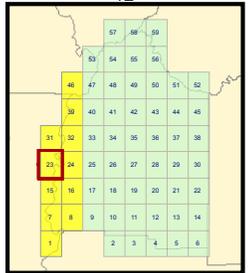
**Directional Storm Tide Gilchrist County, 2015**

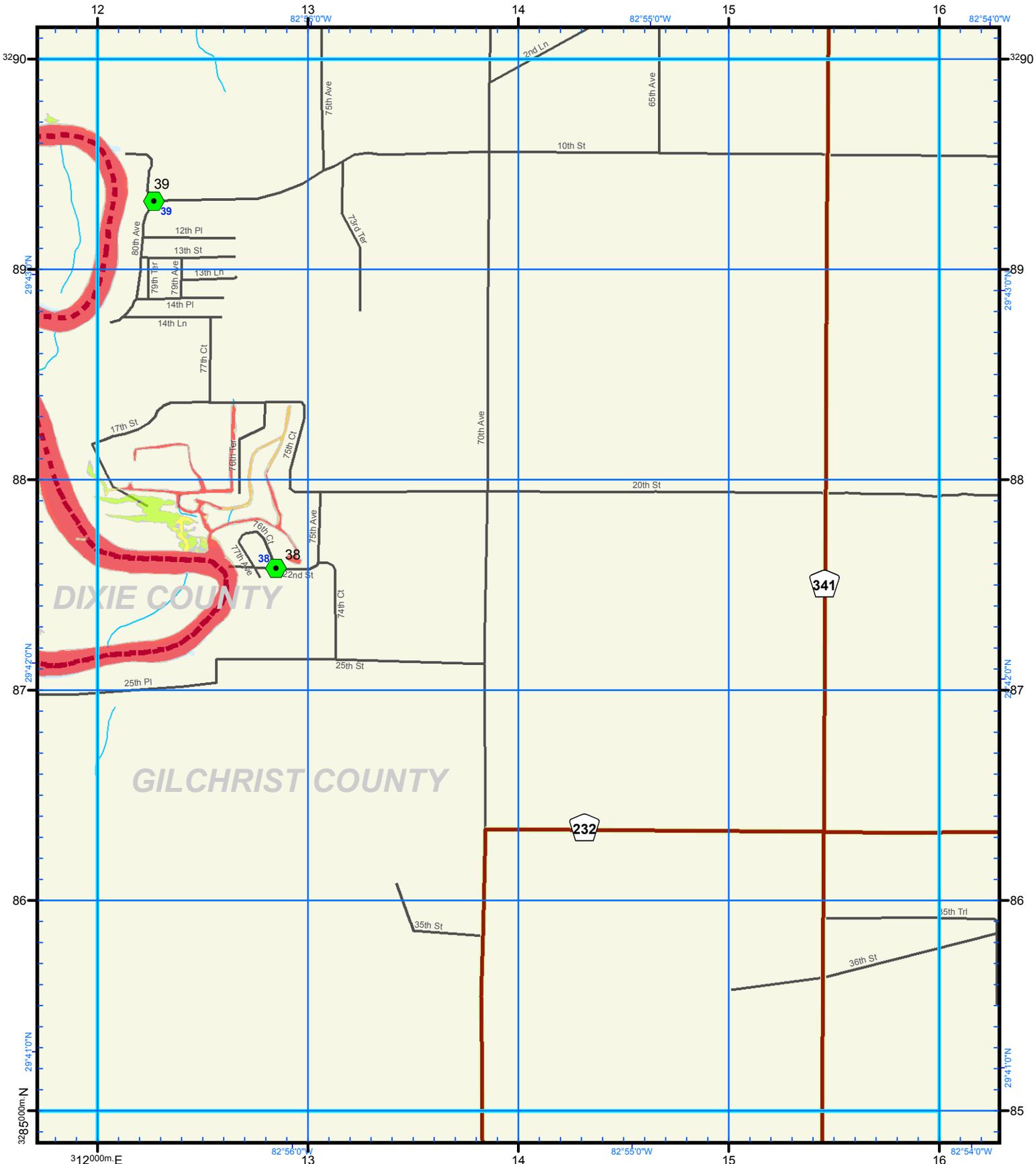
Scale 1:24,000

Feet

0 2,000

**Map Plate 23**





**US National Grid**  
 100,000-m Square ID  
**LN**  
 Grid Zone Designation  
**17R**  
 Datum = NAD 1983, 1,000-m USNG



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**ATLAS LEGEND**

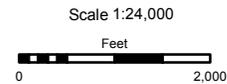
- Evacuation Routes
- City Limits
- NHD Lakes
- Point of Reference

**Storm Tide Category**

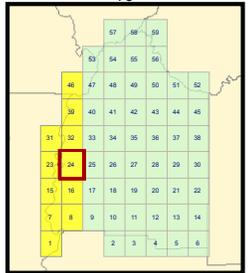
- Level 1
- Level 2
- Level 3
- Level 4
- Level 5

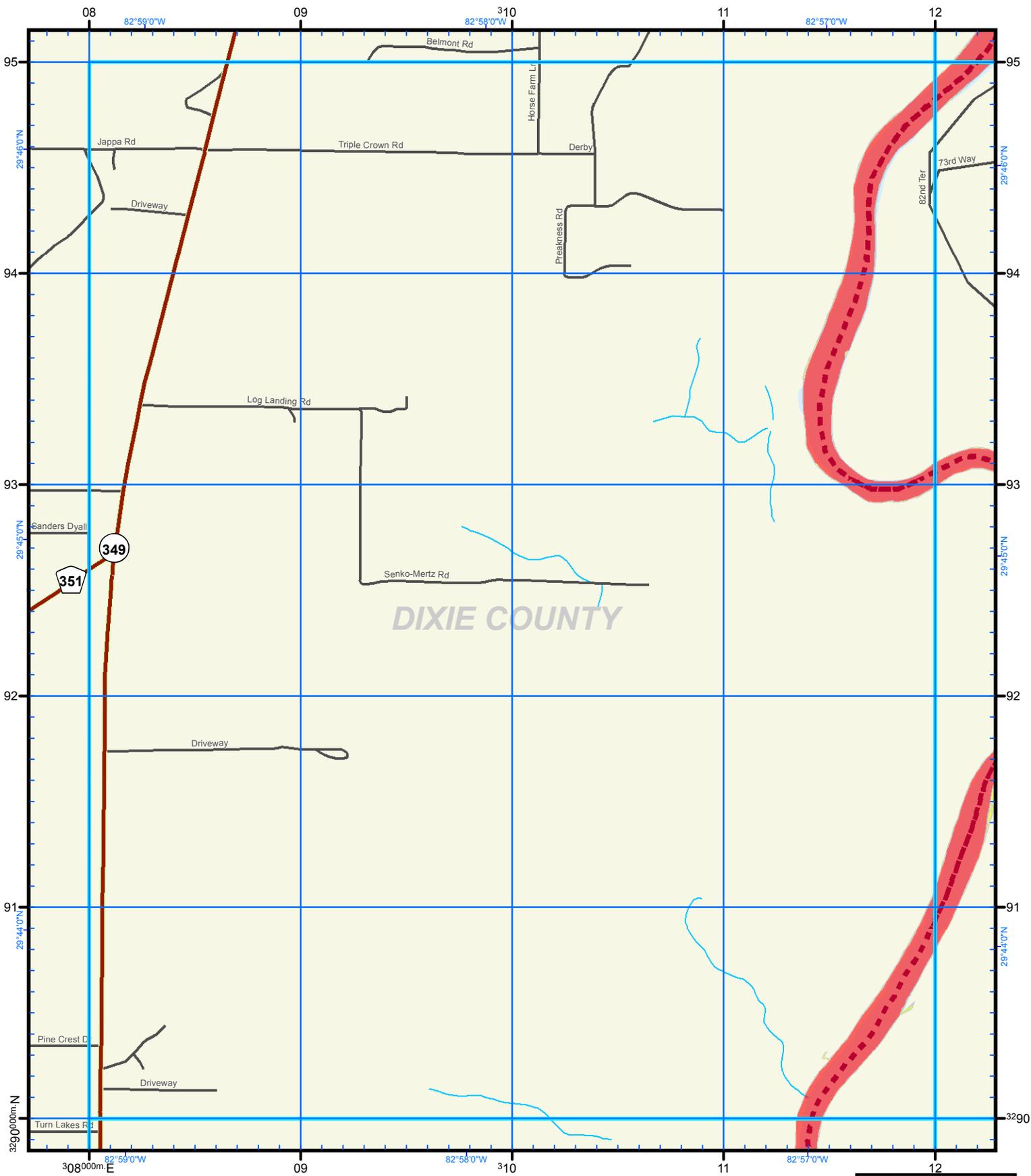
**SW-WNW (Exiting)**

**Directional Storm Tide Gilchrist County, 2015**



Map Plate **24**





US National Grid  
100,000-m Square ID  
**LN**  
Grid Zone Designation  
**17R**

Datum = NAD 1983, 1,000-m USNG

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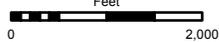
**ATLAS LEGEND**  
 Evacuation Routes  
 City Limits  
 NHD Lakes  
 Point of Reference

**Storm Tide Category**  
 Level 1  
 Level 2  
 Level 3  
 Level 4  
 Level 5

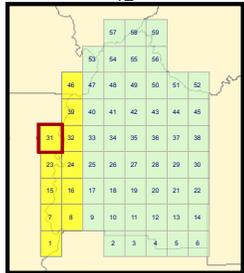
**SW-WNW (Exiting)**

**Directional Storm Tide Gilchrist County, 2015**

Scale 1:24,000

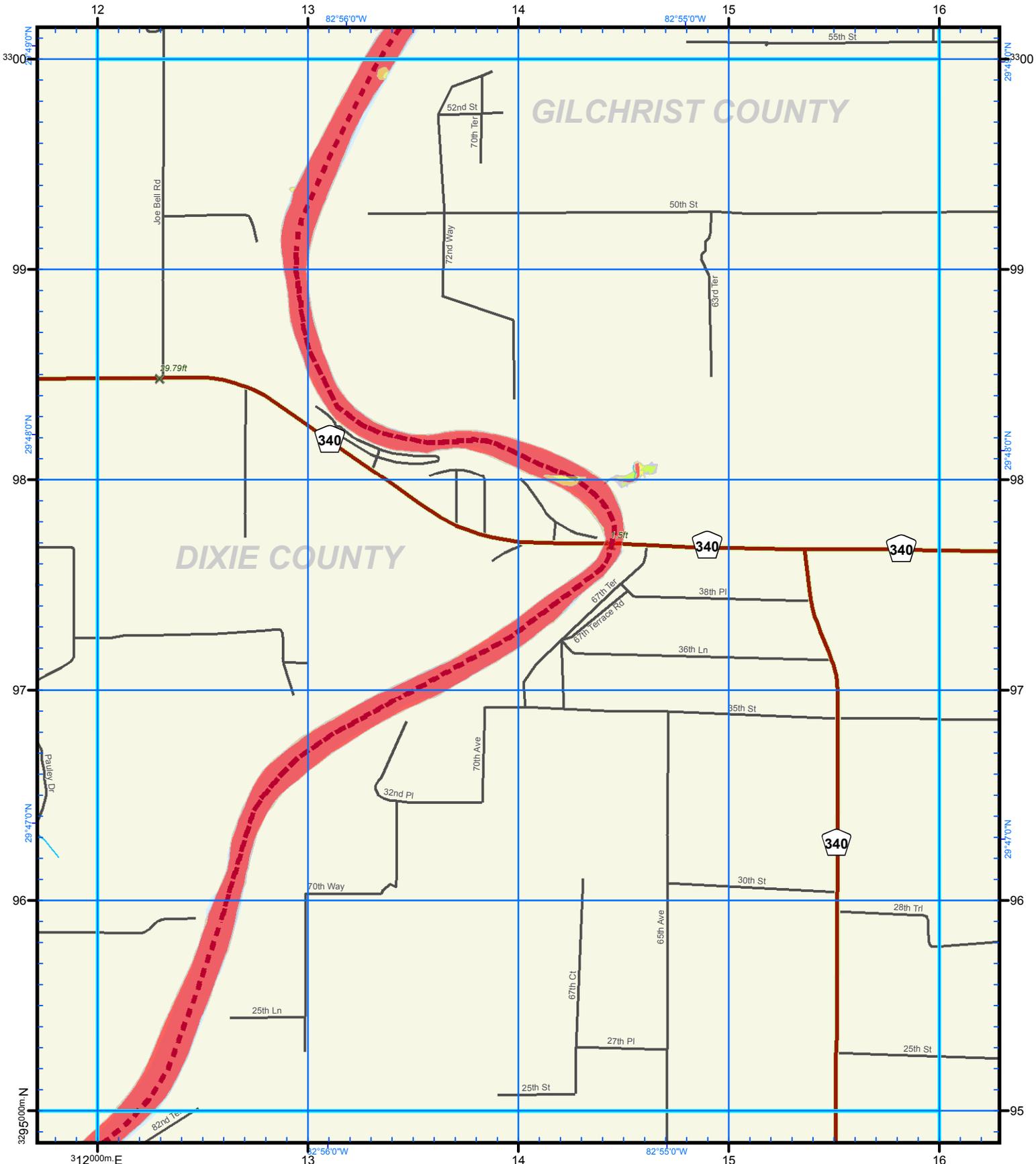


Map Plate 31



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**US National Grid**  
 100,000-m Square ID  
**LN**  
 Grid Zone Designation  
**17R**  
 Datum = NAD 1983, 1,000-m USNG



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**ATLAS LEGEND**

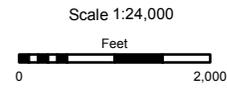
- Evacuation Routes
- City Limits
- NHD Lakes
- Point of Reference

**Storm Tide Category**

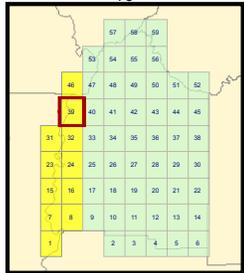
- Level 1
- Level 2
- Level 3
- Level 4
- Level 5

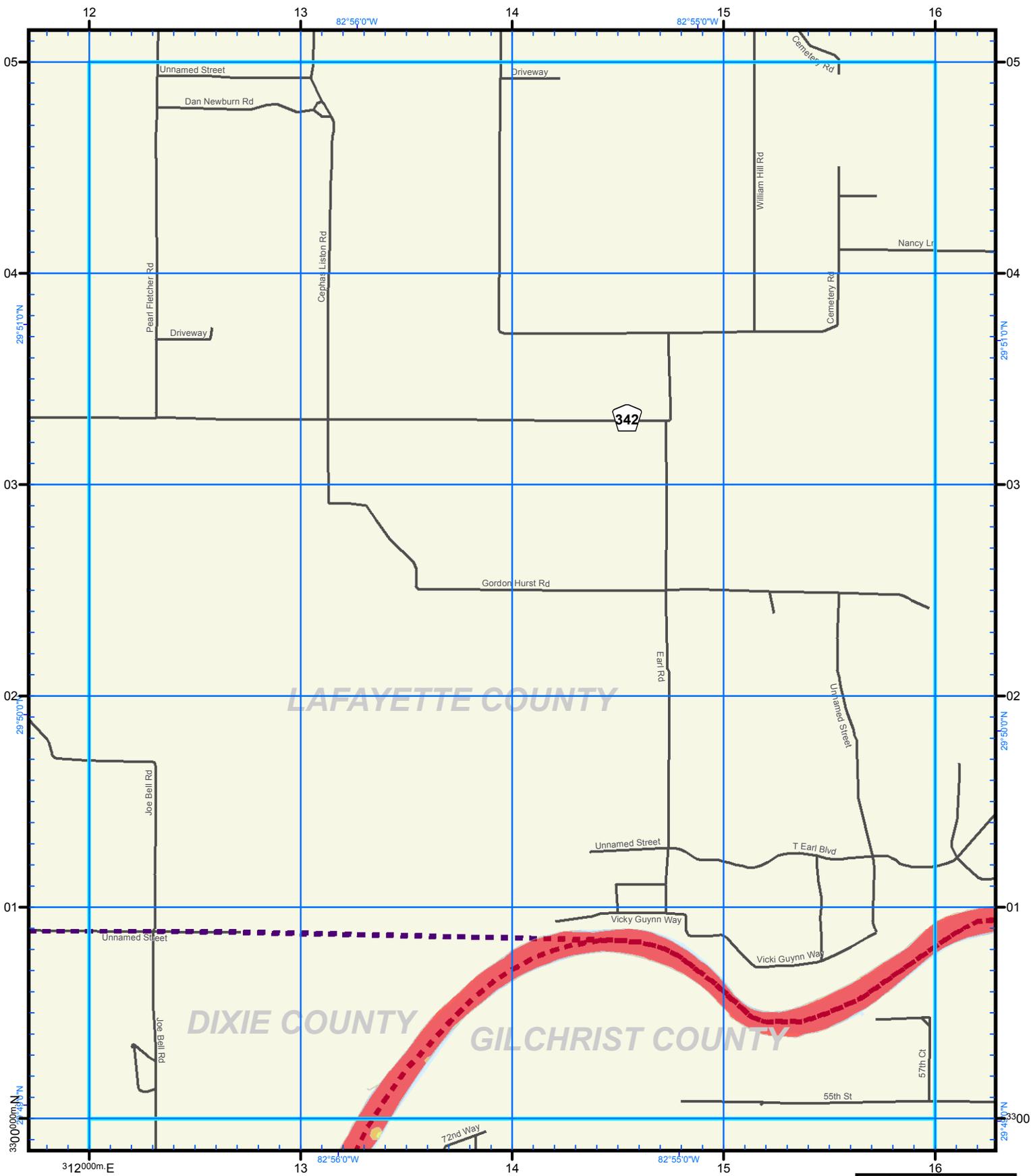
**SW-WNW (Exiting)**

**Directional Storm Tide Gilchrist County, 2015**



Map Plate 39





US National Grid  
100,000-m Square ID  
**LP**  
Grid Zone Designation  
**17R**

Datum = NAD 1983, 1,000-m USNG

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**ATLAS LEGEND**

- Evacuation Routes
- City Limits
- NHD Lakes
- Point of Reference

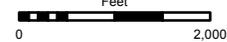
**Storm Tide Category**

- Level 1
- Level 2
- Level 3
- Level 4
- Level 5

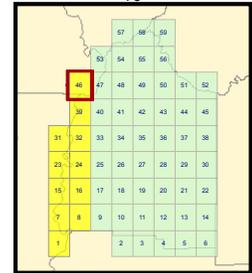
**SW-WNW (Exiting)**

**Directional Storm Tide Gilchrist County, 2015**

Scale 1:24,000



Map Plate **46**



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# North Central Florida Regional Planning Council

## *Florida Statewide Regional Evacuation Study Program Team*

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- \* Dwayne Mundy, Public Safety and Regulatory Compliance Program Director
- \*\* Michael DePalma, Associate Planner
- \*\* Kevin Parrish, Information Technology and Property Management Director
- \*\* Jean Strong, Executive Assistant to the Executive Director

n:\projects 2015\hurricane 2015\inside back cover.docx

- \* Primary Responsibility
- \*\* Secondary Responsibility



Funding was provided by the Florida Legislature with funding from the Federal Emergency Management Agency (FEMA) through the Florida Division of Emergency Management. Local match was provided by the North Central Florida Regional Planning Council and Dixie, Gilchrist, Lafayette and Taylor Counties.



**Florida Division of Emergency Management**  
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