918 Drainage Map

918.1 General

The Drainage Map sheet is required for new construction and reconstruction projects, and for other project types that propose significant changes to the existing hydrology and hydraulics.

The Drainage Map sheet provides an overview of the overland drainage patterns as well as the storm drain system layout and outfall locations. This sheet is used for establishing the appropriate drainage facilities during design, confirmation of overland flow patterns during construction, and for emergency response and maintenance purposes.

Use the following horizontal scales:

	Standard	Optional
Closed Drainage System	1″ = 200′	1″ = 500′
Open Drainage System	1″ = 1000′	1″ = 2000′

See ***Exhibit 918-1*** for an example of a Drainage Map.

918.2 Required Information

The Drainage Map sheet must comply with the following:

(1) Use a gray-scaled photographic (aerial) base map as shown in ***Exhibit 918-1***.

(2) Display a north arrow and scale, typically in the upper right portion.

(3) Display R/W lines and the centerline or baseline of construction with station equations. Show stationing at an appropriate interval.

(4) Flag and station the begin and end project limits.

(5) Flag and station the begin and end of bridges and bridge culverts.

(6) Label road names, state numbers, and side street names.

(7) Display and label existing physical land features affecting drainage (e.g., lakes, streams, swamps) by name and direction of flow. Indicate if feature is an FDEP impaired water body when known. Show past highwater elevations with date of occurrence, if available, and present water elevations with date of reading.

(8) Label known landfill areas, contamination sites, and wellfield protection sites.

(9) Show drainage divides and other information (e.g., pop-off elevations, spot elevations) to indicate the overland flow of water. Show drainage areas in acres.

Use inserts to show areas that are of such magnitude that the boundaries cannot be plotted at the selected scale. Display basin or subbasin names.

(10) Display the 100-year flood plain boundaries and elevations. Display delineated wetlands. Identify sink holes and depressions.

(11) Display arrows to indicate direction of flow along proposed ditches. Show flow arrows from offsite areas at the point where stormwater would approach the FDOT R/W to be routed or controlled by FDOT. Show flow arrows from onsite areas where the flow leaves FDOT R/W.

(12) Display and label existing drainage structures with type, size, flow line elevations, flow arrows and any other pertinent data. Refer to the ***CADD Manual*** for correct symbols for existing drainage facilities.

Data relating to existing drainage structures and pipes may be compiled in a table format and placed within available space on the sheet.

(13) Display proposed drainage structures, cross drains, storm drain pipes, outfall structures and retention/detention pond locations.

(a) Label cross drains by pipe size and structure number

(b) Label structures by structure number

(c) Label ponds or treatment swales by pond number

918.2.1 Flood Data Summary Box

The Flood Data Summary box provides design discharge, base discharge, and overtopping or greatest flood discharge with corresponding stage values.

Provide the Flood Data Summary box when a new or modified cross drain or box culvert (regardless of size) is proposed, or an existing cross drain or box culvert is impacted by changes to the existing hydrology and hydraulics, and the location of the cross drain or box culvert is within the 100-year floodplain or has a history of flooding or other hydraulic problems.

If there is insufficient space on the Drainage Map sheet, or the Drainage Map is not produced, place the Flood Data Summary box on its own sheet titled “Flood Data Sheet”.

The required preformatted summary box is available within the FDOT CADD Software. An example of a Flood Data Summary box is shown in ***Table 918.2.1***.

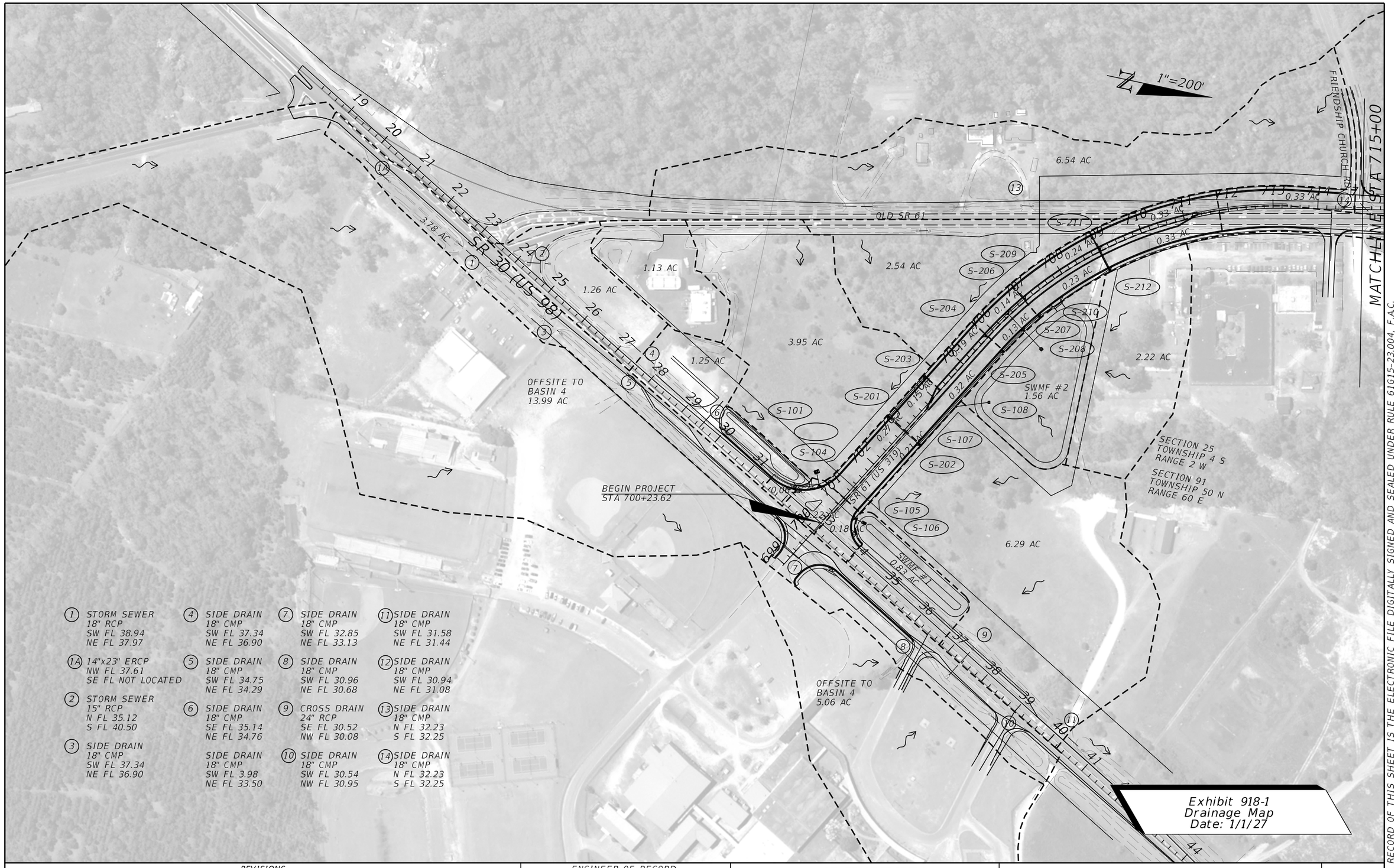
Table 918.2.1 Example of a Flood Data Summary Box

STRUCT. NO.	STATION	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD				GREATEST FLOOD	
		2% PROB. DISCHARGE	50 YR. FREQ. STAGE	1% PROB. DISCHARGE	100 YR. FREQ. STAGE	DISCHARGE	STAGE	PROB. X	FREQ. YR.	0.2% PROB. DISCHARGE	500 YR. FREQ. STAGE
CD-1	1525+40.00	15.6	34.84	17.8	34.86	--	--	--	--	30.3	34.96
CD-2	1561+00.00	39.4	38.35	44.9	38.54	65.75	39.5	0.32	314	--	--
CD-3	1679+00.00	24.0	34.60	28.0	34.73	--	--	--	--	48.0	35.36
CD-4	2257+22.00	9.0	35.77	11.0	35.77	--	--	--	--	18.0	35.81
CD-5	2283+02.75	24.0	35.70	28.0	35.90	--	--	--	--	48.0	36.87

NOTE: THE HYDRAULIC DATA IS SHOWN FOR INFORMATIONAL PURPOSES ONLY, TO INDICATE THE FLOOD DISCHARGES AND WATER SURFACE ELEVATIONS WHICH MAY BE ANTICIPATED IN ANY GIVEN YEAR. THIS DATA WAS GENERATED USING HIGHLY VARIABLE FACTORS DETERMINED BY A STUDY OF THE WATERSHED. MANY JUDGEMENTS AND ASSUMPTIONS ARE REQUIRED TO ESTABLISH THESE FACTORS. THE RESULTANT HYDRAULIC DATA IS SENSITIVE TO CHANGES, PARTICULARLY OF ANTECEDENT CONDITIONS, URBANIZATION, CHANNELIZATION, AND LAND USE. USERS OF THIS DATA ARE CAUTIONED AGAINST THE ASSUMPTION OF PRECISION WHICH CANNOT BE ATTAINED. DISCHARGES ARE IN CUBIC FEET PER SECOND AND STAGES ARE IN FEET, NGVD '88.

DEFINITIONS:

DESIGN FLOOD:	THE FLOOD SELECTED BY FOOT TO BE UTILIZED TO ASSURE A STANDARD LEVEL OF HYDRAULIC PERFORMANCE.
BASE FLOOD:	THE FLOOD HAVING A 1% CHANCE OF BEING EXCEEDED IN ANY YEAR. (100 YR. FREQUENCY)
OVERTOPPING FLOOD:	THE FLOOD WHERE FLOW OCCURS (A) OVER THE HIGHWAY, (B) OVER A WATERSHED DIVIDE, OR (C) THROUGH EMERGENCY RELIEF STRUCTURES.
GREATEST FLOOD:	THE MOST SEVERE FLOOD WHICH CAN BE PREDICTED WHERE OVERTOPPING IS NOT PRACTICABLE, NORMALLY ONE WITH A 0.2% CHANCE OF BEING EXCEEDED IN ANY YEAR (500 YR. FREQUENCY)



1. STORM SEWER
18" RCP
SW FL 38.94
NE FL 37.97

1A. 14"x23" ERCP
NW FL 37.61
SE FL NOT LOCATED

2. STORM SEWER
15" RCP
N FL 35.12
S FL 40.50

3. SIDE DRAIN
18" CMP
SW FL 37.34
NE FL 36.90

4. SIDE DRAIN
18" CMP
SW FL 37.34
NE FL 36.90

5. SIDE DRAIN
18" CMP
SW FL 34.75
NE FL 34.29

6. SIDE DRAIN
18" CMP
SE FL 35.14
NE FL 34.76

SIDE DRAIN
18" CMP
SW FL 3.98
NE FL 33.50

7. SIDE DRAIN
18" CMP
SW FL 32.85
NE FL 33.13

8. SIDE DRAIN
18" CMP
SW FL 30.96
NE FL 30.68

9. CROSS DRAIN
24" RCP
SE FL 30.52
NW FL 30.08

10. SIDE DRAIN
18" CMP
SW FL 30.54
NW FL 30.95

11. SIDE DRAIN
18" CMP
SW FL 31.58
NE FL 31.44

12. SIDE DRAIN
18" CMP
SW FL 30.94
NE FL 31.08

13. SIDE DRAIN
18" CMP
N FL 32.23
S FL 32.25

14. SIDE DRAIN
18" CMP
N FL 32.23
S FL 32.25

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

LUKE S. WALKER, P.E.
LICENSE NUMBER: 99991
ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 61	WAKULLA	220495-5-52-01

DRAINAGE MAP

SHEET NO. 5

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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