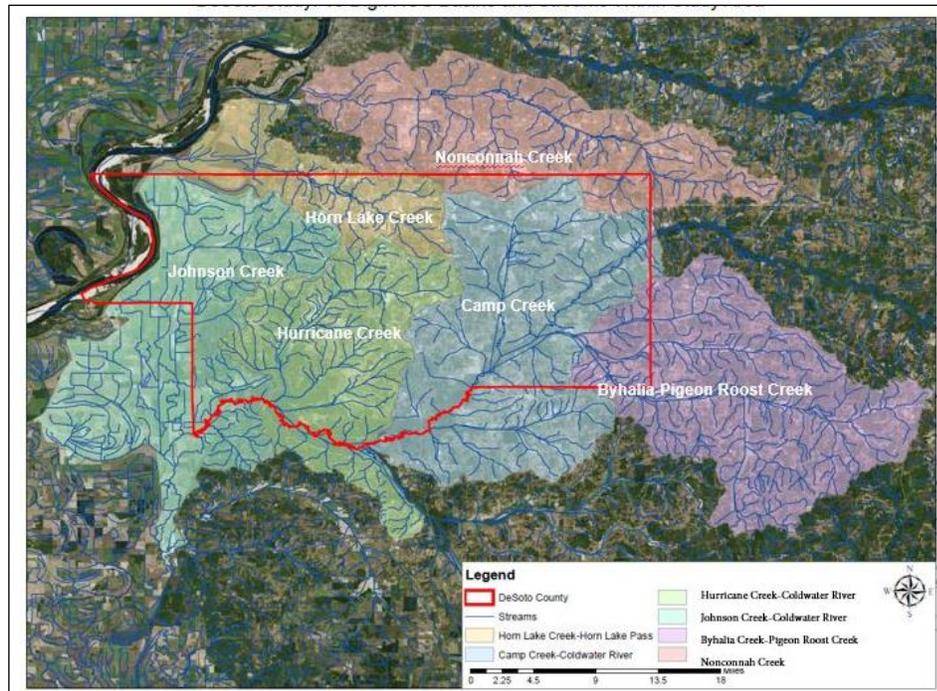




## Memphis Metropolitan Stormwater – North DeSoto County Feasibility Study, DeSoto County, Mississippi



### Appendix N-Figures and Tables

FEBRUARY 2023

## List of Tables

Table N: 1-1. Relevant Resources in the Study Area .....	1
Table N: 1-2 History of Flooding in DeSoto County.....	3
Table N: 1-3. Previously Recorded Archeological Sites within Horn Lake Creek Drainage Study Area .....	4
Table N: 1-4. Previously Recorded Archeological Sites within the Coldwater River Drainage Area .....	5
Table N: 1-5. Public Recreation Resources within the Study Area .....	6
Table N: 1-6. Land & Water Conservation Fund: Study Area Recreation Projects since 1965 .....	15
Table N: 1-7 Ecosystem Restoration Alternatives .....	16

## List of Figures

Figure N: 2-1 DeSoto County Focal Watersheds .....	18
Figure N: 2-2 Stages of Channel Degradation in DeSoto County Streams .....	19
Figure N: 2-3. Recreation at Channel Enlargement .....	i
Figure N: 2-4. Recreation at Cow Pen Creek Detention Site .....	ii
Figure N: 2-5 Recreation at Rocky Creek Detention Site .....	iii
Figure N: 2-6. Environmental Design of Borrow Areas .....	iv

## Section 1 TABLES

### TABLES

*Table N: 1-1. Relevant Resources in the Study Area*

Resource	Institutionally Important	Technically Important	Publicly Important
Wetland and Bottomland Hardwood Resources	Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; EO 11988, and Fish and Wildlife Coordination Act of 1958.	They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities.	The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes.
Upland Forest Resources	Food Security Act of 1985, as amended; the Farmland Protection Policy Act of 1981; and the Fish and Wildlife Coordination Act of 1958, as amended.	They provide habitat for both open and forest-dwelling wildlife, and the provision or potential for provision of forest products and human and livestock food products.	The high value the public places on their present value or potential for future economic value.
Water Quality and Aquatic Resources	Fish and Wildlife Coordination Act of 1958, as amended; Clean Water Act of 1977, as amended.	USACE, FWS, NRCS, EPA, and State DNR and wildlife/fishery offices recognize value of fisheries and good water quality and the national and state standards established to assess water quality.	Environmental organizations and the public support the preservation of water quality, aquatic resources, and the desire for clean drinking water.
Wildlife	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918.	They are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Threatened and Endangered Species and species of concern	The Endangered Species Act of 1973, as amended; and the Bald Eagle Protection Act of 1940.	USACE, USFWS, NRCS, USEPA, MDFWP, and MDEQ cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.
Air Quality	Clean Air Act of 1963, as amended.	State and Federal agencies recognize the status of ambient air quality in relation to the NAAQS.	Virtually all citizens express a desire for clean air.
Cultural Resources	National Historic Preservation Act (NHPA), as amended, and Section 106 and 110 of the NHPA; the	Federal, State, and Tribal stakeholders document and protect cultural resources including archaeological sites, districts, buildings, structures, and objects that	Preservation groups and private individuals support protection and enhancement of historical resources.

Resource	Institutionally Important	Technically Important	Publicly Important
	Native American Graves Protection and Repatriation Act of 1990; the Archeological Resources Protection Act of 1979; and USACE's Tribal Consultation Policy (2012).	are significant in American history, architecture, archaeology, engineering, and/or sites of religious and cultural significance based on their association or linkage to past events, to historically important persons, to design and construction values, and for their ability to yield important information about prehistory and history.	
Aesthetics	Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Mississippi; and the large per-capita number of recreational boat registrations in Mississippi.	Visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to a study area. State and Federal agencies recognize the value of beaches and shore dunes.	Environmental organizations and the public support the preservation of natural pleasing vistas.
Recreation Resources	Federal Water Project Recreation Act of 1965 as amended, and Land and Water Conservation Fund Act of 1965 as amended.	Provide high economic value of the local, state, and national economies.	Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Mississippi; and the large per-capita number of recreational boat registrations in Mississippi.
Socioeconomics	USACE ER 1105-2-100, and National Environmental Policy Act of 1969.  Executive Order 12898 of 1994	When an environmental document is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental document will discuss all these effects on the human environment.	Government programs, policies and projects can cause potentially significant changes in many features of the socioeconomic environment.
Environmental Justice	Executive Order 12898 of 1994	E.O. 12898 directs federal agencies to identify and address any disproportionately high adverse human health or environmental effects of federal actions to minority and/or low-income populations,	federal actions can cause disproportionately high adverse human health or environmental effects to minority and/or low-income populations.
Prime and Unique Farmland	Farmland Protection Policy Act of 1981.	State and Federal agencies recognize the value of farmland to produce food, feed, and forage.	Public places a high value on food and feed production.

*Table N: 1-2 History of Flooding in DeSoto County*

<b>Location</b>	<b>Date</b>	<b>Time</b>	<b>Magnitude of Flood</b>	<b>Total Rainfall (in<sup>1</sup>)</b>	<b>Deaths Reported</b>
Southaven	4/26/94	5:15 pm	Flash Flooding	Not Available	1
DeSoto County	4/27/04	9:00 pm	Flash Flooding	Not Available	0
Southaven	3/5/1997	9:30 am to 10:30 am	Flash Flooding	Not Available	0
DeSoto County	11/28/01 to 11/30/01	6:05 pm to 11:59 pm	Heavy Flooding	8.13	1
DeSoto County	12/12/01	2:35 pm	Moderate Flooding	2.32	0
DeSoto County	12/15/01 to 12/18/01	8:00 pm to 12:00 pm	Moderate Flooding	2.10	0
Southaven	7/12/02	11:00 am to 12:00 pm	Flash Flooding	1.13	0
Horn Lake	9/19/02 to 9/20/02	6:00 pm to 11:30 am	Flash Flooding	3.00	0
DeSoto County	10/10/02	1:45 am to 6:00 pm	Heavy Flooding	5.62	1
Horn Lake	12/19/02	8:30 am to 10:30 am	Flash Flooding	2.77	0
Horn Lake	7/18/03	3:40 pm to 5:30 pm	Flash Flooding	Not Available	0
DeSoto County	2/15/04	5:15 am to 7:00 am	Flash Flooding	0.45	0
MIA, TN	9/11/14	N/A	Heavy Flooding	4.45	0

<sup>1</sup>Rainfall data reflects total rainfall for the time provided. This data was taken from the closest reporting station in Olive Branch, MS; therefore, the actual rainfall in the Horn Lake Creek Basin, resulting in flooding, could have been higher or lower than the amounts listed. (Data Source: The National Climatic Data Center)

Table N: 1-3. Previously Recorded Archeological Sites within Horn Lake Creek Drainage Study Area

<b>Trinomial</b>	<b>Cultural Affiliation</b>	<b>Site Type</b>	<b>Recommendation</b>
22DS500	Woodland; Mississippian	Mounds and Village site	Eligible
22DS509	Unknown Aboriginal	Two large conical mounds	Eligible
22DS529	Unknown Aboriginal	N/A	Ineligible
22DS530	Unknown Aboriginal	N/A	Ineligible
22DS531	Unknown Aboriginal	N/A	Ineligible
22DS535	Historic, 1920-1940	Widely dispersed sheet midden	Ineligible
22DS584	Unknown Aboriginal	Small lithic scatter	Ineligible
22DS585	Unknown Aboriginal	Small lithic scatter	Ineligible
22DS590	Unknown Aboriginal	Lithic scatter	Ineligible
22DS594	Late Archaic; Early Woodland	Lithic scatter, Tchula-like sherds	Ineligible
22DS595	Unknown Aboriginal	Lithic scatter	Ineligible
22DS596	Unknown Aboriginal	Lithic scatter	Ineligible
22DS610	Unknown Aboriginal	Thin lithic scatter	Ineligible
22DS611	Mississippian	1 flake in plow zone	Ineligible
22DS624	Unknown Aboriginal	1 secondary flake, 1 primary flake, 1 reduced pebble in shovel tests	Unknown
22DS845	Historic	20 <sup>th</sup> Century historic house site	Ineligible
22DS846	Historic	Historic artifact scatter	Ineligible

Table N: 1-4. Previously Recorded Archeological Sites within the Coldwater River Drainage Area

Trinomial	Cultural Affiliation	Site Type	Recommendation
22DS518	Unknown Aboriginal	Mound	*Eligible*
22DS565	Unknown Aboriginal	Lithic scatter	Ineligible
22DS566	Unknown Aboriginal	Lithic scatter	Ineligible
22DS695	Woodland	Lithic and ceramic scatter	Unevaluated
22DS696	Unknown Aboriginal	Lithic scatter	Unevaluated
22DS702	Woodland	Lithic and ceramic scatter	Unevaluated
22DS704	Woodland	Lithic and ceramic scatter	Unevaluated
22DS707	Unknown Aboriginal	Lithic scatter	Unevaluated
22DS708	Unknown Aboriginal	Lithic scatter	Unevaluated
22DS716	Unknown Aboriginal	Lithic scatter	Ineligible
22DS717	Unknown Aboriginal	Lithic scatter	Ineligible
22DS719	Unknown Aboriginal	Lithic scatter	Ineligible
22DS726	Unknown Aboriginal	Lithic scatter	Ineligible
22DS736	20 <sup>th</sup> Century Historic	Historic artifact scatter	Unknown
22DS737	20 <sup>th</sup> Century Historic	House site	Unknown
22DS738	Unknown Aboriginal; Historic	Historic and lithic scatter	Unknown
22DS739	Unknown Aboriginal	Lithic scatter	Unknown
22DS746	Historic	Cemetery	*Eligible*
22DS747	Unknown Aboriginal	Ceramic and lithic scatter	Unknown
22DS749	Unknown Aboriginal; Woodland	Large site; ceramic and lithic scatter	Unknown
22DS750	Historic	One standing and one collapsed structure	Unknown
22DS751	Post Archaic; Unknown Aboriginal; Historic	Multicomponent site	Unknown
22DS752	Historic	Historic artifact scatter	Unknown
22DS758	Historic	Historic artifact scatter	Unknown
22DS759	Historic	Historic artifact scatter	Ineligible
22DS760	Historic	Historic artifact scatter	Unknown
22DS767	20 <sup>th</sup> Century Historic	Two cisterns	Ineligible
22DS777	19 <sup>th</sup> -20 <sup>th</sup> Century Historic	Rural farmstead/tenant house site	Ineligible
22DS783	Unknown Aboriginal	Lithic scatter	Ineligible
22DS786	Mid19 <sup>th</sup> -20 <sup>th</sup> Century Historic	Old McAnninch plantation house site	Unknown
22DS848	Unknown Aboriginal; 20 <sup>th</sup> Century Historic	Multicomponent artifact scatter	Unknown
22DS849	Historic	Historic artifact scatter	Unknown

The source of the information below can be found at the websites for each managing agency listed where applicable. An inventory was collected during April 2020 through GIS reference, website reference, and aerial imagery. Recreation resources within the study area are not limited to this list.

*Table N: 1-5. Public Recreation Resources within the Study Area*

<b>Name</b>	<b>Description</b>	<b>Location</b>	<b>Community</b>	<b>Type</b>
Addie Baldwin Park	Addie Baldwin Park is known as "The Cage" and features public basketball courts.	330 Hill Street	Hernando	Sports/Fitness
ARK Trail (Arkabutla Lake Education and Nature Center)	The trail is in a wildlife sanctuary and consists of 2 miles of woodland trails featuring interpretive signs and an outdoor amphitheater that can accommodate outdoor education classes.	7001 Hwy 304	Hernando	Nature
Bouchillion Park	Open space with no equipment or picnic tables, Bouchillion Park was donated by the A.W. Bouchillion family.	Green T Blvd, off Byhalia Rd, in Hernando Hills subdivision	Hernando	Neighborhood
Brookhaven Park (Dickson Park)	This park features a playground, pavilion, and walking trail.	2719 Brookhaven Dr	Southaven	Neighborhood
Caprock Cove Park	This neighborhood park features a ball field and plenty of open space.	8225 Caprock Cove	Southaven	Neighborhood
Caroline Park	Caroline Park is a small park with swings surrounded by a beautiful tree line.	5255 Caroline Dr	Horn Lake	Neighborhood
Carriage Hills Estates Park	This small neighborhood park provides open space in a natural setting.	8770 Five Oaks Drive West	Southaven	Neighborhood
Central Park	This full-featured park features a playground, pavilion, backstops, disc golf, and walking trails, set in a natural area with two lakes.	7505 Stonegate Blvd	Southaven	Neighborhood
Chaparral Park	This neighborhood park features open space and a small playground on the shore of a lake.	8355 Chaparral Ln	Southaven	Neighborhood

Name	Description	Location	Community	Type
Chapel Park	Chapel Park offers a great playground, open play space, swings, and a gravel walking trail.	5700 Chapel Hill Dr	Horn Lake	Neighborhood
Cherry Valley Park	This park features a playground and walking trail, as well as lighted football fields.	7505 Cherry Valley Dr	Southaven	Neighborhood
Choctaw Park	Choctaw Park contains a beautiful playground with swings and open play space.	5825 Choctaw Dr	Horn Lake	Neighborhood
Church Park	Church Park has 2 tennis courts, an activity pad, a small playground and a small pavilion available for rental.	60 W Center Street (across from the Post Office)	Hernando	Neighborhood
Churchwood Park	Located in Churchwood subdivision, Churchwood Park is frequented by children for its playground.	1875 Greeno Dr	Horn Lake	Neighborhood
Cockrum Community Park	The Cockrum Community Park and Trail is located just off of MS 305 in Eastern Desoto County, MS. This park is located next to the Cockrum Fire Department and features a 1/4-mile walking trail, playground and picnic area.	10145 Holly Springs Rd	Cockrum	Neighborhood
Coldwater River Canoe and Kayak Trail	The Coldwater River Canoe and Kayak Trail meanders from Mississippi Highway 309 westward to US Highway 51 at Arkabutla Lake, just south of Hernando, DeSoto County, Mississippi.	Put in along the route anywhere on public land	Multiple Counties	Nature
Conger Park	Hernando's largest park includes a community-built playground, 3 pavilions, 2 tennis courts, 2 walking trails and restrooms. The pavilions are available for rental. Conger Park is a great park for picnics and parties.	135 W Oak Grove Road (at Hwy 51)	Hernando	Neighborhood
DeSoto County Veteran's Park	This park will honor all U.S. Veterans, from the Revolutionary War to the most recent conflicts in the Middle East. There will be monuments, plaques, and a Walk	4716 Pepperchase Dr	Southaven	Neighborhood

Name	Description	Location	Community	Type
	of Honor trail that circles a pond on the edge of the Civic Center grounds.			
DeSoto Woods Park	This neighborhood park features basketball courts as well as open space for various other activities.	750 Brookside Rd	Southaven	Neighborhood
Dub Patton Recreation Area	Located on Arkabutla Lake at the end of Hwy 301 South, Dub Patton has 66 campsites, a variety of boat ramps, playgrounds, picnic sites, nature trails, and a swimming beach. The nearby Outlet Channel is a popular fishing spot.	5908 Arkabutla Lake Rd	Hernando	Boating/Fishing
Elmore Park	This park boasts a natural wooded setting.	5915 Elmore Rd	Southaven	Neighborhood
Eudora Community Park and Trail	This park is in Western DeSoto County next to the Fire Department and features a walking trail, playground, and a ball field. The walking trail is approximately 1/3 mile in length.	9133 HWY 304 W	Eudora	Neighborhood
Fairfield Meadows Park	Fairfield Meadows has a small playground area and covered picnic table with acres of open space for kids to run and play.	4145 Rosebury Ln	Horn Lake	Neighborhood
Fairview Park	This park is located just off exit 10 on Hwy 78 East and features a walking trail, playground, picnic area and a lighted ball field. The walking trail is approximately 1/4 mile in length.	1372 Red Banks Rd N	Byhalia	Neighborhood
George M. Harrison Soccer Complex	Amenities include 5 lighted international size soccer fields, automated lighting control system, automated irrigation, small pavilion and lake.	8700 Church Rd E	Olive Branch	Sports/Fitness
Greenbrook Lake Park	This lakeside park features a playground, picnic area, pavilion, restrooms, and walking trail.	295 Stateline Rd E	Southaven	Neighborhood

Name	Description	Location	Community	Type
Greenbrook Softball Complex	Located off Greenbrook Pkwy south of Rasco Rd, these first-class complex features 8 lighted ballfields.	800 Stonewood Dr	Southaven	Sports/Fitness
Greg Maxey Park	This park features many acres of open play area, workout stations and paved walking trails.	6910 Tulane Rd E	Horn Lake	Neighborhood
Hernando Civic Center	This 53-acre park features 9 lighted ball fields, an equestrian arena, and a roller hockey rink. The park is home to the Hernando Saddle Club and the Junior StreetKings roller hockey program, run by the Mississippi RiverKings.	Robertson Gin Rd south of W Oak Grove Rd	Hernando	Sports/Fitness
Hernando DeSoto River Park (Bass Landing)	Situated right on the banks of the Mississippi river just north of Lake Cormorant, the 41-acre Hernando DeSoto River Park, (formerly Bass Landing), is DeSoto County's only public access to the River.	14258 Bass Landing Rd	Lake Cormorant	Boating/Fishing
Hernando Point Novice Loop (Mountain Bike)	Natural surface trails. Backwater Trail is 2.2 miles, Phase 2 is 8 miles, and Phase 3 is 16 miles	At the end of Wheeler Rd	Hernando	Action
Hernando Point Recreation Area	Located on the shore of Arkabutla Lake, Hernando Point features a public beach, boat ramp, walking and bike trails, and 83 campsites with electric hookups.	At the end of Wheeler Rd	Hernando	Boating/Fishing
Hernando Soccer Complex	Located off Robertson Rd north of the Hernando Courthouse Square, the new soccer complex will host a variety of soccer competitions and events.	Bella Vita Way	Hernando	Sports/Fitness
Ingrams Mill Park & Community Center	N/A	2283 Red Banks Rd S	N/A	N/A

Name	Description	Location	Community	Type
Ivy Trails Community Park	This 10-acre park is in the Ivy Trails subdivision off of Davidson Rd north of Highway 302. The park offers a half mile walking trail and small pavilion.	Intersection of Acree Ln and Ivy Cover Cv	Olive Branch	Neighborhood
Jim Saucier Memorial Park	This park is located next to the Southaven Municipal Building and features a lake, walking trail, and exercise equipment.	8710 Northwest Dr	Southaven	Sports/Fitness
Johnson Creek Greenway	Once completed, the Johnson Creek Greenway will run east along Johnson Creek on US Highway 61 to its trailhead at the intersection of Church Road and Highway 301 in Horn Lake, MS. The trail will meander some 5 miles through hundreds of acres of pristine Delta lowlands.		Walls	Nature
Kaitlyn Ridge Park	This neighborhood park features a playground and open space.	Kaitlyn Ridge Subdivision off of Delta View Rd	Walls	Neighborhood
Kentwood North	Kentwood North offers swings, a slide and picnic tables for your family to enjoy.	2622 Brachton Cv E	Horn Lake	Neighborhood
Kentwood South	Kentwood south boasts a nature lined walking trail with a small playground and lots of open play space.	2745 Waverly Dr	Horn Lake	Neighborhood
Lake Cormorant Community Park	Located just off of Highway 61 in Western DeSoto County, this park is next to the Community Center and features a walking trail and ball fields. The walking trail is approximately 1/3 mile in length	3100 Old Hwy 61	Lake Cormorant	Neighborhood
Latimer Lakes Greenaway		5633 Tulane Rd N	Horn Lake	Neighborhood
Latimer Lakes Park	This park has plenty of open play space, a large playground, nature lined trails, paved walking trails, lakes for fishing, a 20-hole disk golf course, lighted tennis courts, football and baseball fields,	5633 Tulane Rd N	Horn Lake	Neighborhood

Name	Description	Location	Community	Type
	volleyball court and a skate board park.			
Lee's Summit Park	Lee's Summit Park has a playground, walking trails, a pond (no fishing), and a small pavilion available for rental. The short walking trail is 1,415 feet long, and the wooded walking trail is 3,200 feet, for a total of 4,615 linear feet combined.	1270 Montieth (behind Walmart)	Hernando	Neighborhood
Life Park	This neighborhood park features backstops and a walking trail.	140 Guthrie Dr	Southaven	Neighborhood
Millford Park	This park boasts a large wooded natural area.	7900 Millford Dr	Southaven	Nature
Milton Kuykendall Sports & Fitness Park	Milton Kuykendall Sports & Fitness Park has an oval walking track with exercise equipment on the south end of the field.	161 E South Street (Old High School Football field)	Hernando	Sports/Fitness
North Outlet Trail Arkabutla	This trail is part of the Coldwater River Nature Trail System and is in the North Outlet Channel Recreation Area. This network of trails encompasses two hiking trails (one trail is 3 miles in length and the other is 5 miles in length) and the Big Oak Nature Trail which is a self-guided interpretive trail.	Arkabutla Lake Rd	Hernando	Action
Olive Branch City Park	This 135-acre park offers tennis courts, 3 ball field complexes, an 8-lane track, 2 miles of walking trails with exercise stations, a half mile nature trail, an amphitheater, playground, 2 Picnic pavilions, and a mountain bike trail.	8267 Goodman Rd E	Olive Branch	Sports/Fitness
Outlet Channel Public Use Area	Located below the dam at the end of Hwy 301 South, this site features excellent fishing, as well as picnic sites and a playground.	Arkabutla Lake Rd	Hernando	Boating/Fishing

Name	Description	Location	Community	Type
Parkway Cove Park	Parkway Cove Park is a small neighborhood park with a playground for children ages 2-5 years of age.	1900 E Parkway	Hernando	Neighborhood
Pecan Grove Park	This small park features a playground, picnic area, and walking trail.	7205 Pecan Hill Rd	Southaven	Neighborhood
Phillip Leach Rotary Park	This park features soccer fields and a playground.	365 Rasco Rd	Southaven	Neighborhood
Pleasant Hill Public Use Area	Located on Arkabutla Lake at the end of Fogg Rd S, this site features a public beach and boat ramp.	6285 Pleasant Hill Pt	Hernando	Boating/Fishing
Plum Point Park	This neighborhood park features a playground and picnic tables.	5135 Pear Dr	Southaven	Neighborhood
Renasant Park	Renasant Park is Hernando's newest park. This 70-acre park features a 6,000 square foot state-of-the-art skate park facility.	3335 Hwy 51 S (across from Tegra Medical)	Hernando	Action
Robertson-Donald Park	This 12.5-acre park is located near the intersection of Hwy 302 and 301. It features 2 lighted softball fields, a concession stand, playground area, and picnic area. Southaven Lady Tigers, LLC manages the ball fields and schedules events and tournaments.	7369 Hwy 301 N	Walls	Sports/Fitness
Ross Point Park	This neighborhood park features a playground, walking trail, and plenty of open space.	735 Steward Ln	Southaven	Neighborhood
Shadow Oaks Park East	Shadow Oaks East is tucked away in the heart of Shadow Oaks with it's large open play space and swings.	6495 Sandhurst Dr	Horn Lake	Neighborhood
Shadow Oaks Park West	Shadow Oaks West features a small covered shade pavilion, open play space and a small playground. Paved walking trails run through this park.	4350 Shadow Glen Dr	Horn Lake	Neighborhood

Name	Description	Location	Community	Type
Snowden Grove Park	Snowden Grove features Southaven's award-winning baseball complex, with 17 state-of-the-art fields hosting numerous tournaments. Also onsite is BankPlus Amphitheater, a 7000-capacity outdoor concert venue that hosts the top touring acts in the country.	Intersection of Getwell Rd N and Nail Rd E	Southaven	Sports/Fitness
Southaven Golf Center	The 9-hole course at the Southaven Golf Center facility features 2,211 yards of golf from the longest tees for a par of 33.	8925 Swinnea Rd	Southaven	Sports/Fitness
Southaven Skate Park	Southaven Skate Park	1320 Rasco Rd W	Southaven	Action
Southaven Soccer Complex	This facility features 8 soccer fields.	4700 Stateline Rd W	Southaven	Sports/Fitness
Southaven Tennis Complex	Located off Malone Rd south of Hwy 302, the tennis complex features both outdoor and indoor facilities.	3750 Freeman Rd	Southaven	Sports/Fitness
Southern Pines Park	This lakeside park features a playground and plenty of open space.	6655 Blue Spruce Dr	Southaven	Neighborhood
Southridge Park	The park is 19 acres in size and borders Lick Creek. Amenities include a playground with rubberized safety surfacing, half mile walking trail, picnic tables, benches, baseball practice area with backstop, and 2-acre lake.	9730 Eva Dr	Olive Branch	Neighborhood
Swinnea Park	This park features a small playground and a trail through a wooded natural setting.	Swinnea Rd and Joann Dr	Southaven	Neighborhood
T. Burma Hobbs Park	T. Burma Hobbs has open play space with a small covered shade pavilion, monkey bars and swings	3530 Laurel Cv	Horn Lake	Neighborhood
Trinity Pointe Park	This lakeside park features a playground and walking trail.	7450 Stonegate Blvd	Southaven	Neighborhood

Name	Description	Location	Community	Type
Vicksburg Park	This small neighborhood park features a playground.	1235 Vicksburg Dr	Southaven	Neighborhood
Vinson Park	Vinson Park is an open play area with plenty of room to run.	5938 Vinson Cv	Horn Lake	Neighborhood
Walthall Memorial Park	James Robert Walkhall Memorial Park is a beautiful open play space with paved walking trails.	2500 Meadowbrook Dr	Horn Lake	Neighborhood
White Ash Park	This park features a playground and picnic area amid plenty of open space.	7490 White Ash Dr.	Southaven	Neighborhood
Wooten Park	Wooten Park features a beautiful large playground, paved walking trails, pavilion with picnic tables, restrooms, swings and baseball fields.	2690 Nail Rd W	Horn Lake	Neighborhood

Source: <https://dcms-gis.maps.arcgis.com/home/index.html> ;  
<https://www.coldwaternatureconservancy.org/parks-and-trails/>

According to the United States Department of the Interior National Park Service Land & Water Conservation Fund (LWCF), 9 recreation projects within the study area have been supported since 1965. Section 6(f)(3) of the L&WCF Act assures that once an area has been funded with L&WCF assistance, it is continually maintained in public recreation use unless National Park Service (NPS) approves substitution property of reasonably equivalent usefulness and location and of at least equal fair market value

*Table N: 1-6. Land & Water Conservation Fund: Study Area Recreation Projects since 1965*

<b>Grant Element Title</b>	<b>Grant Sponsor</b>	<b>Fiscal Year</b>	<b>Amount</b>
Horn Lake Park	City of Horn Lake	1975	\$63,471.67
Horn Lake Park Improvements	City of Horn Lake	2003	\$75,000.00
Hernando – Lee’s Summit Park	City of Hernando	2006	\$150,000.00
Hernando City Park	City of Hernando	1987	\$29,999.99
DeSoto County Park	DeSoto County	1980	\$169,091.42
Olive Branch Community Park	City of Olive Branch	1980	\$229,771.06
DeSoto County Community Parks	DeSoto County	1986	\$44,999.99
Olive Branch City Park	City of Olive Branch	2002	\$90,000.00
City of Olive Branch	City of Olive Branch	2015	\$150,000.00
			<b>\$1,002,334.13</b>

Source: <https://www.lwcfcoalition.com/map-of-lwcf>  
Data accessed April 2020

*Table N: 1-7 Ecosystem Restoration Alternatives*

Alternative ID	Description	Creek	Retained or Reason Screened
HLC-1A	5 new GCS structures, rehab of 5 existing structures, replacement of 5 existing structures	Horn Lake	Structure 12 cited in the channel enlargement footprint
HLC-1B	14 GCS	Horn Lake	Retained
HLC-2	255 acres of Riparian Restoration	Horn Lake	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
HLC-3	14 GCS+255 acres of Riparian Restoration	Horn Lake	Unacceptable <sup>2</sup>
HLC-4	14 GCS+17 acres of Riparian Restoration	Horn Lake	Retained
HLC-5	14 GCS +64 acres of Riparian Restoration	Horn Lake	Optimized during Feasibility Level Design (FLD)
HLC-5 Optimized	14 GCS+20 acres of Riparian Restoration	Horn Lake	Retained
NON -1	7 GCS	Nonconnah	Retained
NON-2	426 acres of riparian restoration	Nonconnah	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
NON-3	7 GCS+426 acres of riparian restoration	Nonconnah	Unacceptable <sup>2</sup>
NON-4	7 GCS+5 acres of riparian restoration	Nonconnah	Retained
NON-5	7 GCS+107 acres of riparian restoration	Nonconnah	Optimized during Feasibility Level Design (FLD)
NON-5 Optimized	7 GCS + 20 acres of riparian restoration	Nonconnah	Retained
CP-1	7 GCS	Camp	Retained
CP-2	392 acres of riparian restoration	Camp	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
CP-3	7 GCS +392 acres of riparian restoration	Camp	Unacceptable <sup>2</sup>
CP-4	7 GCS +47 acres of riparian restoration	Camp	Retained
CP-5	7 GCS +98 acres of riparian restoration	Camp	Retained
CP-5 Optimized	7 GCS + 39 acres of riparian restoration	Camp	Optimized during Feasibility Level Design (FLD)
LC-1	3 GCS	Lick	Retained
LC-2	142 acres riparian restoration	Lick	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
LC-3	3 GCS+142 acres riparian restoration	Lick	Unacceptable <sup>2</sup>
LC-4	3 GCS+11 acres riparian restoration	Lick	Retained
LC-5	3 GCS+36 acres riparian restoration	Lick	Optimized during Feasibility Level Design (FLD)
LC-5 Optimized	3 GCS + 14 acres of riparian restoration	Lick	Retained
NL-1	11 GCS	Nolehoe	Retained
NL-2	129 acres of riparian restoration	Nolehoe	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
NL-3	11 GCS+129 acres of riparian restoration	Nolehoe	Unacceptable <sup>2</sup>
NL-4	11 GCS+18 acres of riparian restoration	Nolehoe	Retained
NL-5	11 GCS+32 acres of riparian restoration	Nolehoe	Optimized during Feasibility Level Design (FLD)
NL-5 Optimized	11 GCS +13 acres of riparian restoration	Nolehoe	Retained
HC-1	9 GCS	Hurricane	Retained
HC-2	638 acres of riparian restoration	Hurricane	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
HC-3	5 GCS+638 acres of riparian restoration	Hurricane	Unacceptable <sup>2</sup>

Alternative ID	Description	Creek	Retained or Reason Screened
HC-4	5 GCS+22 acres of riparian restoration	Hurricane	Retained
HC-5	5 GCS+160 acres of riparian restoration	Hurricane	Optimized during Feasibility Level Design (FLD)
HC-5 Optimized	5 GCS + 64 acres of riparian restoration	Hurricane	Retained
CN-1	9 GCS	Cane	Retained
CN-2	263 acres of riparian restoration	Cane	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
CN-3	9 GCS+263 acres of riparian restoration	Cane	Unacceptable <sup>2</sup>
CN-4	9 GCS+6 acres of riparian restoration	Cane	Retained
CN-5	9 GCS+66 acres of riparian restoration	Cane	Optimized during Feasibility Level Design (FLD)
CN-5b*	9 GCS+ 26 acres of riparian restoration	Cane	Retained
MC-1	3 GCS	Mussacuna	Retained
MC-2	226 acres of riparian restoration	Mussacuna	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
MC-3	2 GCS +226 acres of riparian restoration	Mussacuna	Unacceptable <sup>2</sup>
MC-4	2 GCS +9 acres of riparian restoration	Mussacuna	Retained
MC-5	2 GCS +57 acres of riparian restoration	Mussacuna	Optimized during Feasibility Level Design (FLD)
MC-5b*	2 GCS + 23 acres of riparian restoration	Mussacuna	Retained
JC-1	11 GCS	Johnson	Retained
JC-2	426 acres of riparian restoration	Johnson	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
JC-3	11 GCS +468 acres of riparian restoration	Johnson	Unacceptable <sup>2</sup>
JC-4	11 GCS +43 acres of riparian restoration	Johnson	Retained
JC-5	11 GCS +122 acres riparian restoration	Johnson	Optimized during Feasibility Level Design (FLD)
JC-5b8	11 GCS+ 49 acres riparian restoration	Johnson	Retained
RB-1	5 new GCS	Red Banks	Retained
RB-2	192 acres riparian restoration	Red Banks	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
RB-3	5 new GCS +192 acres of riparian restoration	Red Banks	Unacceptable <sup>2</sup>
RB-4	5 GCS +24 acres of riparian restoration	Red Banks	Retained
RB-5	5 GCS + 48 acres of riparian restoration	Red Banks	Optimized during Feasibility Level Design (FLD)
RB-5b8	5 GCS + 19 acres of riparian restoration	Red Banks	Retained
SF-1	9 new GCS	Short Fork	Retained
SF-2	423 acres of riparian restoration	Short Fork	Incomplete <sup>1</sup> and Unacceptable <sup>2</sup>
SF-3	9 GCS +423 acres of riparian restoration	Short Fork	Unacceptable <sup>2</sup>
SF-4	9 GCS + 12 acres riparian	Short Fork	Retained
SF-5	9 GCS + 106 acres riparian	Short Fork	Optimized during Feasibility Level Design (FLD)
SF-5b*	9 GCS + 42 acres riparian	Short Fork	Retained

1. Incomplete because the measure does not address channel stability; 2. Unacceptable because larger amounts of riparian reforestation would violate the USACE policy that land acquisition cost cannot exceed 25% of the total project cost. \*5b represents not an entirely new alternative but the optimization of alternative 5.

## Section 2 FIGURES

### STUDY AREA

The study area lies in the Horn Lake Creek-Nonconnah and Coldwater River Basins. This includes Horn Lake Creek and tributaries, Nonconnah River, Camp Creek and Tributaries, Hurricane Creek, Johnson Creek, and numerous tributaries of the Coldwater River watershed in northern DeSoto County, Mississippi (Figure N1-1).

Figure N: 2-1 DeSoto County Focal Watersheds

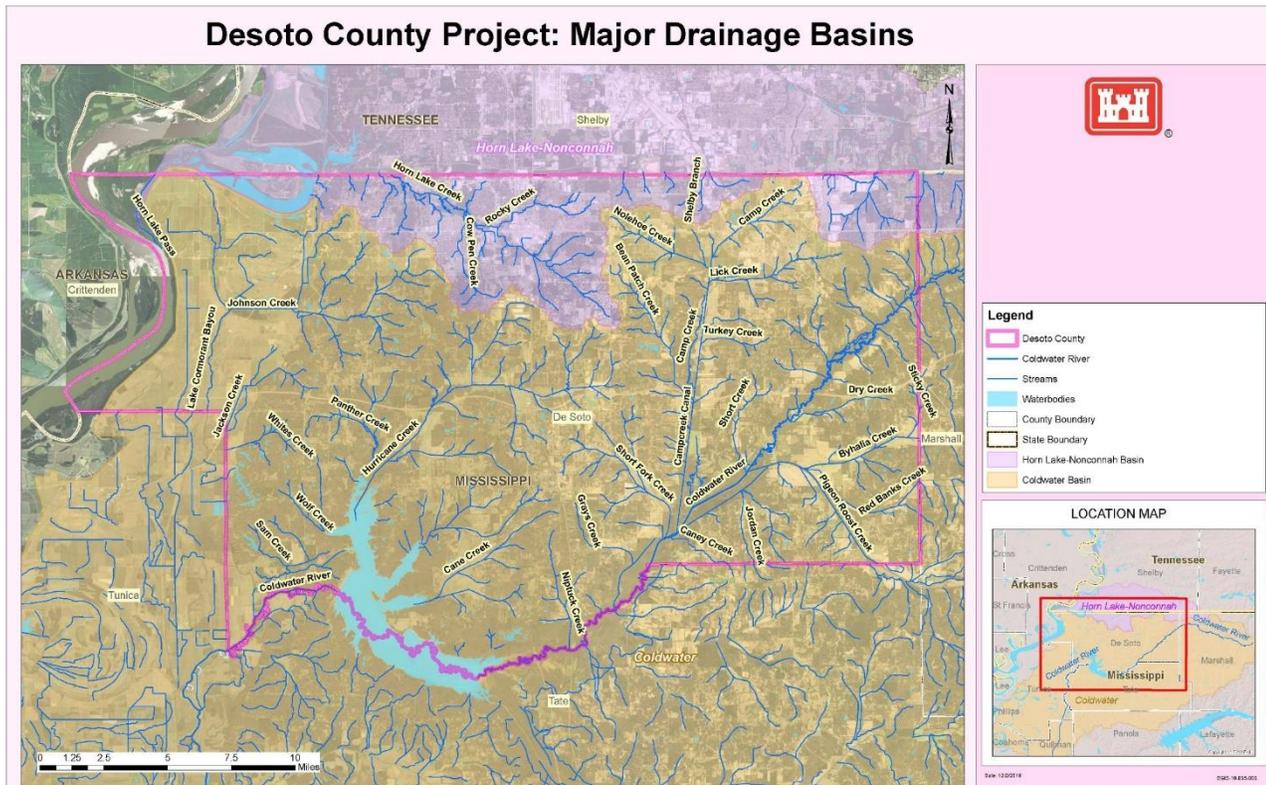


Figure N: 2-2 Stages of Channel Degradation in DeSoto County Streams





Figure N: 2-3. Recreation at Channel Enlargement

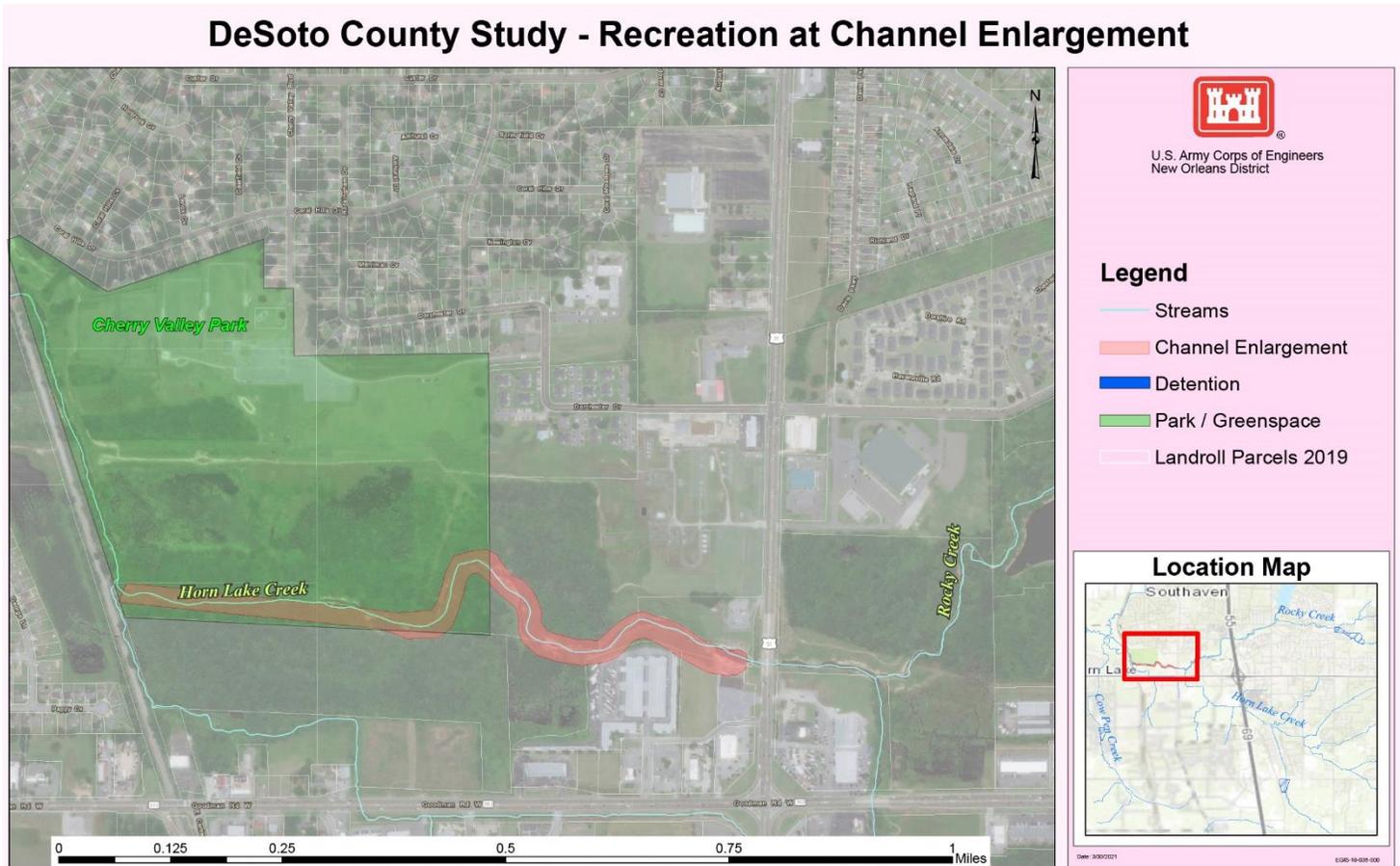


Figure N: 2-4. Recreation at Cow Pen Creek Detention Site

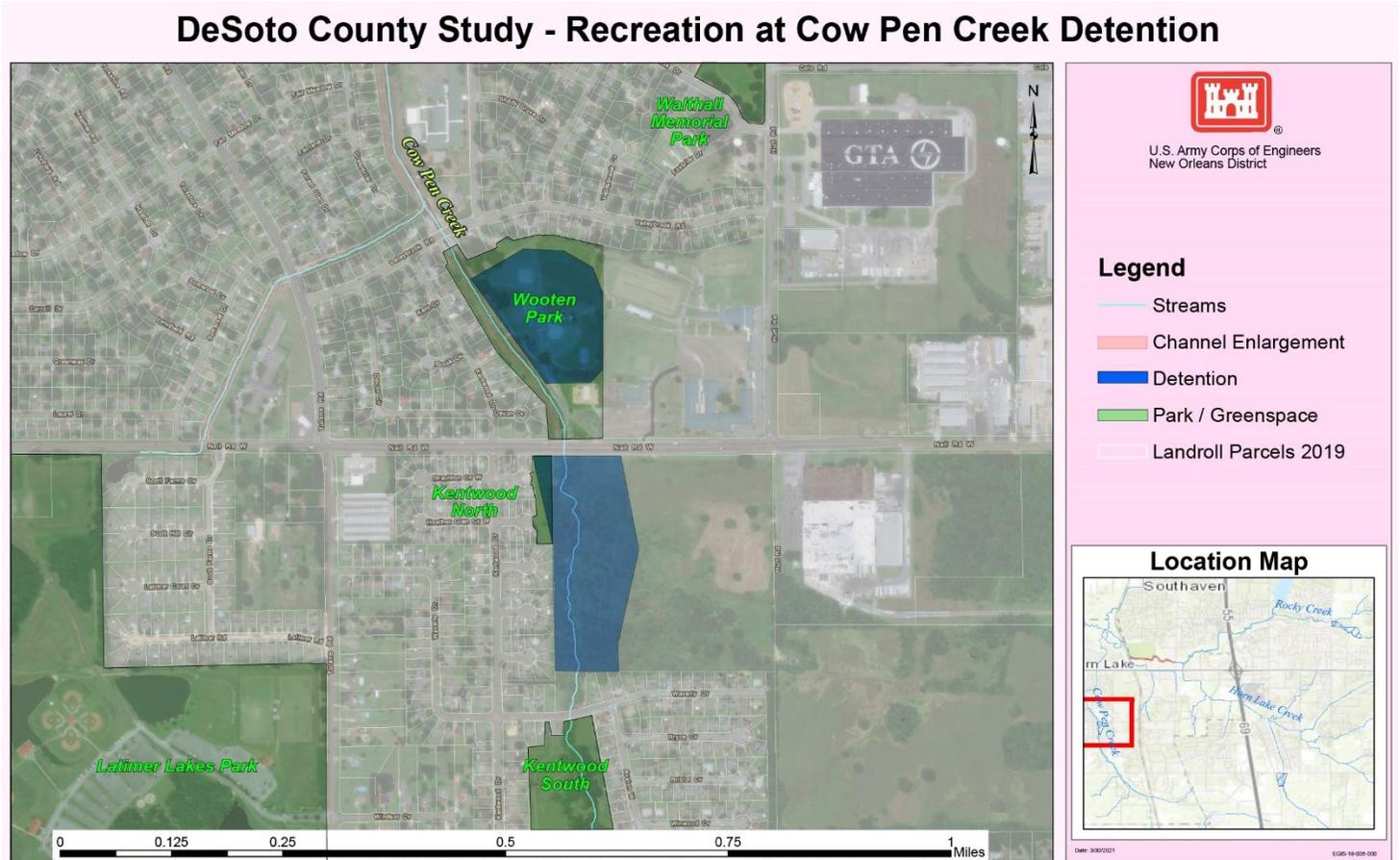


Figure N: 2-5 Recreation at Rocky Creek Detention Site  
DeSoto County Study - Recreation at Rocky Creek Detention

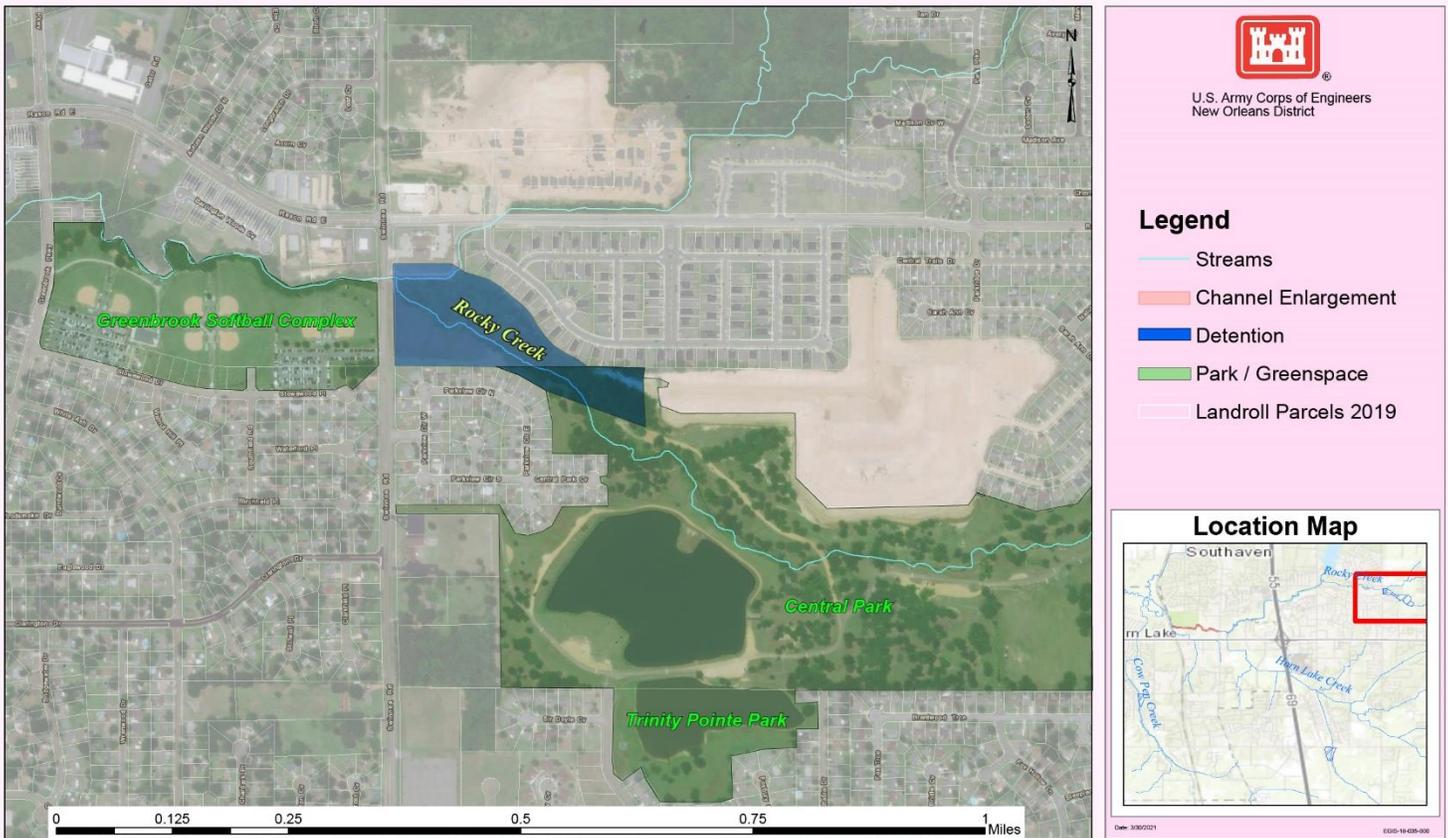


Figure N: 2-6. Environmental Design of Borrow Areas

LEVEES ANCHOR FLOOD CONTROL



More than 100 levee construction projects are planned.

Foremost among the flood-control works along the Lower Mississippi River is the 3,500-mile-long Mississippi River and Tributaries (MR&T) levee system. MR&T levees, which are constructed of compacted soil and clay, protect more than 4 million residents, 1.5 million homes, 33,000 farms, and vital transportation routes from destructive floods. The levees are designed to protect the Mississippi River valley against the maximum probable flood by confining flow to the channel and the river's 2-million-acre, leveed floodplain, except where it enters the natural backwater areas or is diverted purposely into floodway areas. The main stem levee system — levees, floodwalls and various control structures — is 2,203 miles long. Some 1,607 miles lie along the Mississippi River and 596 miles lie along the south banks of the Arkansas and Red rivers and in the Atchafalaya Basin. The levees are built by the federal government and are maintained by local interests, except when federal assistance is provided during major floods. Periodic inspections of levees and other flood-control works are made by personnel from the Corps and local levee and drainage districts.

PROJECT AREA

- Extends from Cape Girardeau, Missouri to the Gulf of Mexico.

- More than 100 levee construction and seepage-control projects planned.



ENVIRONMENTAL DESIGN OF MISSISSIPPI RIVER LEVEE BORROW AREAS



RECOMMENDATIONS FOR PRIVATE LANDOWNERS

This document was produced by the U.S. Army Corps of Engineers Memphis, Vicksburg and New Orleans districts; the Engineer Research and Development Center; and the Lower Mississippi River Conservation Committee.

## LEVEE WORK IMPACT STUDY

The U.S. Army Corps of Engineers has prepared a supplemental environmental impact statement to address the impacts associated with the construction of remaining authorized work on the Mississippi River mainline levees between Cape Girardeau, Missouri, and Head of Passes in Louisiana, where the river meets the Gulf of Mexico. Remaining work includes raising and widening portions of the levee using material from borrow areas and managing seepage to protect levee foundations. More than 100 new borrow areas are planned. The Corps is studying ways to minimize the environmental impacts of borrow area construction, as well as ways of designing new borrow areas so they harbor more fish and wildlife.



Raising a levee with new fill.

## FROM PIT TO AQUATIC HABITAT

The Corps has conducted extensive biological studies of borrow areas along the Lower Mississippi River. Biologists have studied use of borrow areas by fish, migratory waterfowl, wading birds, forest birds, turtles, frogs and, other wildlife. Biologists also have studied the shape, depth, water quality, degree of river flooding, and other characteristics of borrow areas that influence what species of fish and other wildlife will inhabit them. River side borrow areas, or those on the unprotected side of the levee, may be occupied by up to 75 species of fish all or part of the year. The research has also shown that incorporating environmental design features in newly constructed borrow areas can greatly enhance the diversity of fish and other wildlife that inhabit them. Those features include making them mostly bowl-shaped, with deeper areas of up to 10 feet and shallower areas of less than 5 feet; creating sinuous, or curved, shorelines; planting native trees along shorelines; and creating islands. Private landowners can request that the Corps and local levee boards incorporate environment designs features when constructing borrow areas on their property.



Sport fish such as White Crappie are common in borrow areas.

## BUILDING A BORROW AREA



The U.S. Army Corps of Engineers receives funding for a levee construction project, and project-specific planning and design work begins.



The Corps requests right-of-entry from a private landowner – through a non-federal sponsor such as a local levee district – where a borrow area and associated features are planned. Soil surveys and other preliminary work begins to determine soil suitability and embankment quantities required. During project design efforts, the Corps and non-federal sponsors will work with landowners to facilitate property goals and incorporate environmental features, where appropriate.

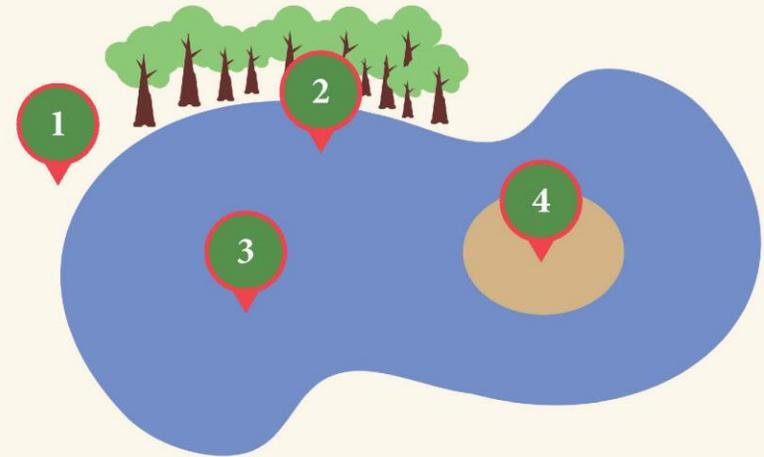


Upon design completion, the Corps requests that the non-federal sponsor acquire the necessary right-of-way for the project. The Corps will incorporate environmental features into the construction contract. Levee construction projects, including borrow area excavation, usually take two to three years to complete, but final acceptance of the project is not granted by the Corps until all project features are constructed and turf has been established on newly constructed levee features.

## ENVIRONMENTAL DESIGN OF BORROW AREAS

**1** Borrow areas can be constructed on the river side or land side of the levee. They can cover up to 20 acres or more.

**2** Riparian buffers of native trees should border 50-75% of the periphery.



**3** Should be bowl-shaped. Deep water (up to 10 feet, 1:3 slope) should cover up to 75%; shallow water (less than 5 feet, 1:10 slope) should cover 25%.

**4** Islands and sinuous shorelines create varying depths and promote higher fish diversity.

## FISH AND WILDLIFE INHABITING BORROW AREAS



Up to 75 species of fish occur in borrow areas. Riverside borrow areas typically harbor more species.



Wading birds such as Roseate Spoonbills, Wood Storks, and Great Egrets regularly feed in borrow areas.



Waterfowl such as Black-bellied Whistling Ducks, Wood Ducks, and Mallards feed and rest in borrow areas.



Forest and wetland birds such as Prothonotary Wablers frequent borrows areas with wooded shorelines.



Reptiles and amphibians such as the Red-eared Slider prefer still waters and woody debris for sunning.

## Section 3

# REFERENCES AND RESOURCES

### Project References:

### Websites:

<https://dcms-gis.maps.arcgis.com/home/index.html>, Data accessed April 2020

<https://www.coldwaternatureconservancy.org/parks-and-trails/>, Data accessed April 2020

<https://www.lwcfcoalition.com/map-of-lwc>, Data accessed April 2020

# List of Acronyms and Abbreviations

GIS	Geographic Information Systems
NPS	National Park Service
LWCF	Land and Water Conservation Fund
MDWFP	Mississippi Department of Wildlife, Fisheries and Parks
SCORP	Statewide Comprehensive Outdoor Recreation Plan