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WATERSHED MANAGEMENT PLAN PEER REVIEW REPORT

LITTLE JONES CREEK and WILDWOOD WATERSHEDS
(N919 & Q082, 20TW2940)

Task Work Assignment 20TW0002940

July 2022

Southwest Florida Water Management District
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Little Jones Creek and Wildwood Watershed Management Plan Peer Review Report

1.0 Overview

CDM Smith Inc. (CDM Smith) was retained by the Southwest Florida Water Management District (District) to perform a peer review of the Little Jones Creek Watershed Management Plan deliverable package prepared by Jones Edmunds & Associates, Inc. (Jones Edmunds) as part of Task Work Assignment No. 20TW0002940 in support of the District's Watershed Management Program.

The Little Jones Creek Watershed encompasses an area of approximately 45 square miles and is located in northern Sumter County. Approximately 5 square miles of the watershed is within City of Wildwood (**Figure 1**). The watershed is a mix of rural and developed land uses; the western half includes portions of the Lake Panasoffkee Wildlife Management Area and agricultural land uses while the eastern parts of the watershed include urban land uses due to development of The Villages. Based on the Watershed Evaluation for the Little Jones Creek Watershed Management Plan (N919) report prepared by Jones Edmunds in June 2020, the watershed consists of a combination of closed subbasins that have no positive outfall and basins that drain to the Little Jones Creek and Lake Panasoffkee.

CDM Smith has been scoped to perform peer review for Task 2.2 Watershed Evaluation, Task 2.3 Watershed Model Parameterization and Task 2.4 Watershed Model Development and Floodplain Delineation milestones. This peer review report has been updated to reflect the peer review associated with Task 2.5 Final Approved Peer Review Deliverables.

The following sections describe the methodology for peer review and general findings. Detailed peer review comments are provided in a comments geodatabase and are also presented in **Appendix A**. The QA/QC checklist that will be updated throughout the peer review process is included in **Appendix B**.

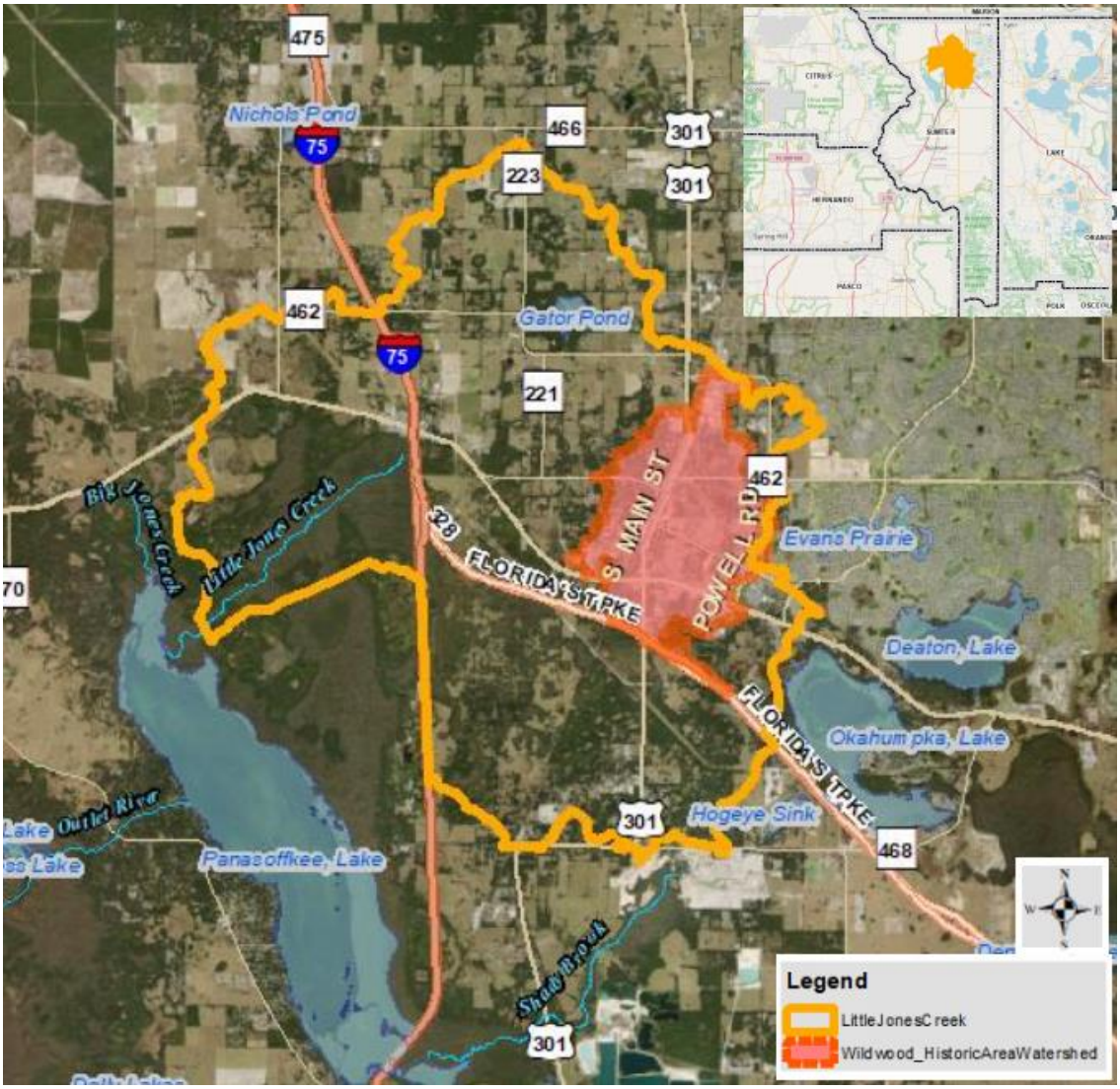


Figure 1 – Study Area

2.0 Peer Review Methodology

A summary of the peer review elements for Tasks 2.2 through 2.5 are presented in **Table 1**. Task 2.5 includes the Final Approved Peer Review Deliverables.

For the Task 2.2 peer review of the Watershed Evaluation, CDM Smith performed a technical review of key elements of the GWIS geodatabase and supporting information for reasonableness, consistency with District guidance methodologies, completeness, and overall quality. The Task 2.3 peer review of the Model Parameterization deliverable focused on a review of the hydrologic and hydraulic model input parameters, comparison of the GWIS and ICPR4 model for consistency, evaluation of the preliminary model results, and review of the preliminary 100-year inundation shapes. The Task 2.4 peer review of the Watershed Model Development and Floodplain Delineation confirmed all prior model comments were adequately addressed, floodplains were delineated correctly, the 100-year floodplain duration is reasonable, model results are

appropriate, stable, and free of error, and the model calibration and verification events show good agreement to known high-water data and gauge data.

Table 1 Task Review Elements

Task	Peer Review Elements
2.2 Peer Review of Watershed Evaluation	
2.2.2.1 Level of Detail and Model Schematic	▪ Watershed Boundary ▪ Subbasin Delineations ▪ Node-Link Diagram
2.2.2.2 Model Parameterization Approach	▪ Design, Multi-day, Calibration, and Verification Storms ▪ Rainfall Excess ▪ Time of Concentration ▪ Node Storage ▪ Initial Condition ▪ Boundary Condition ▪ Channel ▪ Bridge ▪ Pipe ▪ Weir ▪ Drop Structure ▪ Percolation
2.3 Peer Review of Watershed Model Parameterization	
2.3.2.1 Hydrologic Model Parameters	▪ Rainfall Excess ▪ Land use Lookup Table ▪ Soil Lookup Table ▪ Subbasin Specific Parameters ▪ Time of Concentration
2.3.2.2 Hydraulic Model Parameters	▪ Node Storage ▪ Initial Condition ▪ Boundary Condition ▪ Channel ▪ Bridge ▪ Pipe ▪ Weir ▪ Drop Structure ▪ Percolation
2.3.2.3 Preliminary Model Performance	▪ Continuity Error ▪ Inadequate Simulation Time ▪ Flow Reversals or Sudden Change ▪ Instability ▪ Significant Initial Flow
2.3.2.4 Consistency between Model and Geodatabase	▪ Discrepancy of Count of Model Features ▪ Discrepancy of Name of Model Features ▪ Discrepancy of Subbasin Area ▪ Topology Issues
2.4 Peer Review of Watershed Model Development and Floodplain Delineation	
2.4.2.1 Rainfall Volume and Distribution	▪ Model Calibration & Verification ▪ Design Storms ▪ Multi-Day Storms
2.4.2.2 Model Performance	▪ Continuity Error ▪ Inadequate Simulation Time ▪ Flow Reversals or Sudden Change

Task	Peer Review Elements
	▪ Instability ▪ Significant Initial Flow ▪ Surface water stages, flows, volumes, or time of occurrence are not in reasonable range with the measured data for model calibration or verification ▪ Simulation results can't be adequately validated with historic water levels ▪ Simulated stage doesn't show increasing with the severity of the design storm event and cannot be well explained
2.4.2.3 Rainfall Justification to Project Floodplain	▪ Historic Water Levels ▪ Hydrological Characteristics ▪ Contributing Area ▪ Hydraulic Characteristics ▪ Conveyance Constraints ▪ Literatures & Existing Studies, if any ▪ Adjacent Watershed Studies, if any
2.4.2.4 Floodplain Delineation	▪ Reasonableness of floodplain delineations ▪ The floodplain area will be compared for accuracy with the model stage versus area relationships. A 10% error is considered the maximum acceptable deviation for each subbasin. ▪ Justification shall be provided to compare effective FEMA flood hazard zone with the floodplain. ▪ Transition zones shall be delineated based on documented approach developed by the WMP consultant. ▪ Floodplain glass walls shall be removed.
2.5 Final Approved Peer Review Deliverables	
2.5.1 Final Peer Review Report and Comments Geodatabase	▪ Revised report, models, and floodplain deliverables reviewed for consistency with previous peer review comments and public input obtained through floodplain open house.

Prior to the submittal of the Watershed Evaluation deliverable by Jones Edmunds, a review meeting (via webinar) was held on June 25, 2020 with Jones Edmunds, CDM Smith, the District, Sumter County and City of Wildwood. CDM Smith reviewed the draft Watershed Evaluation deliverable in June and July of 2020 and a meeting was held thereafter to present the review comments to Jones Edmunds, the District, Sumter County, and City of Wildwood. The peer review deliverables were submitted by CDM Smith on July 27, 2020. For purposes of streamlining the project schedule, CDM Smith conducted the final back-check review of the revised Watershed Evaluation deliverable contents under the Task 2.3 Peer Review of Watershed Model Parameterization milestone.

A pre-submittal meeting for the Model Parameterization deliverable was held on February 2, 2021. Jones Edmunds provided an overview of the approaches for parameterization, preliminary model results and inundation shapes, and a review of the Model Parameterization deliverable contents. A summary of CDM Smith's peer review of this previous deliverable is provided in Section 4.0 of this report.

The Task 2.4, Watershed Model Development and Floodplain Delineation, pre-submittal meeting was held on July 14, 2021. Jones Edmunds presented the overall project progress beginning at the Watershed Evaluation phase and technical approaches and methodologies used in building the watershed model. The discussion also covered new information within the current deliverable such as the approach in floodplain delineation, a review of the model calibration and verification events as compared to gauge data, and comparison of the draft 100-year floodplains to the existing FEMA national flood hazard layer. A summary of CDM Smith's peer review of the current deliverable is provided in Section 5.0 of this report.

The floodplain open house was held on January 13, 2022. CDM Smith representatives were also in attendance. The Task 2.4 deliverables were updated by Jones Edmunds to address comments received during the floodplain open house. This peer review report includes the results of CDM Smith's peer review of the revised deliverables (2.5.1 Final Peer Review Report and Comments Geodatabase).

3.0 Peer Review of Watershed Evaluation

The peer review discussed in this section is based on the Little Jones Creek watershed evaluation deliverable dated June 17, 2020. The deliverable package contained the following items that were the focus of the review under this task:

- Geographic Watershed Information System (LJC_GWIS_2.1.gdb) geodatabase containing hydrologic and hydraulic model elements as spatial representation only. Parameters will be developed by Jones Edmunds in subsequent tasks.
- Jones Edmunds' Little Jones Creek Watershed Evaluation Report (June 2020).
- Supporting information used to develop the model schematic as provided in the Hyperlink and Support_Data folders of the deliverable.

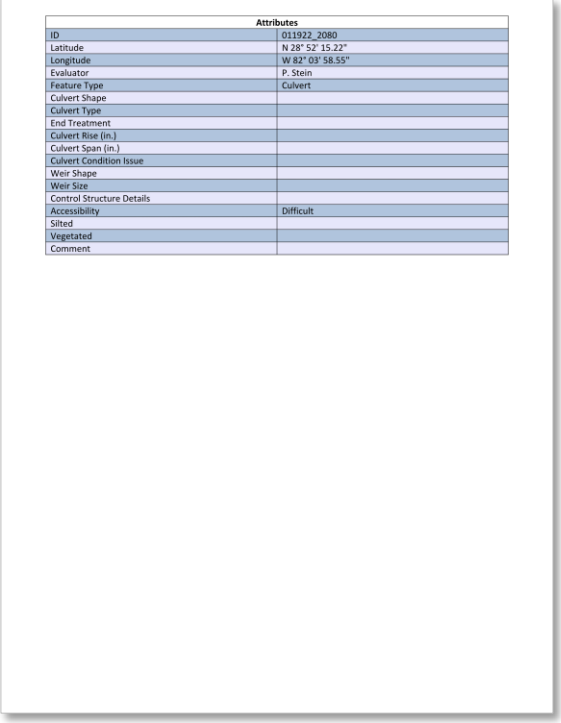
A total of 32 comments are included as part of the Task 2.2 Watershed Evaluation Peer Review. Six comments are categorized as "Future Maintenance" and do not need immediate resolution but are considered a recommendation for future deliverable submittals. A copy of the Watershed Evaluation Report word document with CDM Smith comments has also been included in the peer review submittal. It should be noted that the peer review effort for Watershed Evaluation primarily focused on the Sumter County portion of the Little Jones Creek Watershed as watershed information for the Wildwood Watershed is still being collected.

3.1 Electronic Deliverable and Data Collection Review

In order to review the reasonableness of the level of detail and model schematic, the supporting information was reviewed along with the Watershed Evaluation Report and including the following:

- The Data Collection Cut-off Date (2019)
- Topographic Information (2018 DEM)
- Aerial Imagery
- ERP, FDOT plans
- Survey information
- HydroNetwork, Hydraulic Element Points, and HEP Lines

It was noted that while plans are not related to the Hydraulic Element Points (HEPs) via the traditional District Hyperlink method, some information is related to the HEPs via the Attachment Manager within the GWIS geodatabase (and ATTACH table). The attachments include 1,105 field photos and 214 hydraulic information data sheet PDFs (at various



Attributes	
ID	011922_2080
Latitude	N 28° 52' 15.22"
Longitude	W 82° 03' 58.55"
Evaluator	P. Stein
Feature Type	Culvert
Culvert Shape	
Culvert Type	
End Treatment	
Culvert Rise (in.)	
Culvert Span (in.)	
Culvert Condition Issue	
Weir Shape	
Weir Size	
Control Structure Details	
Accessibility	Difficult
Silted	
Vegetated	
Comment	

Figure 2 – HEP Attachment PDF

levels of detail) across 387 of the 854 HEPs. An example of a datasheet PDF is shown in **Figure 2**. Additionally, the HEPs include a source field. A cross-tab of the HEPs versus their source and attachments included are shown in **Table 2**.

It was noted that the "Environmental_Resource_Permits" permit coverage feature class includes relative hyperlinks to the ERP folder but does not link to specific source PDFs. CDM Smith recommends that for future maintenance, linking the specific source file used from the Hyperlink folder to the modeled features would help facilitate backchecking.

Table 2 Hydraulic Element Point Source and Attachments

"SOURCE" Attribute Field	PDF Only	PDF and JPG(s) Attached	PDF Only	HEPs with No Attachments Included	Total
Degrove 2019 Survey	3	54	54	23	**134**
Degrove 2020 Survey	0	0	0	130	**130**
ERP Plans or As-Builts	1	101	69	186	**357**
Estimated - DEM	2	23	22	59	**106**
FDOT Plans or As-Built	0	0	0	6	**6**
JE Survey 2020	0	10	10	3	**23**
SWFWMD 2017 Survey	2	18	18	60	**98**
Total	**8**	**206**	**173**	**467**	**854**

CDM Smith suggests that the WMP Consultant begin aggregating the following data/information not already provided in the Watershed Evaluation electronic deliverable that may be required or would be helpful for future model development and floodplain justification tasks:

- Survey information referenced in the HEP "SOURCE" attribute field (in addition to the Degrove 2019 survey CSVs identified);
- Available reference GIS data such as parcels, gauge locations, roadway centerlines, building footprints, finished floor elevations, etc.;
- Flood complaints or flood photo information; and,
- Background information/previous studies (such as FEMA FIS and NFHL layers).

3.2 Level of Detail and Model Schematic (Task 2.2.2.1)

The level of detail and model schematic peer review primarily focused on the unincorporated (i.e. outside of the City of Wildwood) portion of the watershed. The model schematic was reviewed for reasonableness at the jurisdictional boundary of the City of Wildwood within the watershed to confirm subbasin boundaries and hydraulic connections appeared appropriately represented. A more detailed peer review was conducted for the remaining unincorporated areas by panning through the watershed in ArcGIS with the model schematic, the HEP network, and HydroNetwork layers visible. The project DEM, based on 2018 LiDAR, and current aerial imagery provided by Jones Edmunds were used to assist in the review.

3.2.1 Watershed Boundary

CDM Smith reviewed the Little Jones Creek watershed boundary to confirm that the delineation appeared consistent with flow patterns based on aerial imagery and topography. In general, the watershed boundary is appropriate and only a few instances of potential boundary revisions were noted within the comments geodatabase. **Figure 3** shows two comment locations along the eastern watershed boundary within The Villages. The western comment recommends reviewing whether the remainder of the subdivision should be included within the watershed as it appears there are inlets that collect and convey stormwater runoff to the pond directly south. The comment to the east recommends reviewing whether the waterbody directly north of the comment point should be within the watershed, as it is interconnected with the southern waterbody under a small pedestrian bridge.

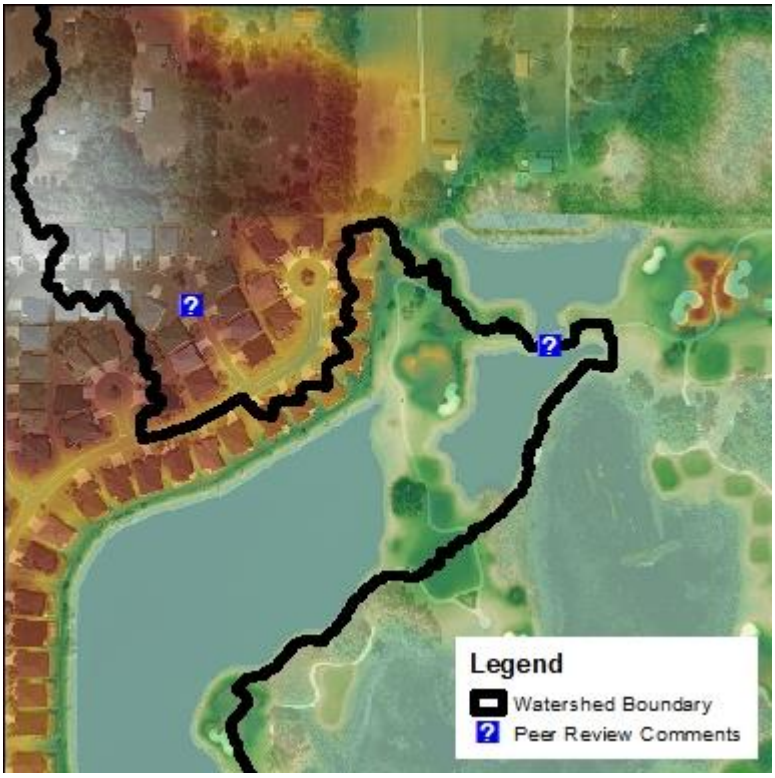


Figure 3 – Example Watershed Boundary Peer Review Comments

3.2.2 Subbasin Delineation

Subbasin delineations were reviewed for reasonableness against the aerial imagery and project DEM. Based on CDM Smith's review, the subbasins appear to include an appropriate level of detail and conform to anticipated flow patterns within the watershed. There are some instances, primarily within The Villages development, where subbasins have been delineated separately from the pond to which they ultimately load. In these cases, both a node and weir link have been digitized although there appears to be minimal surface storage and runoff is primarily routed through a collection system, rather than weir flow. It is unclear whether this serves a timing purpose, but it may be appropriate to merge the basins with the stormwater pond. An example location is shown in **Figure 4**.

Figure 4 – Example Subbasin Delineation Comment

3.2.3 Node-Link Diagram

CDM Smith reviewed the model node-link schematic throughout the Little Jones Creek Watershed, focusing primarily on the unincorporated portion of the watershed. The model schematic is consistent with anticipated drainage patterns and includes an appropriate level of detail. Several instances are noted within the comments geodatabase where aerial imagery and/or street view confirmed the existence of a hydraulic structure that was not reflected in the ICPR_LINK feature class. These instances are primarily cross drains under rural roadways where plan or ERP data may not be available. An example is provided in **Figure 5**, where an overtopping weir is modeled over a rural roadway crown but two pipe headwalls are visible from aerial imagery on either side of the roadway.

Figure 5 – Example Missing Pipe Link

3.3 Model Parameterization Approach (Task 2.2.2.2)

Based on CDM Smith's understanding of Jones Edmunds' Watershed Evaluation Report, the Green-Ampt methodology will be used to calculate runoff generation within the Little Jones Creek watershed. Hydraulic representation within the watershed will consist of both 1D and 2D elements. The 1D hydraulic elements will consist of drop structure, weir, channel, pipe, and percolation links. A portion of the watershed, primarily the Lake Panasoffkee Wildlife Management Area (WMA), has been delineated as a 2D Overland Flow Region.

The following subsections summarize Jones Edmunds' approach to model parameterization and CDM Smith's peer review findings.

3.3.1 Design, Multi-day, Calibration, and Verification Storms

The mean annual, 5-year, 10-year, 25-year, 50-year, and 100-year, 24-hour duration events will be simulated for the Little Jones Creek WMP using the Florida Modified Type II distribution. 5-day events for the 10-year, 50-year, and 100-year frequency will be simulated based on the District's 120-hour distribution. Additional multi-day events for the 100-year frequency include the 3-day, 7-day, and 10-day events based on the FDOT rainfall distribution. SWFWMD and National Oceanic and Atmospheric Administration (NOAA) Atlas 14 rainfall depths will be reviewed to determine appropriate rainfall depths for each of the return periods and durations. A simulation without rainfall will be executed to review initial flows and levels.

Based on the Watershed Evaluation Report, Jones Edmunds will simulate both a calibration and verification event, though these storms have not yet been identified. Rainfall will be based on District-calibrated Doppler Radar rainfall, discretized as 15-minute intervals from 2 kilometer

square grids. The District's historical water mark database will be used to perform model validation. The methodology summarized herein is considered standard and is consistent with other watershed studies completed within the District.

3.3.2 Hydrologic Parameterization

Jones Edmunds will use Green-Ampt hydrology using the Vertical Layers method in ICPR4 to discretize soil characteristics by individual horizons. Soil parameters are to be extracted based on the District Green-Ampt calculator.

A land use coverage was included and will ultimately be used to assign directly connected impervious area (DCIA) and unconnected impervious area (UCIA) percentages based on an impervious coverage provided by the District.

A unit hydrograph peaking factor of 256 will be used and a minimum of 10 minutes assigned for time of concentration. Both practices are consistent with the District's Guidelines and Specifications and are acceptable for this study.

3.3.3 Node Storage

Jones Edmunds will calculate stage-area relationships using a GIS-based tool at 0.1 to 1-foot increments. It is not clear which portions of the watershed will use a coarser level of detail (i.e. 1-foot increments) for stage-area relationships or why the varying increments are recommended. It may help to streamline the process if all stage-area relationships are extracted at the same increment. Typically, a smaller increment is preferred and is not expected to hinder model performance or speed. Clarification or examples in the Watershed Evaluation Report may be helpful if this approach is used.

3.3.4 Initial Conditions

Initial conditions will be assigned based on Jones Edmunds' review of several data sources including but not limited to ERP documents, aerial imagery in conjunction with the project DEM, and the National Wetlands Inventory (NWI). Where available, the initial stage will be set to the known seasonal high-water table (SHWT). This approach is standard and is consistent with other watershed studies completed within the District.

3.3.5 Boundary Condition

Based on the peer review kickoff meeting presentation, there are no adjacent WMPs to the Little Jones Creek watershed that are governing-board approved. The Nichol Pond WMP is currently in progress as an internal effort by the District. CDM Smith recommends Jones Edmunds include discussion of this boundary condition within the Watershed Evaluation Report and whether it is anticipated that the results from the Nichol Pond WMP will be used to establish boundary conditions or if an estimated boundary condition will be developed in the interest of time.

Boundary conditions will also be established at Lake Panasoffkee based on gauge data from USGS gauge 02312698. At this time, it has not been established whether a constant or time varying boundary condition will be used. The Lake Panasoffkee boundary condition data will be reviewed for appropriateness in the subsequent Task 2.3 Watershed Parameterization peer review effort.

3.3.6 1D Hydraulic Link Parameters

The preliminary node-link schematic consists of drop structure, weir, channel, pipe, and percolation links. Hydraulic structure parameters will be based on best available information from as-builts, ERPs, and survey. In absence of plan or survey information, the project DEM may be used to estimate inverts. CDM Smith recommends that additional clarification be added to Section 4 in the Watershed Evaluation Report to describe the approach for determining when this level of accuracy is appropriate.

Cross-sections will be developed to parameterize overland weir and channels. Cross-sections will use station-elevation information, extracted using automated GIS tools from the DEM. Where available, survey or as-built drawing information may be used in lieu of station-elevation relationships from the DEM.

Percolation links will be modeled in cases where the SHWT is more than 3 feet below the surface within a depressional area. A detailed stair-step approach will be used to model vertical percolation using multiple percolation links per location at incremental stages. Additionally, soil storage will be reduced by the volume of water infiltrated during the hydrology process to avoid double-counting.

It is CDM Smith's opinion that Jones Edmunds' approach to 1D link parameterization is technically sound and is consistent with other watershed studies and District expectations.

3.3.7 2D Overland Flow Region

A portion of the watershed, primarily the Lake Panasoffkee WMA, has been delineated as a 2D Overland Flow Region. A 2D triangular mesh will be developed using breakpoint spacing of approximately 150-feet. The defined channel of Little Jones Creek will be modeled using 1D hydraulic elements with interaction with the adjacent, 2D floodplain area. Manning's coefficients will be assigned to each land use categorization to spatially vary roughness values.

The 2D Overland Flow Region delineated and methodology are considered reasonable.

4.0 Peer Review of Watershed Model Parameterization

The peer review discussed in this section is based on the Little Jones Creek Model Parameterization deliverable dated February 5, 2021. The deliverable package contained the following items that were the focus of the review under this task:

- Geographic Watershed Information System (LJC_GWIS_2.1.gdb) geodatabase containing hydrologic and hydraulic model elements and input parameters.
- ICPR Version 4 model, dated February 3, 2021.
- Jones Edmunds' Revised Parameterization Approach report (February 2021).
- Preliminary level pool plots for initial conditions, the mean-annual/24-hour event, and the 100-year/24-hour event, as provided in the Support_Data folder.

- Supporting information used to develop the model input parameters as provided in the Hyperlink and Support_Data folders of the deliverable.

A total of 20 comments are included as part of the Task 2.3 Watershed Parameterization Peer Review, for a total of 50 comments within the comments geodatabase. Comments have been categorized based on their jurisdiction. A total of 13 comments are within the unincorporated, or Little Jones Creek, area of the watershed, four comments are within City of Wildwood, and three comments are either not location-specific or refer to locations in both the incorporated and unincorporated areas of the watershed.

Each of the 32 comments from the previous Task 2.2 Watershed Evaluation peer review were checked against the revised deliverable to confirm comments were appropriately incorporated. All comments were found to be satisfactorily addressed.

4.1 Hydrologic Model Parameters (Task 2.3.2.1)

The Little Jones Creek watershed utilizes the Green-Ampt Vertical Layers approach to calculate rainfall excess. A land-cover polygon was developed to assign percent DCIA, Impervious, and Direct areas within the watershed. Based on the methodology outlined in Jones Edmunds' Parameterization Approach report, the 100% "direct" areas were established based on the areas inundated by the initial stage value; however, CDM Smith noted several instances where water was represented in the initial stage inundation plot but was not assigned as 100% direct.

Physical soil parameters for the Green-Ampt Vertical Layers approach were assigned using the SWFWMD calculator based on the SSURGO database. CDM Smith recreated these parameters independently, using the aforementioned calculator, and verified that these were assigned correctly and in agreement with the methodology outlined in Jones Edmunds' Parameterization Approach report.

Time of concentration (TC) values were reviewed across the watershed by comparing subbasin area to TC value and spatially reviewing within GIS based on symbology to identify any anomalies. The flow paths provided in the GWIS database were also checked to confirm reasonableness. Generally, TC values are appropriate and are within an expected range of values; however, many of the TC values for small roadway subbasins appeared high. For example, the TC value of subbasin LJCE0029 has a TC value of 106 minutes but the subbasin consists of a directly connected stormwater system along I-75.

Model input rainfall depths were reviewed against NOAA Atlas 14 estimates, taken at an approximate central location within the watershed. The 100-year/24-hour value was comparable to the value CDM Smith extracted but the mean-annual/24-hour could not be confirmed and was higher than the 5-year/24-hour rainfall extracted.

The subbasin peaking factor has been assigned as 256 for all subbasins which is considered reasonable for watersheds with mild slopes. To confirm the subbasin area modeled matched the GIS spatial extents, CDM Smith compared the sum of the individual areas within the Manual_Subbasin matched the ICPR_BASIN area. No discrepancies were found.

4.2 Hydraulic Model Parameters (Task 2.3.2.2)

Components of the model hydraulics were reviewed both for reasonableness of the spatial node-link schematic and for appropriateness of the input model parameters. The schematic was reviewed in greater detail within the City of Wildwood jurisdictional area as the unincorporated areas of the watershed had been previously peer reviewed under the Task 2.2 Watershed Evaluation phase. One link within the City of Wildwood, LJCRD1146A, appears to be reversed; the from and to nodes as assigned in the ICPR_LINK table do not match the cartographic direction of the link.

For pipe and drop structure links, Manning's roughness coefficients were reviewed and compared to the material type to confirm values assigned are within the expected range based on recognized literature (i.e., Ven Te Chow, 1959). Additional checks included verifying the upstream pipe shape matched the downstream pipe shape, review of pipe slopes to determine any outliers, and confirmation that the entrance and exit losses are appropriate for the pipe location. Weirs associated with drop structures were checked to ensure the horizontal weir invert elevation (e.g. representing the control box grate) was always higher than the vertical weir inverts. CDM Smith also confirmed that the drop structure weir orientation (e.g. horizontal or vertical mavis) were consistent with the geometry type.

Irregular weirs were checked against their respective cross-sections to confirm the assigned weir invert matched the lowest elevation from the station-elevation input data. Weir coefficients and orifice coefficients within the WEIR table appear reasonable and are within an expected range of values; additionally, as expected, the weir coefficients are higher for sharp crested weirs representing structural weirs and lower for weirs simulating natural overland flow. It was noted that six links have NULL weir discharge coefficients assigned in the GWIS database and consequently the model assumes a default value of 2.8. Within the City of Wildwood, weir links LJCRB1223A and LJCRE1311B did not have a weir coefficient assigned. Within the unincorporated (Little Jones Creek) portion of the watershed, LJCRE1824A, LJCRE1831A, LJCRE1827B, and LJCRE1898B did not have a weir coefficient assigned.

Channels were reviewed to confirm they are placed at appropriate locations throughout the watershed. Channel exclusion polygons were compared to the channel cross-section extents to verify the volume contained within the ICPR channel link is not double counted with the node stage-area. Channel contraction and expansion coefficients have been assigned as 0.1 and 0.3, consistent with gradual transitions. In comparing channel link shape length against the assigned model input channel length, three links were identified where the modeled length is longer than the schematic length. One link within City of Wildwood, LJCRD1146A, is digitized in the opposite direction as the assigned from and to nodes.

Node storage was verified by checking that the maximum stage-area value from the node matched its respective contributing subbasin area. Additionally, CDM Smith checked for any cases where the node initial stage was less than the first node stage-area record but no errors were found. Baseflow was assigned at 11 nodes to represent spring-fed conditions due to the Henry Green Spring and Wayne Lee Spring. CDM Smith reviewed the supporting documentation included in the Model Parameterization deliverable, Hydrology, Water Budget, and Water

Chemistry of Lake Panasoffkee, West-Central Florida (USGS, 2010), and determined assumptions are appropriate for this model level of detail.

A total of 4,107 percolation links were developed for the watershed. Percolation locations were established where the SHWT was more than 2.75 feet below the surface. Jones Edmunds used a "stair-step" approach to represent percolation at different elevations for each site. A separate ICPR4 model was set up to determine the volume of infiltration that occurs during the hydrologic, Green-Ampt routing. The soil storage within the percolation link was subsequently reduced by that volume to avoid double-counting storage between the hydrology and hydraulics components of the model. Percolation link parameters were compared to the SSURGO database values to confirm reasonability. Additionally, percolation locations were verified by panning through the watershed in GIS to ensure areas that show inundation within the aerial imagery were not included for percolation. No comments on either the percolation parameters or locations are included.

Boundary conditions are assigned at Lake Panasoffkee, at ICPR node LJCNF1958. A gauge analysis was performed by Jones Edmunds to identify maximum stages for Lake Panasoffkee under various return intervals. The gauge analysis demonstrated a significant lag between the rainfall in Little Jones Creek to the increase in stages at Lake Panasoffkee. Ultimately it was determined that boundary elevations start at the mean-annual stage then increase linearly to the 10-year stage after 24 hours and remain at that elevation for the remainder of the simulation. Based on the analysis and supporting figures provided within the Revised Parameterization Approach for the Little Jones Creek and City of Wildwood Management Plans (Jones Edmunds, 2021), the boundary conditions are considered appropriate.

4.3 Preliminary Model Performance and Results (Task 2.3.2.3)

The preliminary model is overall considered to be stable and demonstrates reasonable initial results. It was noted that the mass balance of the model is generally agreeable for most time steps but does exhibit up to a 15% error at hour three. As subsequent model revisions occur, CDM Smith recommends further investigation to reduce the mass balance error. Additionally, several link instabilities were noted within the Little Jones Creek portion of the watershed, including at weir links LJCRF2237Z, LJCRE0287Z, LJCRE1594Z, and LJCRE1405Z. There may be opportunity to mitigate some of these instabilities as the model progresses using various stability measures such as the link dampening threshold.

Link initial flows were identified by reviewing the results of the "No Rain" ICPR scenario. Significant initial flows were considered those over 10 cfs. **Table 3** provides a summary of initial flows that should be investigated to determine if an invert or initial stage needs adjusting. It should be noted that all of these links occur within the Little Jones Creek portion of the watershed and do not include links with initial flows due to upstream node baseflow contributions.

Table 3 Link Initial Flows Over 10 CFS

Link Name	Type	Initial Flow (cfs)
LJCRE1328Z	WEIR	1363.26
LJCRE1328B	PIPE	849.7
LJCRE1329Z	WEIR	434.27
LJCRE1405A	PIPE	70.9
LJCRE1405B	PIPE	70.84
LJCRE1405C	PIPE	68.23
LJCRF2237Z	WEIR	14.96
LJCRE2242Z	WEIR	14.66
LJCRE1385A	PIPE	12.56
LJCRE0287B	PIPE	11.11
LJCRE0287C	PIPE	11.11
LJCRE0287A	PIPE	11.07
LJCRE1385B	PIPE	10.47

CDM Smith compared the preliminary 100-year/24-hour inundation plots to 2018 aerial imagery and documented flood complaints and known flooding areas within the District's Historical Water Level geodatabase. The floodplains appeared reasonable and the majority of the known flooding areas are well represented by the preliminary shapes. Comments have been included at six locations where either the aerial imagery shows standing water that is not covered by a preliminary floodplain shape or there is documented flooding without any modeled inundation. Five of these locations were within the Little Jones Creek portion of the watershed and one location was within the City of Wildwood. An example floodplain review comment is included in **Figure 6**.

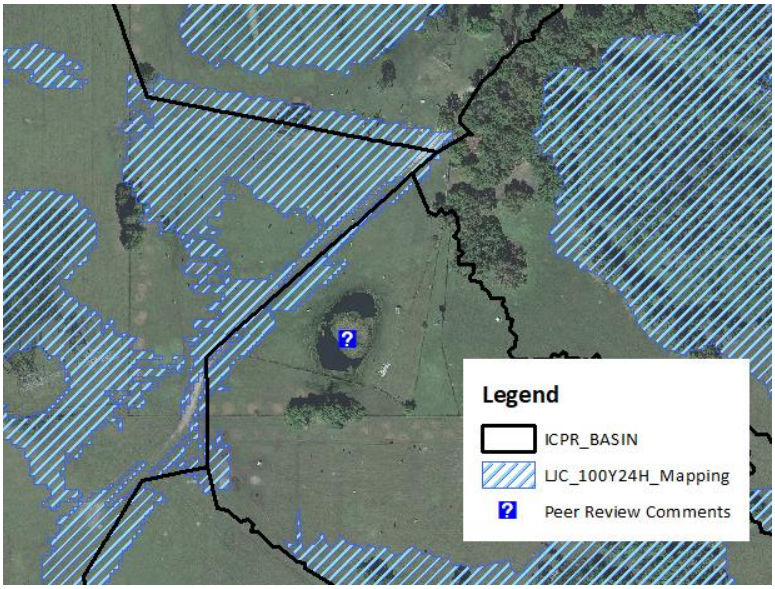


Figure 6 – Example Floodplain Peer Review Comment

4.4 Consistency between Model and Geodatabase (Task 2.3.2.4)

A comparison between the model and GWIS geodatabase was confirmed to ensure consistency across both platforms. With the exception of one rating curve link, model components were one-to-one for both count and names between both files. Rating curve LJCRB0292A is provided in the GWIS database ICPR_LINK feature class but is not included within the model and is set to flow "none". Additionally, it does not relate to its respective tables within the GWIS database, such as ICPR4_RATINGCURVE. Although, a rating curve with a similar name, LJCRCB0292A, is included in the rating curve tables but not is not included in the link feature class.

As previously noted, CDM Smith confirmed the subbasin area modeled matched the GIS spatial extents within the GWIS database. A topology check was performed to check for basin overlaps, basin gaps, and links not snapped to a node. One topology error exists where there is a small overlap between subbasins LJCNF0888 and LJCNF0861.

As noted by Jones Edmunds during the pre-submittal meeting, the spatial components of the percolation links are stored in a separate feature class of the GWIS geodatabase and only the input data is included in the model for file size and manageability purposes.

4.5 2D Region Review

There are two two-dimensional (2D) flow regions included in the western/southwestern portion of the Little Jones Creek/Wildwood model domain. These areas are shown in **Figure 7**. Region 1 is the largest area consisting of approximately 4,910 acres, with two mapped basin regions (approximately 276 acres). Region 1 is the furthest west and includes the Little Jones Creek and borders on Lake Panasoffkee. Region 2 is approximately 1,436 acres, also with two mapped basin regions (approximately 23 acres). Region 2 encompasses the undeveloped area east of Interstate 75 (I-75) in the immediate vicinity of Florida's Turnpike. The computational grid includes areas of more detailed spacing defined by breaklines, channel representation, and weirs. The grid and associated 2D features seem appropriate in both regions.

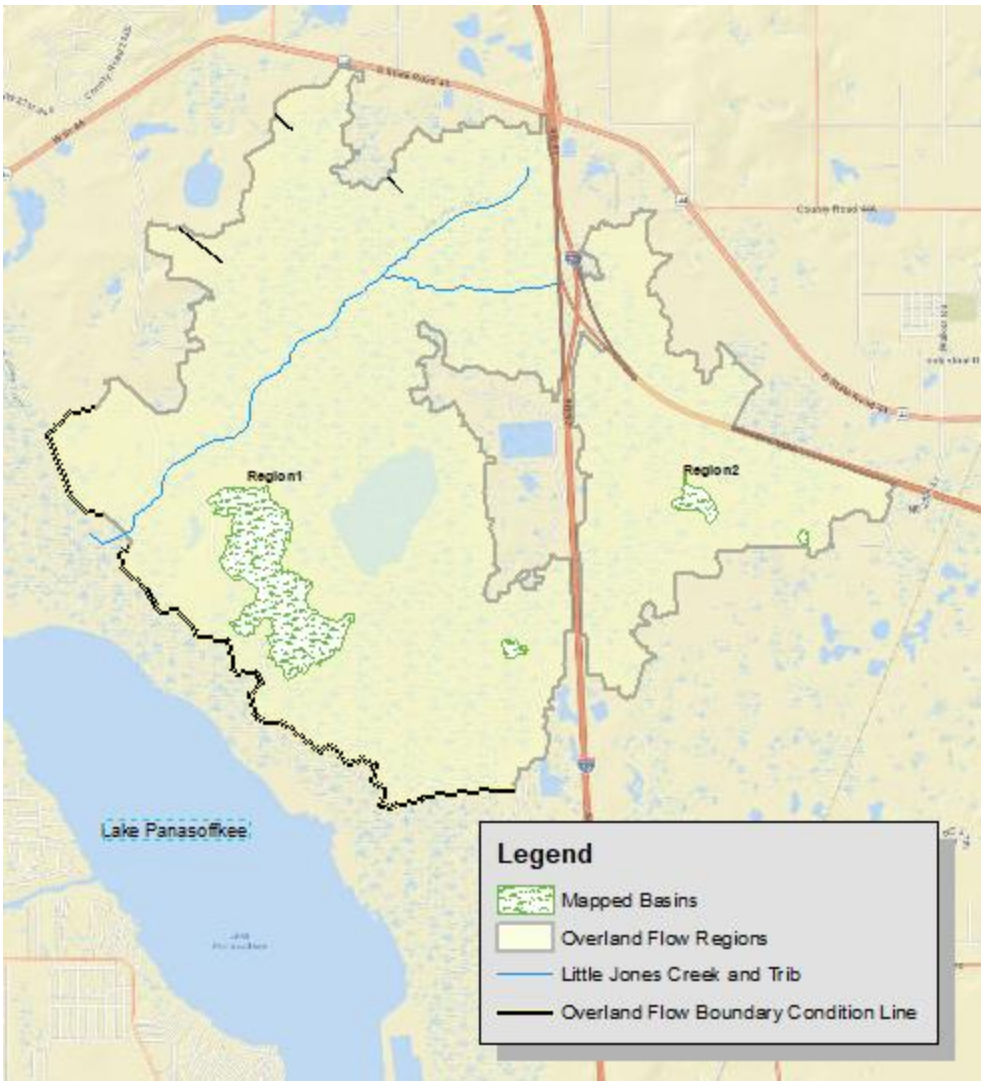


Figure 7 - 2D Overland Flow Regions

Region 1 contains a representation of Little Jones Creek (LJC) which crosses the region in the northern portion running northeast to southwest. LJC is represented in the model with 2D channel control volumes and features. The southwestern edge of the computational grid has a time varying boundary condition line adjacent to Lake Panasoffkee, which specifies the elevation at various points in the simulation. Boundary conditions along the other edges are modeled explicitly using one-dimensional (1D) hydraulic features allowing flow to and from the surrounding manual basin modeled areas. For example, explicitly modeling overland flow weirs connecting the 2D area to the conventionally modeled area, so that calculated runoff can flow to/from the 2D areas as appropriate. There are two regions of mapped basins within Region 1, however based upon a review of aerial photography, it isn't obvious why these areas are included as mapped basins, rather than included in the 2D mesh.

Region 2 represents the undeveloped area to the east of I-75 that straddles Florida's Turnpike. This area contains a breakline and 5-ft x 10-ft concrete box culvert crossing under the Turnpike. Boundary conditions along the perimeter are modeled explicitly using 1D hydraulic features

allowing flow to and from the surrounding manual basin modeled areas. There are also two regions of mapped basins within Region 2. Again, it isn't obvious why these areas weren't included in the 2D mesh.

5.0 Peer Review of Watershed Model Development and Floodplain Delineation

The peer review discussed in this section is based on the Little Jones Creek Model Development and Floodplain Delineation deliverable dated July 14, 2021. The deliverable package contained the following items that were the focus of the review under this task:

- Geographic Watershed Information System (LJC_GWIS_2.1.2.gdb) geodatabase containing hydrologic and hydraulic model elements and input parameters and supporting data;
- ICPR Version 4 models for design events (dated July 2, 2021), Tropical Storm Debby calibration event (dated June 16, 2021), and Hurricane Irma verification event (dated June 4, 2021);
- Jones Edmunds' Floodplain Analysis Report, dated July 2021;
- Project floodplains, as provided as "GWIS_FLOOD" within the Watershed feature dataset of the GWIS geodatabase; and,
- Supporting information used to develop the model input parameters as provided in the Hyperlink and Support_Data folders of the deliverable.

A total of 17 comments are included as part of the Task 2.4 Model Development and Floodplain Delineation Peer Review, for a total of 69 comments within the comments geodatabase. Comments have been categorized based on their jurisdiction. A total of six comments are within the unincorporated, or Little Jones Creek, area of the watershed, two comments are within City of Wildwood, and nine comments are either not location-specific or refer to locations in both the incorporated and unincorporated areas of the watershed.

Each of the 20 comments from the previous Task 2.3 Watershed Model Parameterization peer review was checked against the revised deliverable to confirm comments were appropriately incorporated. All comments were found to be satisfactorily addressed.

5.1 Rainfall Volume and Distribution

The Little Jones Creek models include 13 simulated design events, the Tropical Storm Debby calibration event, and Hurricane Irma verification event. Jones Edmunds used National Oceanic and Atmospheric Administration (NOAA) Atlas-14 rainfall depths for the model simulations as these depths are generally higher and have been adopted by several agencies as the most appropriate source of design event rainfall depths. The distribution for the 1-day and 5-day design events is the Florida Modified Type II and SWFWMD 120-hour distribution, respectively, which is consistent with the District's Guidelines and Specifications document.

Rainfall depths and distributions for the Debby and Irma event were assigned from two District-operated rainfall gauges within the watershed. Basins were assigned to their closest rainfall

gauge to vary the rainfall spatially. The use of NEXRAD rainfall was initially investigated but ultimately not used for the calibration and verification events as the total depths from the NEXRAD was significantly higher than the actual measured data at the Wildwood rainfall gauge.

Table 4 provides a summary of all rainfall depths and distributions modeled for the Little Jones Creek watershed.

Table 4 Little Jones Creek Model Rainfall Volumes and Distributions

Event	Rainfall Depth (in)	Source	Distribution
2.33-year/24-hour	4.34	NOAA Atlas 14	FL Modified Type II
5-year/24-hour	5.18		
10-year/24-hour	6.14		
25-year/24-hour	7.75		
50-year/24-hour	9.20		
100-year/24-hour	10.84		
500-year/24-hour	15.40		
10-year/5-day	8.87		SWFWMD 5-Day
50-year/5-day	13.45		
100-year/3-day	14.80		FDOT 3-Day
100-year/5-day	15.92		SWFWMD 5-Day
100-year/7-day	16.57		FD0T 7-Day
100-year/10-day	17.23		FDOT 10-Day
Tropical Storm Debby (Simulated 6/23/12 – 7/10/12)	12.85	Coleman (SWFWMD Gauge 23149)	
	8.39	Wildwood (SWFWMD Gauge (23133)	
Hurricane Irma (Simulated 9/6/17 – 9/15/17)	12.55	Coleman (SWFWMD Gauge 23149)	
	10.86	Wildwood (SWFWMD Gauge 23133)	

CDM Smith confirmed all design event rainfall depths for both the single day and multi-day events matched the NOAA Atlas-14 values as extracted from a central location within the Little Jones Creek watershed. CDM Smith also confirmed the rainfall values for the model calibration and verification events, Tropical Storm Debby and Hurricane Irma, were appropriate by extracting the gauge data from the District's website and comparing to the time-series input rainfall for the models. No aberrations were found.

Only one comment has been included in the comments geodatabase regarding rainfall simulations. It is unclear why all design events are set up and stored within the ICPR4 model but not reflected within the ICPR4_SCENARIO table of the GWIS database. CDM Smith recommends updating the GWIS database so that all design event simulation parameters are included, providing a 1-to-1 relationship between the database and model.

5.2 Model Performance

The performance of the Little Jones Creek watershed model was reviewed for continuity, simulation time, instabilities, and significant initial flows, in accordance with the peer review scope of work. The design event model, Hurricane Irma model, and Tropical Storm Debby model were each reviewed with a focus on the 100-year events for the design event model.

Some link instabilities, notably at LJCRF2237Z, LJCRE0287Z, LJCRE1594Z, and LJCRE1405Z were previously commented on in the Task 2.3 Watershed Model Parameterization peer review task and appear to have been dampened since the previous deliverable but some instabilities still exist. The node hydrographs connecting the unstable links were reviewed and it does not appear that the fluctuations create a significant impact to the peak stages.

The continuity was reviewed for each of the models. Based on review of the time-series mass balance, the total percent error at the end of the simulation ranges from 0.35% to 1.81%. A comment was included in the comments geodatabase in the previous peer review deliverable. Jones Edmunds responded that the response regarding the mass balance is caused by small initial flows in the 2D area and does not appear to affect the peak stages. This response is considered satisfactory and no further revisions are necessary.

The remaining checks included validation of stages and flows for reasonability and to confirm the presence of flooding in areas where documentation is available from high-water marks, gauge data, or flood photographs. Flood stages appeared reasonable across all events and match reasonably well to documented flooding. One node, LJCNE1328, has a 5-year/24-hour peak stage over 1.5-feet less than the mean-annual/24-hour peak stage. This instance has been noted in the comments geodatabase for further investigation.

Additionally, the simulated versus recorded water level data at USGS gauge 02312675, located along Little Jones Creek just northeast of Lake Panasoffkee, shows only a 0.5-foot difference. Flow differences between simulated and recorded are moderate, with an approximate 25 cfs difference. Justification for the difference has been well documented within Jones Edmunds' Floodplain Analysis Report.

Model simulation times were reviewed for the design event, calibration event, and verification event models to confirm the end time was adequate. No issues were found as all simulation times extend long enough for nodes to reach their peak stage. Initial flows were previously commented on under the Watershed Model Parameterization Peer Review and have been corrected where necessary. The remaining initial flows occur at locations there is an upstream node baseflow contribution, so the initial flow is justified. The Tropical Storm Debby model does not have any baseflow associated with it, thus there are no initial flows. It is unclear if the absence of baseflow for this model is intentional. This is included as a comment in the comments geodatabase.

A summary of the model performance checks is included in **Table 5**.

Table 5 Little Jones Creek Model Performance Summary

Error	Design Event Model	Hurricane Irma Model	Tropical Storm Debby Model
Continuity Error	Minimal, 0.38% at end of simulation (100y24h)	Minimal, 0.35% at end of simulation	Minimal, 1.81% at end of simulation
Inadequate Simulation Time	No issue found	No issue found	No issue found
Flow Reversals or Sudden Change	Unstable links with extreme flow reversals noted in comments geodatabase. Instabilities dampened but still exist.		No issue found
Instability			No issue found
Significant Initial Flow	Minor initial flows, 3.74 cfs is the maximum	Moderate, 14.53 cfs is the maximum	None
Stages and flows are not in a reasonable range	No issue found	No issue found	No issue found
Simulation results can't be adequately validated	No issue found	No issue found	No issue found
Simulated stage doesn't show increasing with severity of design event	One instance noted in comments geodatabase	N/A	N/A

5.3 Rainfall Justification to Project Floodplain

Based on review of Jones Edmunds' Floodplain Analysis Report, the project floodplains were delineated based on the highest 100-year node peak stage across the one-day, three-day, five-day, seven-day, and ten-day durations. This approach is reasonable, though some additional information in the report would be helpful for the reader to understand which duration was most frequently used to develop the project floodplains. It is also recommended for Jones Edmunds to provide a table in this section of the report to summarize the count of the nodes used for each duration in the floodplain delineation. Without a summary table it is hard to discern the frequency that the 1-day, 3-day, 5-day, 7-day, or 10-day durations were used in developing the project floodplains. Additionally, the report text notes that 433 nodes used the multi-day event for floodplain delineation. This list is included in the report Appendix B but it is somewhat confusing as this list provides each node with both the multi-day event and the single-day event.

5.4 Floodplain Delineation

CDM Smith generated level pool floodplains for the maximum node stage of all 100-year design events. Resulting floodplains were compared to the GWIS_FLOOD features to confirm multi-day versus 1-day results were assigned appropriately and results were based on the latest model. No

discrepancies were found. Per the District's Guidelines and Specifications, the floodplain area was compared for accuracy with the model stage versus the node stage-area relationships for any deviations greater than 10%. No errors were found outside of basins with storage exclusion.

Transition zones were established for overland weirs with flow at least 0.5-foot deep over the weir invert and where the weir was not submerged by the tailwater condition. To determine the extent of the transition zones, Jones Edmunds visually estimated the shape based the project DEM. CDM Smith reviewed the transition zone polygon shapes within the GWIS_FLOOD feature class and determined the delineations are reasonable and conform to the aforementioned criteria. A total of 165 transition zone shapes were included in this feature class. The GWIS_FLOOD feature class contains six features for sloped water surface floodplains. The floodplain delineations for these six features appears reasonable but it is not clear what criteria, if any, was established to determine the locations. A comment has been included in the comments geodatabase recommending further discussion within the Floodplain Analysis report.

CDM Smith reviewed the floodplain coverage against the basin boundaries for potential missing interconnects, or where the floodplain "glass walls" against the basin boundary without a weir link or channel link to convey the flow. A total of four locations were identified and included in the comments geodatabase. An example is provided in **Figure 8**, where the floodplain abuts the basin boundary (where the peer review comment is located) but there is no weir outfall provided to convey this flow into the neighboring basin.

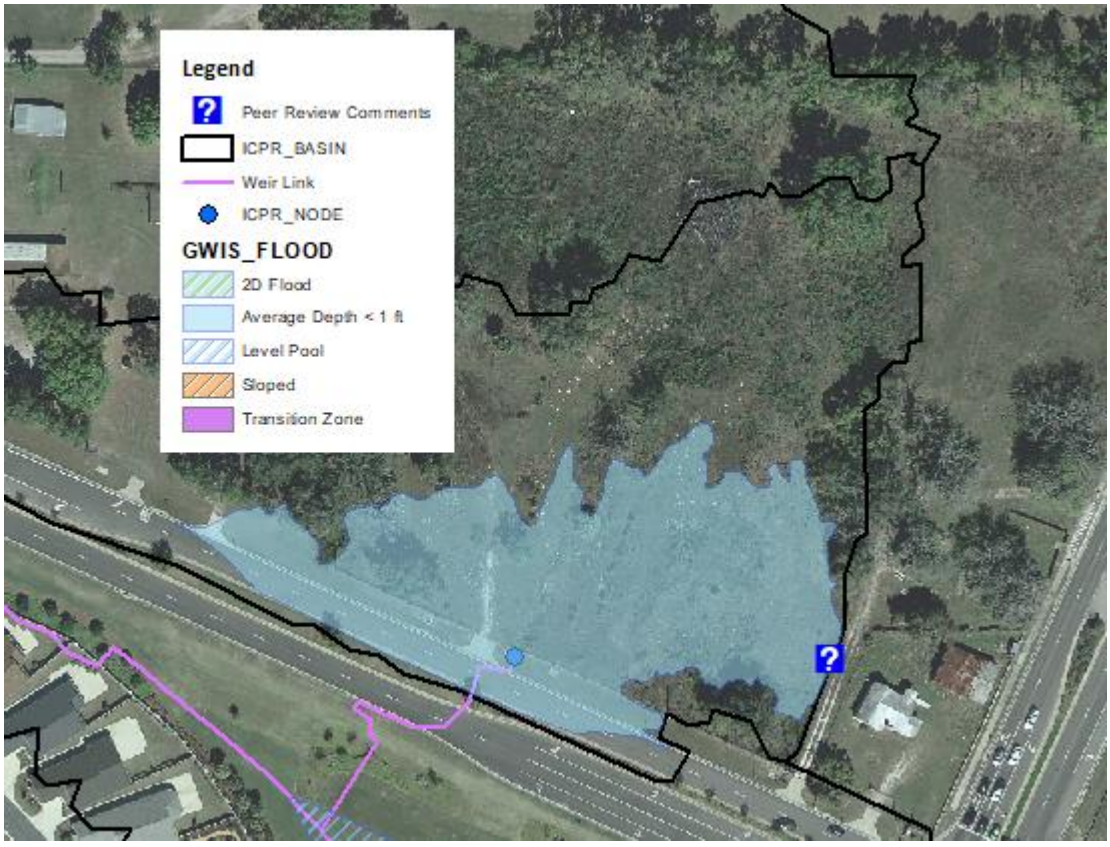


Figure 8 - Example Potential Missing Interconnect

As described within Jones Edmunds' Floodplain Justification Report, the floodplain feature class developed for this project (GWIS_FLOOD) is significantly more expansive than the current FEMA NFHL coverage within the watershed boundary. Jones Edmunds' GWIS_FLOOD coverage shows an increase of 1,405 acres, or 2.2 square miles, over the existing FEMA coverage. An increase of this magnitude is expected as the Little Jones Creek watershed model provides an increased level of detail over the 2013 Flood Insurance Study with explicit modeling of stormwater ponds and depressional areas. CDM Smith compared the NFHL coverage to the GWIS_FLOOD coverage in GIS, using both the aerial imagery and the project DEM to note any discrepancies that are not justified. Differences between the NFHL coverage and Jones Edmunds' floodplain coverage are most frequently attributed to modeling of distinct storage areas, use of newer elevation data, and updates for latest land use and soils data. Only two locations within the watershed were identified for further investigation and have been noted in the comments geodatabase. As shown on **Figure 9**, the locations identified are in the existing FEMA NFHL coverage but are not proposed floodplain shapes within the GWIS_FLOOD feature class. At these locations standing water can be seen from the project aerial imagery.

Figure 9 - FEMA NFHL and GWIS FLOOD Comparison

5.5 2D Floodplain Representation

The 2D overland area setup and model results were reviewed and spot checked for reasonableness. Model results (e.g. 2D depth, water surface elevation, flow vectors, 1D links flow and 1D node elevation) for the 100-year/24-hour event were spot checked. In general, it seems reasonable and well thought out. Following are some observations:

- Flow along Little Jones Creek seems reasonable. Flow in LJC is largely from the tributary 2D area along the main stem. Flow coming from the 1D areas is reasonable and significant in the tributary. The increase in flow moving downstream as well as impact from tributary are reasonable.
- The various 1D weirs and pipes in the 2D area are generally acting in a reasonable fashion.
- 2D depth, elevation, and flow vectors seem reasonable and as expected in both regions 1 and 2. One can see flow vectors flowing to LJC as well as running in sheet flow parallel to the creek.
- Impact of Lake Panasoffkee boundary condition on Region 1 seems reasonable and as expected. It is assumed that the alignment of the boundary condition line is generally along the 41.4 foot contour line but should be confirmed.
- There was one anomaly noted in a 1D structure draining to Region 1 that is noted in the comments geodatabase. This pertains to a drop structure link that does not have any flow in the 100-year/24-hour event.

6.0 Final Approved Peer Review Deliverables

The delineated floodplains were presented to the public at the floodplain open house on January 13, 2022. Comments were collected from the public and several revisions were made to the model, specifically to Green-Ampt soil parameters. Following are peer review comments based upon revisions documented in "Floodplain Analysis Report for the Little Jones Creek and City of Wildwood Watershed Management Plans (N919 and Q082)" dated May 2022.

- Generally, modifying the soil parameters seems like a sound approach and appears to be effective in reducing the extent of the simulated flooding to be consistent with public comments.
- First bullet on page 4-34 of the report indicates that Tavares find sand, Arredondo fine sand, and Millhopper fine sand were revised, watershed-wide, to use an air entrapment factor of 1.4. However, the second bullet indicates that Millhopper fine sand saturated hydraulic conductivities are updated to match Alachua County values. Based on a comparison of vertical layer set data, the latter appears to be correct. Remove reference to Millhopper in first bullet.

Further, regarding the watershed-wide revisions noted above, the net effect is significant reduction in BFE floodplain extents, in areas that weren't necessarily commented on by the public. For example, in the northern portion of the basin, see **Figure 10**. Previously these

flooded polygons were interconnected, now they are separated. Similarly, the BFE extents are reduced in the 2D floodplain area (**Figure 11)**. Please provide the justification to make these hydrological changes basin wide as opposed to locally.

- The reduction in floodplain extents associated with the Irma simulation appear to be more localized to comment areas (i.e., the reduction noted in the BFE ("GWIS_Flood") feature class isn't apparent in the Irma floodplain extent ("GWIS_FLOOD_Irma") as shown in **Figure 12)**. Please confirm if the basin wide revisions are included in the calibration model.

- There are several references to basin "LJCC0459" which is included in the model but is not present in the feature class contained in the geodatabase: LJC_GWIS_2.1.2.gdb. Confirm most up to date GWIS data are included.

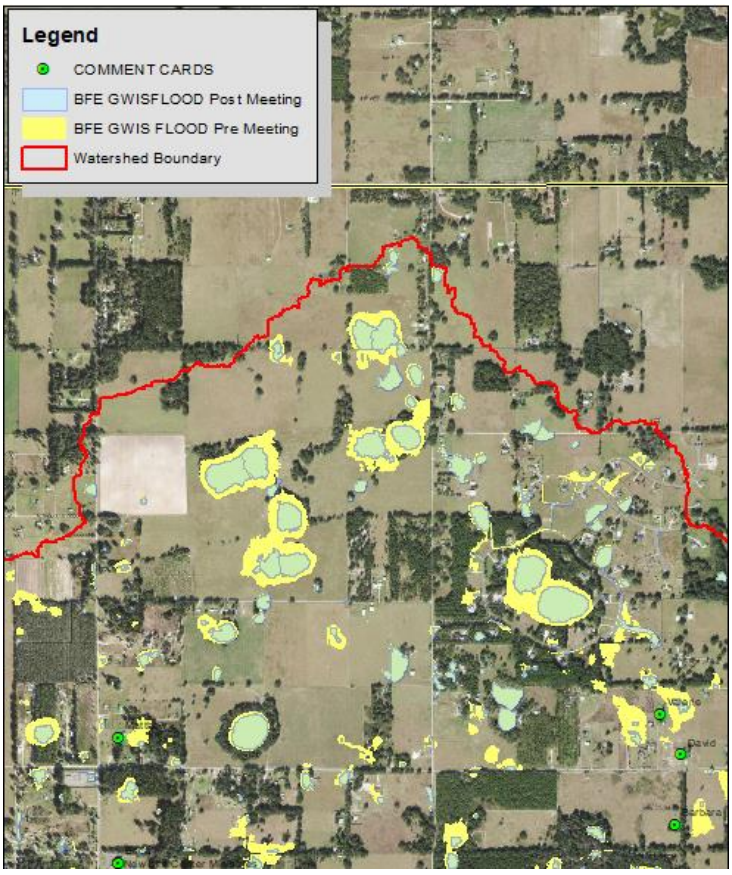


Figure 10 - BFE Floodplains in Northern Portion of Basin

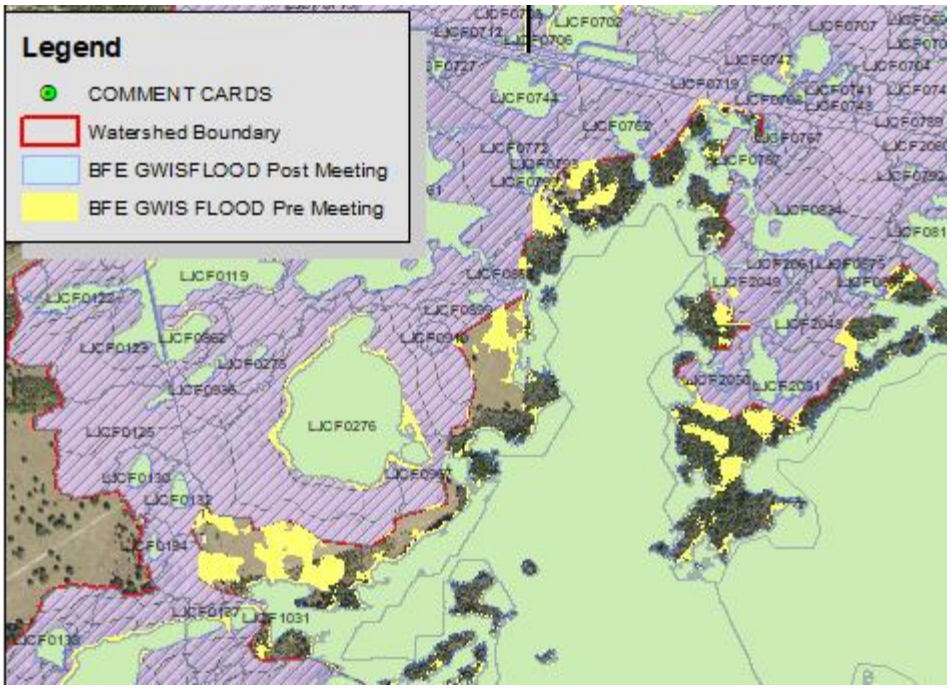


Figure 11 - BFE Floodplains in 2D Portion of Basin

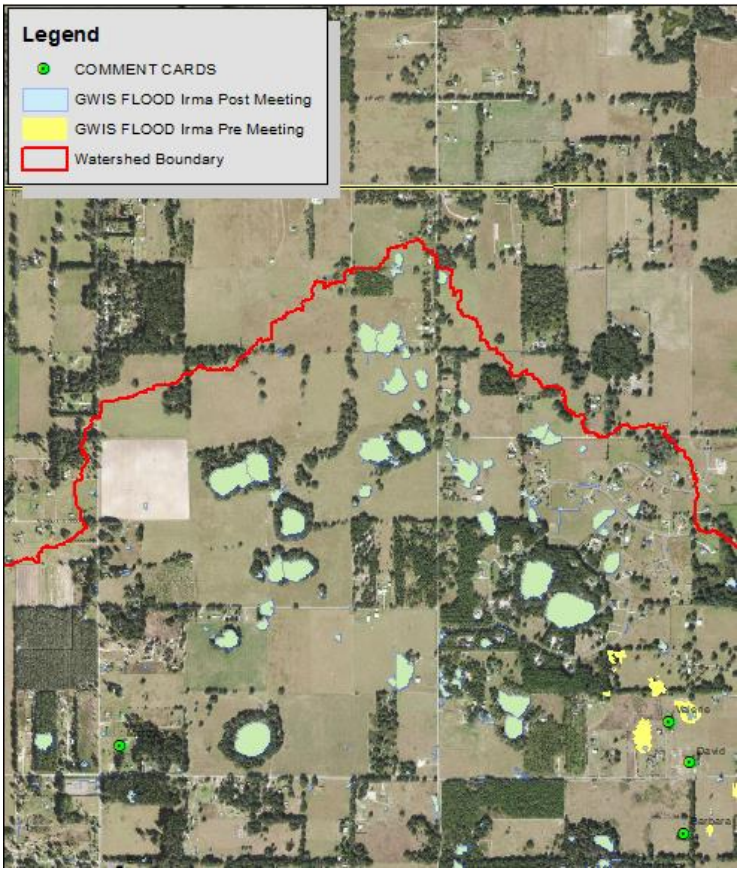


Figure 12 - Irma Floodplains in Northern Portion of Basin

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Appendix A

Peer Review Comments Geodatabase

Little Jones Creek (N919 & Q082) WMP Peer Review
Appendix A - Draft Peer Review Comments Geodatabase

No.	Review-er	Reviewer Agency	Comment Description	Comment Description Continued	Comment Priority	Comment Date	Response Description	Response Description Continued	Responder	Responder Agency	Response Date	Watershed	Phase
1	ET	CDM Smith	There appears to be a culvert here. Consider adding pipe link.		Response Required (Normal)	7/10/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
2	ET	CDM Smith	There appears to be a culvert here. Consider adding pipe link.		Response Required (Normal)	7/10/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
3	ET	CDM Smith	There appears to be a culvert here. Consider adding pipe link.		Response Required (Normal)	7/10/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
4	ET	CDM Smith	There appears to be a culvert here. Consider adding pipe link.		Response Required (Normal)	7/10/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
5	ET	CDM Smith	There appears to be a culvert here. Consider adding pipe link.		Response Required (Normal)	7/10/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
6	ET	CDM Smith	There appears to be a culvert here. Consider adding pipe link.		Response Required (Normal)	7/10/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
7	ET	CDM Smith	There appears to be a culvert here. Consider adding pipe link.		Response Required (Normal)	7/10/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
8	PS	CDM Smith	There appears to be a culvert here. Consider adding pipe link.		Response Required (Normal)	7/13/20	The culvert in this location drains the roadway, the eastbown lane is routed hydrologically and the westbown lane drains outside the watershed, no change.		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
9	PS	CDM Smith	There appears to be a culvert here. Consider adding pipe link.		Response Required (Normal)	7/13/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
10	ET	CDM Smith	There may be a culvert here based on the DEM. Consider investigating and adding pipe link as needed.		Response Required (Normal)	7/10/20	We visited this location and either the pipe was completely buried or does not exist		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
11	ET	CDM Smith	There may be a DBI here that connects to the DBI on the west side of the basin boundary. Please verify and update schematic as necessary.		Response Required (Normal)	7/10/20	Drop structure link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
12	ET	CDM Smith	Consider splitting basin along roadway crown and modeling overtopping weir.		Response Required (Normal)	7/10/20	Basin split along ridge as discussed in peer review meeting.		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
13	ET	CDM Smith	Consider splitting this basin along the berm here. Consider referencing drainage plans for new development (Wildwood Springs).		Response Required (Normal)	7/10/20	This development and the CR469/US301 intersection are still under construction and the topography and culverts in this area appear to have been temporary and no longer reflect the actual conditions.	Review of this area shows it does not drain towards the LJC watershed, therefore it was removed.	AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
14	ET	CDM Smith	Recommend confirming basins and network are appropriate for this development, the configuration as-is is a little odd. Is it possible this entire facility loads to the pond to the northeast and is outside of the LJC watershed?		Response Required (Normal)	7/13/20	This entire development appears to drain to the pond in the northeast section, aside from the portion in basin LJCD0105. Boundaries updated based on drainage plans and removed from watershed.	See ERP_004817_000_Approved_Plan.pdf	AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
15	ET	CDM Smith	Recommend merging these two basins with the pond to the east instead of modeling weir links.		Response Required (Normal)	7/10/20	Merged with basin LJCD0020		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation

No.	Review-er	Reviewer Agency	Comment Description	Comment Description Continued	Comment Priority	Comment Date	Response Description	Response Description Continued	Responder	Responder Agency	Response Date	Watershed	Phase
16	ET	CDM Smith	Recommend merging this basin to whichever pond this area loads to.		Response Required (Normal)	7/10/20	Merged with basin LJCD0307		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
17	ET	CDM Smith	Recommend merging this basin to whichever pond this area loads to.		Response Required (Normal)	7/10/20	Merged with basin LJCD0307		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
18	ET	CDM Smith	Recommend merging this basin to whichever pond this area loads to.		Response Required (Normal)	7/10/20	Merged with basin LJCD1266		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
19	ET	CDM Smith	Recommend removing this development from the 2D Overland Flow Region and modeling as its own subbasin.		Response Required (Normal)	7/10/20	Updated to create a basin for this area and remove it from the 2D overland flow area.		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
20	ET	CDM Smith	Recommend reviewing the plans for this area to confirm this portion of the development is outside the watershed and doesn't contribute to the pond to the south.		Response Required (Normal)	7/10/20	Removed this area from the watershed		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
21	ET	CDM Smith	Recommend reviewing the subbasin boundary at this location (see ridge along houses in the DEM).		Response Required (Normal)	7/10/20	Updated delineation in this area		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
22	ET	CDM Smith	Recommend revising the basin to include northern portion of the pond.		Response Required (Normal)	7/10/20	Removed this area from the watershed as it ultimately drains east away from Little Jones Creek		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
23	ET	CDM Smith	Recommend splitting basin along roadway crown and modeling this pipe connection.		Response Required (Normal)	7/10/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
24	PS	CDM Smith	Recommend splitting basin along roadway crown and modeling this pipe connection.		Response Required (Normal)	7/10/20	Pipe link added in this location		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
25	ET	CDM Smith	Recommend splitting this basin.		Response Required (Normal)	7/13/20	This area is directly connected to the FDOT pond by a culvert at grade, no change		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
26	PS	CDM Smith	HEP - Bridge Points here. How will this bridge be modeled?		Response Required (Critical)	7/10/20	We plan on modeling this as a channel with a top clip, the bridge is a clear span with vertical sides and no piers		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
27	PS	CDM Smith	HEP - Source listed in attributes as "Estimated - DEM" with no attachments, however within ERP polygon for Turnpike. There may be better information available for this culvert.		Future Maintenance	7/13/20	This structure does not have any inverts shown on the plans, a request was filed with FDOT for as-builts now that this construction is finished.	The as-built plans do not show inverts for this structure presumably since it was not altered, the current estimate was kept.	AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
28	PS	CDM Smith	HEP - Source listed in attributes as "FDOT Plans or As-Built". Consider linking to source FDOT plans in electronic deliverable (6 instances)		Future Maintenance	7/13/20	Filename for FDOT plans added to source field for these locations		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation
29	PS	CDM Smith	HEP - Source listed in attributes as "JE Survey 2020". Consider including survey in electronic deliverable Supporting Data.		Future Maintenance	7/13/20	Survey data has been added to the deliverable under supporting data		AW	Jones Edmunds	10/14/20	Both	Watershed Evaluation
30	PS	CDM Smith	HEP - Source listed in attributes as "SWFWMD 2017 Survey". Consider including survey in electronic deliverable Supporting Data.		Future Maintenance	7/13/20	Survey data has been added to the deliverable under supporting data		AW	Jones Edmunds	10/14/20	Both	Watershed Evaluation
31	PS	CDM Smith	HEP - The 2019 Degrove survey points were imported as X,Y, however these 4 HEPs did not have corresponding Degrove points.		Future Maintenance	7/13/20	These points were mislabeled as Degrove Survey, they are from the SWFWMD survey and have been updated		AW	Jones Edmunds	10/14/20	Little Jones Creek	Watershed Evaluation

Little Jones Creek (N919 & Q082) WMP Peer Review
Appendix A - Draft Peer Review Comments Geodatabase

No.	Review-er	Reviewer Agency	Comment Description	Comment Description Continued	Comment Priority	Comment Date	Response Description	Response Description Continued	Responder	Responder Agency	Response Date	Watershed	Phase
32	ET	CDM Smith	CDM Smith's comments on the Watershed Evaluation Report have been included in the peer review submittal, see document "2020_06_05_WatershedEval-LittleJonesCreek-WMP_DRAFT_CDMS.docx".		No Response Required	7/13/20	Noted		AW	Jones Edmunds	10/14/20	Both	Watershed Evaluation
33	ET	CDM Smith	Link LJCRD1146A needs to be reversed; link from and to nodes do not match cartographic direction.		Response Required (Low)	2/22/21	Link direction reversed		AW	Jones Edmunds	6/29/2021	Wildwood	Model Parameterization
34	ET	CDM Smith	Rating curve LJCRB0292A does not relate to respective tables and is not included in the model. Looks like this may be due to an extra character in the related tables (LJCRCB0292A). Also, link is set to "none".		Response Required (Normal)	2/22/21	Rating Curve table updated so that the relationship works. This pump station is not turned on in the model since it is manually operated after the storm and does not reduce peak stages.		AW	Jones Edmunds	6/29/2021	Wildwood	Model Parameterization
35	ET	CDM Smith	Consider investigating mass balance errors as model progresses, percent error is almost 15% around hour 3.		Response Required (Normal)	2/22/21	The mass balance errors at the beginning of the simulation appear to be a result of initail flows in the 2D area. Modeled peak stages do not seem to be affected by this early mass balance error.		AW	Jones Edmunds	6/29/2021	Both	Model Parameterization
36	ET	CDM Smith	Weir discharge coefficients are not assigned for four links within unincorporated Little Jones Creek: LJCRE1824A, LJCRE1827B, LJCRE1831A, and LJCRE1898B.		Response Required (Low)	2/22/21	Weir discharge coefficients were updated for weirs missing this input.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
37	ET	CDM Smith	Weir discharge coefficients are not assigned for two links within City of Wildwood: LJCRB1223A and LJCRE1311B.		Response Required (Low)	2/22/21	Weir discharge coefficients updated for weirs missing inputs		AW	Jones Edmunds	6/29/2021	Wildwood	Model Parameterization
38	ET	CDM Smith	Mean-annual precipitation value seems a bit high. Please confirm. Was this value interpolated from Atlas 14 or the SWFWMD ERP handbook?		Response Required (Normal)	2/22/21	We proposed using Atlas 14 rainfall depths, however, this value should have been 4.34 inches.		AW	Jones Edmunds	6/29/2021	Both	Model Parameterization
39	ET	CDM Smith	Recommend reviewing and addressing instabilities at links to the greatest extent practical. Especially at LJCRF2237Z, LJCRE0287Z, LJCRE1594Z, LJCRE1405Z.		Response Required (Normal)	2/22/21	We reviewed model instabilities and made adjustments to storage and link dampening threshold where possible in order to elimate instabilities. Modeled stages appear to be stable.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
40	ET	CDM Smith	Verify channel lengths for links LJCRE1391A, LJCRF2046A, LJCRB2250A. For these links, the channel length is longer than the link length.		Response Required (Low)	2/22/21	We reviewed and updated the channel lengths.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
41	ET	CDM Smith	There is a topology error here: a very small sliver of overlap between basins.		Response Required (Low)	2/22/21	We reviewed the topology and corrected errors.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
42	ET	CDM Smith	Floodplain review comment: Recommend reviewing model assumptions for this area; pond without 100-year inundation.		Response Required (Normal)	2/22/21	We split the basin along the dividing berm to explicitly model both ponds.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
43	ET	CDM Smith	Floodplain review comment: Two inlets on this property, behind the R/W. Is it possible the southern half of this lot drains to the SR44 system?		Response Required (Normal)	2/22/21	We could not locate any plans for this parcel, and the available roadway plans do not show an inlet tying in from that location.	A field visit confirmed the hotel property ties into the roadway system and the model was updated by merging the two basins.	AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
44	ET	CDM Smith	Floodplain review comment: This area appears to be wet from aerial imagery but is not included in the 100-year inundation shape. Recommend reviewing model assumptions and/or basin delineation.		Response Required (Normal)	2/22/21	We reviewed this area and split the basin to accurately show flooding in this upper wetland area.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
45	ET	CDM Smith	Floodplain review comment: This area appears to be wet from aerial imagery but is not included in the 100-year inundation shape. Recommend reviewing model assumptions and/or basin delineation.		Response Required (Normal)	2/22/21	We reviewed this area and split the basin to accurately show flooding in this pond.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
46	ET	CDM Smith	Floodplain review comment: City of Wildwood known flooding area without 100-year inundation. Recommend reviewing model assumptions and/or basin delineation.		Response Required (Normal)	2/22/21	We updated this area to add additional detail, the model now shows flooding at this intersection.		AW	Jones Edmunds	6/29/2021	Wildwood	Model Parameterization

No.	Review-er	Reviewer Agency	Comment Description	Comment Description Continued	Comment Priority	Comment Date	Response Description	Response Description Continued	Responder	Responder Agency	Response Date	Watershed	Phase
47	ET	CDM Smith	Floodplain review comment: This area appears to be wet from aerial imagery but is not included in the 100-year inundation shape. Recommend reviewing model assumptions and/or basin delineation.		Response Required (Normal)	2/22/21	We reviewed this area and split the basin to accurately show flooding in this upper wetland area.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
48	ET	CDM Smith	Several instances noted where the inundation extents from the initial condition are not reflected as 100% direct in the land use lookup. Has the methodology included in the parameterization approach memo been revised?		Response Required (Normal)	2/22/21	We reviewed and compared the direct land use areas against the mapped intial stage polygons and updated the land use mapped layer.		AW	Jones Edmunds	6/29/2021	Both	Model Parameterization
49	ET	CDM Smith	Recommend reviewing TC assumptions for some of these roadway basins, such as LJCE0029 as the TC time at 106 minutes seems quite long. Flow will be intercepted by inlets and will likely be conveyed to the pond much quicker than that.		Response Required (Normal)	2/22/21	We reviewed the Tc values, particulary in basins covering major roadways. Tc slopes were based on ground surface and did not account for hydraulic gradient for this basin, Tc reduces to 79 minutes after updating slopes.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
50	ET	CDM Smith	Significant initial flows (>10 cfs) noted at several links where baseflow was not a contributing factor. Links are listed within the peer review report and within the subsequent field of this table.	LJCRE1328Z, LJCRE1328B, LJCRE1329Z, LJCRE1405A, LJCRE1405B, LJCRE1405C, LJCRF2237Z, LJCRE2242Z, LJCRE1385A, LJCRE0287B, LJCRE0287C, LJCRE0287A, and LJCRE1385B.	Response Required (Normal)	2/22/21	We reviewed intial flows in the model and made updates to correct these as needed.		AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
51	DAM	CDM Smith	Not clear why this area is modeled as mapped basins, rather than all 2D.		Response Required (Normal)	3/1/21	We determined these basins to be internally drained depressions that will fill up before discharging, therefore we decided to set them as mapped basins instead of inlcuding them in the 2D mesh.	We will include this justification in the modeling narative.	AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
52	DAM	CDM Smith	Not clear why this area is modeled as mapped basins, rather than all 2D.		Response Required (Normal)	3/1/21	We determined these basins to be internally drained depressions that will fill up before discharging, therefore we decided to set them as mapped basins instead of inlcuding them in the 2D mesh.	We will include this justification in the modeling narative.	AW	Jones Edmunds	6/29/2021	Little Jones Creek	Model Parameterization
53	ET	CDM Smith	CDM Smith's comments on the Floodplain Justification Report have been included in the peer review submittal, see document "FloodplainAnalysis-LittleJonesCreek_Wildwood_20210712_DRAFT_CDMS.docx"		Response Required (Low)	8/6/21	We reviewed the comments and updated the report accordingly.		AW	Jones Edmunds	11/9/2021	Both	Floodplain Justification
54	ET	CDM Smith	ICPR4_SCENARIO table does not include all modeled design events. Should this be updated to preserve a 1-to-1 relationship with the model?		Response Required (Low)	8/6/21	The ICPR4_Simulation table was updated to include all the modeled storm events		AW	Jones Edmunds	11/9/2021	Both	Floodplain Justification
55	ET	CDM Smith	Potential missing interconnect.		Response Required (Normal)	8/6/21	We added a weir at this location		AW	Jones Edmunds	11/9/2021	Little Jones Creek	Floodplain Justification
56	ET	CDM Smith	Potential missing interconnect.		Response Required (Normal)	8/6/21	This does appear to be a glass wall, but this is the result of the 2D area generalization and flow from this node is either through the channel or the weir to the east.		AW	Jones Edmunds	11/9/2021	Little Jones Creek	Floodplain Justification
57	ET	CDM Smith	Potential missing interconnect.		Response Required (Normal)	8/6/21	We added a weir at this location		AW	Jones Edmunds	11/9/2021	Wildwood	Floodplain Justification
58	ET	CDM Smith	Potential missing interconnect.		Response Required (Normal)	8/6/21	We added a weir at this location		AW	Jones Edmunds	11/9/2021	Wildwood	Floodplain Justification

No.	Review-er	Reviewer Agency	Comment Description	Comment Description Continued	Comment Priority	Comment Date	Response Description	Response Description Continued	Responder	Responder Agency	Response Date	Watershed	Phase
59	ET	CDM Smith	5-year/24-hour peak stage is significantly less (>1.5 ft) than mean-annual/24-hour peak stage for node LJCNE1328, consider investigating.		Response Required (Normal)	8/6/21	After review of this location it seems there were some erroneous results in the model. The model has been re-run and the stages appear appropriate.		AW	Jones Edmunds	11/9/2021	Little Jones Creek	Floodplain Justification
60	ET	CDM Smith	Methodology for creating sloped floodplains is unclear. For example, why is there a sloped floodplain two channel segments upstream of here but not at this channel location? Recommend addressing in report.		Response Required (Normal)	8/6/21	We updated the report with a more detailled explanation of how sloped floodplains were created.		AW	Jones Edmunds	11/9/2021	Both	Floodplain Justification
61	ET	CDM Smith	Appendix B is somewhat confusing. Based on the report text this should be a list of all nodes that used the multi-day event to plot the floodplain within GWIS Flood so it is not clear why each record is listed with both a multi-day event and "/24-hour".	Additionally, these appear to be basin names rather than node names listed (i.e. does not match table title).	Response Required (Normal)	8/6/21	We updated Appendix B to show the correct events and basin names.		AW	Jones Edmunds	11/9/2021	Both	Floodplain Justification
62	ET	CDM Smith	This area is within the existing FEMA NFHL coverage but will be removed should the proposed floodplains as part of this project be adopted. Standing water is visible from aerial imagery, consider revising model so that this area remains in the floodplain.		Response Required (Normal)	8/6/21	This area is located in the upper part of the subbasin and did not fall within the SWFWMD G&S guidelines for basin delineation. We created an A Zone polygon to denote flooding over the standing water		AW	Jones Edmunds	11/9/2021	Little Jones Creek	Floodplain Justification
63	ET	CDM Smith	This area is within the existing FEMA NFHL coverage but will be removed should the proposed floodplains as part of this project be adopted. Standing water is visible from aerial imagery, consider revising model so that this area remains in the floodplain.		Response Required (Normal)	8/6/21	This area is located in the upper part of the subbasin and did not fall within the SWFWMD G&S guidelines for basin delineation. We created an A Zone polygon to denote flooding over the standing water		AW	Jones Edmunds	11/9/2021	Little Jones Creek	Floodplain Justification
64	PS	CDM Smith	Consider denoting event duration in GWIS flood by adding the information from Appendix B (Nodes using multi-day events for floodplain mapping)		Response Required (Low)	8/19/21	GWIS_FLOOD was updated to include the event that is mapped		AW	Jones Edmunds	11/9/2021	Both	Floodplain Justification
65	PS	CDM Smith	Schema domain dFEMA_ZONE not utilized for GWIS_FLOOD field "FEMA_ZONE" (i.e., A, AE). Is there justification for why FEMA_ZONE set to N/A for all floodplain polygons?		Response Required (Low)	8/19/21	We assigned FEMA flood zones to the GWIS_FLOOD features.		AW	Jones Edmunds	11/9/2021	Both	Floodplain Justification
66	PS	CDM Smith	Schema domain dFTYPE not utilized for GWIS_FLOOD field "FTYPE" (i.e., Floodplain, New Development Area, Transition Zone). Consider adding to meet schema standards.		Response Required (Low)	8/19/21	We populated the FType field with GDB domain values.		AW	Jones Edmunds	11/9/2021	Both	Floodplain Justification
67	ET	CDM Smith	Recommend populating the ICPR_NODE_RESULT and ICPR_LINK_RESULT tables for future deliverables.		Response Required (Low)	8/19/21	We populated these tables for the final deliverable.		AW	Jones Edmunds	11/9/2021	Both	Floodplain Justification
68	DAM	CDM Smith	Link LJCRF0846B is a drop structure that is inactive in the 100yr/24hr event; it is counter intuitive that it would be inactive. Consider investigating.		Response Required (Normal)	8/19/21	We reviewed this location and it appears the drop structure link is missing a weir, the parameters have been updated to include the second weir		AW	Jones Edmunds	11/9/2021	Little Jones Creek	Floodplain Justification
69	ET	CDM Smith	Is the absence of all baseflow for the Tropical Storm Debby model intentional? The report reads that it was "reduced", should this say "removed" instead?		Response Required (Normal)	8/19/21	Baseflow was not completely removed, there is stlll a small amount of baseflow applied in the downstream portion of Little Jones Creek.		AW	Jones Edmunds	11/9/2021	Both	Floodplain Justification
70	DAM	CDM Smith	Report indicates that Millhopper fine sand was revised both with entrapment factor and to match Alachua County values, watershed-wide. Based on a comparison of vertical layer set data, the latter appears to be correct. Revise text.		Response Required (Normal)	07/14/22						Both	Floodplain Justification
71	DAM	CDM Smith	Regarding comment #70, the net effect is significant reduction in BFE floodplain extents, in areas that weren't commented on in the public meeting. What was the justification to make these hydrological changes basin wide?		Response Required (Normal)	07/14/22						Both	Floodplain Justification
72	DAM	CDM Smith	Also, the reduction in flood plain extents associated with the Irma simulation appear to be more localized to comment areas, i.e., the reduction noted in the BFE ("GWIS_Flood") feature class isn't apparent in the Irma ("GWIS_FLOOD_Irma") Figure 12.	Are the basin wide revisions included in the calibration model?	Response Required (Normal)	07/14/22						Both	Floodplain Justification
73	DAM	CDM Smith	There are several references to basin "LJCC0459" which is included in the model but is not present in the feature class contained in the geodatabase: LJC_GWIS_2.1.2.gdb. Ensure most up to date GIS data is included.		Response Required (Normal)	07/14/22						Both	Floodplain Justification

No.	Review-er	Reviewer Agency	Comment Description	Comment Description Continued	Comment Priority	Comment Date	Response Description	Response Description Continued	Responder	Responder Agency	Response Date	Watershed	Phase
74	DAM	CDM Smith	Regarding comment #70, the net effect is significant reduction in BFE floodplain extents, in the 2D area as well. What was the justification to make these hydrological changes basin wide?		Response Required (Normal)	7/21/22							

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Appendix B
QA/QC Checklist

Appendix B QA/QC Checklist

QA/QC of Little Jones Creek (N919) WMP Peer Review - 2.2 Peer Review of Watershed Evaluation

Database/Model Filename	
LJC_GWIS_2.1.gdb	
Date of Database/Model Receipt	
6/17/2020	
Checked By, Date	
Elizabeth Tuke, Priscilla Sale, July 2020	

No.	Submittal Item/Reference	Checked (Yes/No)	Review Comments	Technical Manager Comments
2.2.2.1 Level of Detail and Model Schematic				
	Watershed Boundary	Yes	Minor comments noted in the comments geodatabase and summarized within the peer review report.	√
	Subbasin Delineations	Yes	Minor comments noted in the comments geodatabase and summarized within the peer review report.	√
	Node-Link Diagram	Yes	Minor comments noted in the comments geodatabase and summarized within the peer review report.	√
2.2.2.2 Model Parameterization Approach				
	Design, Multi-day, Calibration, and Verification Storms	Yes	Approach is reasonable, conclusion summarized within peer reivew report. No comments noted in comments geodatabase.	√
	Rainfall Excess	Yes	Approach is reasonable, conclusion summarized within peer reivew report. No comments noted in comments geodatabase.	√
	Time of Concentration	Yes	Approach is reasonable, conclusion summarized within peer reivew report. No comments noted in comments geodatabase.	√
	Node Storage	Yes	Approach is reasonable, clarification requested on differing stage-storage increment values to be used which may result in WE report document updates. Conclusion summarized within peer review report and noted in CDM Smith's copy of the WE report. No comments noted in the comments geodatabase.	√
	Initial Condition	Yes	Approach is reasonable, conclusion summarized within peer reivew report. No comments noted in comments geodatabase.	√
	Boundary Condition	Yes	Recommendation for additional report text regarding boundary conditions at Nichol Pond WMP. Conclusion summarized within peer review report and noted in CDM Smith's copy of the WE report. No comments noted in comments geodatabase.	√
	Channel	Yes	Approach is reasonable, conclusion summarized within peer reivew report. No comments noted in comments geodatabase.	√
	Bridge	N/A	No modeled bridges within watershed.	√
	Pipe	Yes	Approach is reasonable, conclusion summarized within peer reivew report. No comments noted in comments geodatabase.	√
	Weir	Yes	Approach is reasonable, conclusion summarized within peer reivew report. No comments noted in comments geodatabase.	√
	Drop Structure	Yes	Approach is reasonable, conclusion summarized within peer reivew report. No comments noted in comments geodatabase.	√
	Percolation	Yes	Approach is reasonable, conclusion summarized within peer reivew report. No comments noted in comments geodatabase.	√

QA/QC of Little Jones Creek (N919) WMP Peer Review - 2.3 Peer Review of Watershed Model Parameterization

Database/Model Filename
LJC_GWIS_2.1.2.gdb, LJC_20210203
Date of Database/Model Receipt
2/5/2021
Checked By, Date
Elizabeth Tuke, Doug Moulton (March 2021)

No.	Submittal Item/Reference	Checked (Yes/No)	Review Comments	Technical Manager Comments
2.3.2.1 Hydrologic Model Parameters				
	Land Use Lookup Table	Yes	See comment #48 within comments geodatabase.	√
	Soil Lookup Table	Yes	N/A; no issues observed.	√
	Subbasin Specific Parameters	Yes	N/A; no issues observed.	√
	Time of Concentration	Yes	See comment #49 within comments geodatabase.	√
2.3.2.2 Hydraulic Model Parameters				
	Node Storage	Yes	N/A; no issues observed.	√
	Initial Condition	Yes	N/A; no issues observed.	√
	Boundary Condition	Yes	N/A; no issues observed.	√
	Channel	Yes	See comment #40 within comments geodatabase.	√
	Bridge	N/A	No modeled bridges within watershed.	√
	Pipe	Yes	N/A; no issues observed.	√
	Weir	Yes	See comment #36 and #37 within comments geodatabase.	√
	Drop Structure	Yes	N/A; no issues observed.	√
	Percolation	Yes	N/A; no issues observed.	√
2.3.2.3 Preliminary Model Performance				
	Continuity Error	Yes	See comment #35 within comments geodatabase.	√
	Inadequate Simulation Time	Yes	N/A; no issues observed.	√
	Flow Reversals or Sudden Change	Yes	See comment #39 within comments geodatabase.	√
	Instability	Yes	See comment #39 within comments geodatabase.	√
	Significant Initial Flow	Yes	N/A; no issues observed.	√
2.3.2.4 Consistency between Model and Geodatabase				
	Discrepancy of Count of Model Features	Yes	See comment #34 within comments geodatabase.	√
	Discrepancy of Name of Model Features	Yes	N/A; no issues observed.	√
	Discrepancy of Subbasin Size	Yes	N/A; no issues observed.	√
	Topology Issues	Yes	See comment #41 within comments geodatabase.	√

QA/QC of Little Jones Creek (N919) WMP Peer Review - 2.4 Peer Review of Watershed Model Development and Floodplain Delineation

Database/Model Filename	
LJC_GWIS_2.1.2.gdb, LJC_DesignStorm_20210702, LJC_20210604_Irma, LJC_20210616_Debby	
Date of Database/Model Receipt	
7/14/2021	
Checked By, Date	
Elizabeth Tuke, Priscilla Sale, Doug Moulton (July and August 2021)	

No.	Submittal Item/Reference	Checked (Yes/No)	Review Comments	Technical Manager Comments
2.4.2.1 Rainfall Volume and Distribution				
	Model Calibration & Verification	Yes	N/A; no issues observed.	√
	Design Storms	Yes	N/A; no issues observed.	√
	Multi-Day Storms	Yes	N/A; no issues observed.	√
2.4.2.2 Model Performance				
	Continuity Error	Yes	Refer to peer review report, section 5.2. No major issues observed.	√
	Inadequate Simulation Time	Yes	N/A; no issues observed.	√
	Flow Reversals or Sudden Change	Yes	Refer to peer review report, section 5.2. No major issues observed.	√
	Instability	Yes	Refer to peer review report, section 5.2. Instabilities previously noted still exist.	√
	Significant Initial Flow	Yes	Refer to peer review report, section 5.2. No major issues observed.	√
	Surface water stages, flows, volumes, or time of occurrence are not in reasonable range with the measured data for model calibration or verification	Yes	N/A; no issues observed.	√
	Simulation results can't be adequately validated with historic water levels	Yes	N/A; no issues observed.	√
	Simulated stage doesn't show increasing with the severity of the design storm event and can't be well explained	Yes	See comment #59 within comments geodatabase.	√
2.4.2.3 Rainfall Justification to Project Floodplain				
	Reasonableness of design event selected for project floodplain	Yes	See comment #61 within comments geodatabase.	√
2.4.2.3 Floodplain Delineation				
	Simulated Flood Stages	Yes	N/A; no issues observed.	√
	Topographic Information	Yes	N/A; no issues observed.	√
	Aerial Imagery/Landuse	Yes	N/A; no issues observed.	√
	Floodplain Area vs. Stage/Area	Yes	N/A; no issues observed.	√
	Justification of FEMA flood hazard zone comparison	Yes	See comments #62 - 63 within comments geodatabase.	√
	Transition Zones/Glass Walls	Yes	See comments #55 - 58 within comments geodatabase.	√

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