DMSW

Drainage Mitigation Study Workgroup

Drainage/Mitigation Study Workgroup (DMSW)
Meeting Dates, Recordings & Attendance

- Monday, January 21, 2019
  - No recording
  - Members present

Fitzgerald	Vicknair-Pary
Mayronne	Gould
Bellisario	Lorino
Thibodeaux	Martin
O'Brien	LaGarde
McHugh	Allen

- Monday, February 11, 2019
  - https://www.youtube.com/watch?v=7fROdVuXF_A
  - Members present

Fitzgerald	Vicknair-Pray
Mayronne	Bellisario
Lorino	Thibodeaux
Martin	O'Brien
LaGarde	McHugh
Allen	

- Monday, March 11, 2019
  - https://www.youtube.com/watch?v=KYmeDDaw9jQ
  - Members present

Vicknair-Pray	Mayronne
Gould	Bellisario
Lorino	Martin
O'Brien	McHugh
Allen	

- Monday, April 15, 2019
  - https://www.youtube.com/watch?v=KYmeDDaw9jQ
  - Members present

Vicknair-Pray	Mayronne
Gould	Bellisario
Lorino	Thibodeaux
Martin	O'Brien
LaGarde	McHugh
Allen	

Drainage Mitigation Study Workgroup Meeting Minutes
Monday, January 21, 2019

Chairman Lorino opened meeting at 6:00pm

Chairman Lorino gave his opening remarks stating the purpose of the meeting was to consider the current Code of Ordinances Sec. 115-3 relative to the use of fill materials and drainage and the proposed ordinance amending that section. He further stated that once that has been completed it is highly likely that the workgroup will need to address other issues regarding flooding.

Roll Call: Chairman Michael Lorino
David Fitzgerald
Dr. John Martin
Gene Bellisario
Jean Thibodeaux
~~Jeff Schoen~~
Kelly McHugh
Margie Vicknair-Prey
Marty Gould
Matthew Allen
Maureen O'Brien
Paul Mayronne
Ross Lagarde

Staff Present: Donald Henderson
Terry Hand
Dena Klein
Sidney Fontenot
Jay Watson

Each of the workgroup members introduced themselves and made a brief statement of their qualifications and concerns.

Sidney Fontenot presented the workgroup with Sec. 125-197 of the Code of Ordinances dealing with the hydrological study and plan required by developers of new subdivisions. He emphasized section (4) requiring that the peak rate of runoff for a 100 year storm shall be reduced by 25%. He then went on to explain, by using a very simple graphic, that any fill above the BFE required fill mitigation in the same volume and that provision also needs to be made for storm water detention. His preference is to have consistent regulations applicable for today and the future. The strengthening of the language will avoid ambiguity and misinterpretations and secure clarity.

Chairman Lorino asked why Tuscany West subdivision flooded and stated that the rivers hadn't been cleaned out since Katrina which played a role in the flooding. Offsite waters came into the subdivision and caused problems.

Gene Bellisario asked if any engineer had looked at the historical flooding and do we need stricter controls. He referenced a 42 acre retention pond in Slidell which was used to address flooding.

Marty Gould then offered some historical information that he and GDD5 looked at all the issues a number of years ago and developed their own requirement for placement of fill within GDD5. The Parish may want to consider GDD 5 rules and regulations and look at the drainage study that was done when Kevin Davis was in office. He offered the study for copying and distribution to the other members. Stressed that going forward institutional knowledge in the Engineering Department in critical.

Chairman Lorino asked if any other jurisdiction requires a reduction in runoff greater than ours of 25% which was established in 2001.

Paul Mayronne is not aware of any other jurisdiction higher than 25%, rather they use no net fill.

Jay Watson advised that the Parish was working with someone on developing models to use in looking at different drainage scenarios.

Kelly McHugh said that the Parish had completed a number of basin studies and that no other Parish has a 25% reduction for a 100 year storm.

Dr. Martin said that he had copies of the Goodbee Flood Exposure Assessment for a proposed development in Goodbee, La which he later distributed to the workgroup members. He asked if we could get copies of the study to which Marty referred. He asked Sidney if the proposed changes to the ordinance would weaken the existing regulations. To which Sidney replied "they would be less conservative."

Jean Thibodeaux, former head Parish Engineer and current consulting engineer with GDD No. 5, said that there is something different with the environment and we have had multiple 100 yr. flooding events recently. Storm events have proven very crazy and unpredictable. It is impossible to account and prepare for every scenario.

Matthew Allen explained that we get points from FEMA for going over the basic requirements, which would help reduce the flood insurance premiums. He said that the current FEMA flood map is based on 1970 information and not current data, 6" in one area may have a different affect than 6" in another area.

Chairman Lorino said that everyone wants everything built with the expectation that it will not

flood. No acceptable risks.

Sidney Fontenot said that it is up to the Council to decide how strict the ordinance should be.

Paul Mayronne doesn't like "acceptable risk". We are looking for a reasonable solution to a complex problem and to base the regulations on a 500 yr flood is unacceptable.

Marty Gould said the staff is looking for clarification for the proposed changes. Perhaps we should amend the proposed ordinance to say "may not be" to each of those sections. There is a process in place to waive the regulations if a project is located in the lower 1/3 of a basin.

Maureen O' Brien said that we are here because in the past the present ordinance was interpreted differently by other Parish engineers. Can the study referred to by Marty be place on line so that anyone can see it?

Margie Vicknair-Prey said that the State did a very extensive study of the Tangipahoa and plans on doing a study of every basin in the State. She had a copy of the Tangiphoa study which she offered for copying and distribution.

David Jenkins from the audience lives on Albert Thompson Rd. and said that floods on a regular basis.

Norman Vokel from the audience summarized the discussion and questioned why would you consider reducing the requirements.

Chairman Lorino thanked everyone for a good first meeting, selected Monday, February 11, 2019 for the next meeting and adjourned the meeting at 7:56pm.

DMSW MINUTES
February 11, 2019

The first presenter, Jason Ellis is with SLD Engineering and Surveying LLC, has been an engineer since 2005 specializing in hydrological engineering. He currently has about 65 projects for one of the largest developers in the State. He explained that compensatory storage in the flood plain is removing fill from one area to compensate for the addition of fill in another area in the flood plain. Louisiana participates in the Community Rating System and is given credit for its higher regulatory standards. Jason referenced fill ordinances from Ascension, Calcasieu, Lafayette, Livingston and East Baton Rouge Parish's and noted that St. Tammany's fill ordinance is more restrictive. And St. Tammany Parish is the only Parish to require detention pond design requirements to meet a 100 year flood, the others only require detention ponds be designed for a 25 year flood. (Presentation attached)

Jason explained the functioning of and peak flow attenuation and believes that the same pond may be used for flood mitigation.

Mike asked Jason if a subdivision was built and several year later it flooded due to poor construction is there a mechanism in place to hold the engineer liable. Jason said that engineers have liability insurance to cover that, however acts of God would not be covered.

Mike asked Jason if any Parish require that houses be built on piers in the flood plain. Jason said that no body requires that and that developers do not want to build on piers.

Dr. Martin said that if build in a flood plain then it should be a raised house. The additional cost of building up would be recovered within a few years via the savings in the cost of flood insurance. Why would a developer not want to build raised houses as we have 8 of the top 25 repetitive loss areas in the US.

Jason suggested that we hire a certified full time flood plain administrator.

Margie said that we need to get out of the concept that we need to do things cheaply. We need to look at a new way of doing things.

Paul Mayronne said that it is important to strike a balance that takes into consideration of the impact of the regulations and they need to be reasonable. If the property is within a foot of the BFE most developers would bring in fill and build on slab.

Toby Fruge is the President of the Louisiana Flood Plain Administrators and can put us in contact with others throughout the State and outside the State to see how they handle this.

Mike said that we may need to have someone with another set of eyes to look at this matter.

Gene pointed out that the flood maps have been on hold for seven (7) years.

DMSW MINUTES
February 11, 2019

Dr. Martin asked Jay Watson if the proposed changes to the ordinance would relax the current requirements.

Jay said that if the changes were adopted and there was rain and a flood at the some time that would be a problem. To which Dr. Martin said he was not if favor of relaxing the rules.

Dr. Martin showed a video of a new subdivision (Spring Lakes) after the August 2016 flood which showed that a number of houses/pad/lots were flooded during that event. He said that after viewing this video it should become clear that we need to look at the Parish's flood ordinances and even perhaps consider a moratorium on building within the flood plain until the ordinances are fixed.
https://www.facebook.com/AJAerial985/videos/1161522023910931/UzpfSTE2NzUyMzQ0NTM6Vks6MTAwODI5ODA5MjY5NDQwMA/

Paul said that the current ordinance does not say you can't use the same pond for flood storage. The directive of the Parish should be clear, don't leave it as is.

Mike agreed and said that he had already considered verbiage the would contain the words shall not and will make his recommendation at the next workgroup meeting. He agrees with Dr. Martin that more needs to be done beyond what this workgroup is currently considering. We should consider hiring an outsider to look at the bigger picture and take personalities out of the equation.

Margie said that everyone feels the ordinance should be stricter and perhaps look at something broader and wider than shall not.

Gene said that he isn't sure if the developers are strictly adhering to their plans as he has notice that some hydrants are installed too low to be usable.

David Campbell the founder of the Little Tchefuncte Association and is on the Lake Pontchartrain Basin Foundation gave the workgroup a copy of a partially completed ordinance that the Goodbee Civic Association had been working on relative to Goodbee overlay addresses building within the flood plain.

Don Casteel said it makes no sense that we can't build on piers. We need to strengthen the rules.

Mike Champlagne wants to know where is the enforcement. Spring Lake was designed in a box. People are working at night and on the weekends on Bunny Lane in order to circumvent the rules.

Mike Stacks said that we need to look at this comprehensively.

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Steve Good his house is built up on 3 blocks and is close to the river and lower than Spring Lakes and he did not flood. Don't listen to the threats that the builders will leave and not build on piers. If these builders leave others will come in and build up.

DMSW MINUTES
March 11, 2019

Evelyn Campo, CFM with the Louisiana Watershed Initiative Update gave a presentation. We know that we flood frequently and people have invested in property that we need to protect. We have a large problem over a large area and the premise of the watershed is tha the status quo is not acceptable. The State has received $1.2 billion for hazard mitigation. This is a collaborative effort as all watersheds in Louisiana are interconnected. (Presentation attached)

Maureen wanted to know if we have learned anything from Europe and how they are addressing the problem like Holland.

Margie inquired if studies have been done for low laying areas to build on piers rather than slab on fill.

Evelyn said that there are lots of white papers on the issue of fill vs. piers. They need more input and she will take this back to the agency.

Paul asked if Evelyn was aware of any models that may be used by the Parish.

Evelyn said that the models are in the early stages and can't point to one that is complete.

Marty asked if the State model would be interactive.

Evelyn said they are trying to get there.

Sean Burkes has done multiple projects within the Parish and has a good idea of what works and what doesn't. Is glad that the State is working on modeling the whole State. Let the engineers make the calls.

Sean presented told of a situation in Slidell of a singular lot within a subdivision that with the current regulations they could not build on. The lots surrounding this singular lots all had been elevated. This lot would require fill so as not to flood but the current regulations do not allow for fill. The Parish currently has a blanket approach to this issue.

Mike said that there are a lot of great engineers but we are seeing developments with houses getting flooded and the developer are now gone.

Marty said that this situation screams to go before the BOA to ask for relief.

Dr. Martin there isn't an ordinance that meets all situations. Individual cases should go before the BOA rather than giving an individual the discretion to make the call.

Sidney doesn't believe that he has the discretion rather it should go to the Planning Commission.

Margie agrees that sometimes there is property like this but it is discretion that has brought us to this point and hopes that we end up with an ordinance that is better than what we currently have.

Paul said that a blanket rule has good intentions but has consequences, it takes good engineers out of the issue. It is a mistake to treat all the smae when most are all different and should be considered on a case by case basis. We need to find a reasonable balance. He agrees with Mike's "shall not" phrase but allow for a third party to make the final decision.

Marty said that the ordinance was never written to be discretionary and he is totally opposed to giving the Engineering Department the discretion to make changes.

Matt said it is okay to consider each on a case by case basis but have to consider the entire area. The Parish must, according to FEMA, int eh river flood area.

Matt then proceeded to give a presentation on Storm Water and Flood Water Storage. (Presentation attached) He also stated that prior to 2007 no PUD's were allowed in flood areas, the Council changed the rules in 20047.

Denise Vannerson Sauvage approached the dais and proceeded to tell her story of her purchase experience in Springlakes and the lack of candor by the developer. She referred to the video that Dr. Martin showed at the February 11, 2019 workgroup meeting. Her comments begin at 2:01:21 of the following video: https://www.youtube.com/watch?v=7fROdVuXF_A

DMSW MINUTES
April 15, 2019

Chairman Lorino opened the meeting with a statement thanking each workgroup member for their time and offering their experience to the workgroup for the residents of St. Tammany Parish. Development is important for the Parish and a resolution to Ordinance 6066 is important for our residents. This first step that we are taking is only the beginning of a process of changes, but he believes it's a very important step. At the previous meeting Chairman Lorino had asked each member of the workgroup to submit in writing any proposed change to Ordinance 6066 that they wanted the workgroup to consider.

Sidney Fontenot distributed copies of his proposed changes to the workgroup. He said that the present regulations were established at two separate times. And there was a period where there was a lack of consistency of enforcement. He had been recently approached by some concerned developers who had asked him for some clarity on the issue.

Sidney said that from now on there would be a development engineer at BOR meetings to answer any questions the BOR members may have.

Dr. Martin presented his changes to the workgroup and suggested that the phrase "An unreasonable manifest hardship is created by full compiance with the requirement" be deleted from the section request fo relief for indivual and for major subdivision, as it is too vague, and opens up a bucket worms.

Matthew Allen presented his proposed changes to the workgroup. He said that the changes suggested by Sidney seem to be overly broad, and will still allow possible diminution of the flood plains to the detriment of existin gresidents based on judgement calls by Parish Staff.

Paul Mayronne said that he generally agrees with Matt's proposed change but not necessarily to specific zone districts.

Paul submitted his proposed changes to the workgroup. In a perfect world Mike's shall not addition would work but there are occasions when shall not shouldn't work. Perhaps there should be a third set of eyes reviewing the plans. One from the developer, one from the Parish and a third if the first two are in conflict.

Mike liked the idea of the third set of eyes but would need someone completely independent of both parties, which would be tough to find in St. Tammany Parish. Mike asked Emily to see if we could use and engineer from out of State.

There was a general discussion on the pros & cons of having the third set of eyes even suggesting that we look to the Universities for them.

DMSW MINUTES
April 15, 2019

Don Casteel from Bush said he is opposed to relaxing the drainage regulations. Sub surface drainage limits the amount of flow and the idea of a home built on slab in a flood plain is a mistake. The Parish should call for a moratorium in the flood plains until the State has concluded their study and modeling.

Attached to these notes is a copy of Sec. 115-3 of the code reflecting all of the proposed changes presented at this meeting. There is a color coded legend at the end of the section identifying the author of each proposed change.

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13 August, 2018

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RE: **MVN-2015-1356-EPP** - The Preserve at Goodbee Lakes in St Tammany Parish (**WQC 180718-01**)

Dear Ms. Castaing, Ms.Hill,

I am writing on behalf of Gulf Restoration Network ("GRN"), a diverse coalition of individual citizens and local, regional, and national organizations committed to uniting and empowering people to protect and restore the natural resources of the Gulf of Mexico. We have serious concerns about the application for a Section 404 Permit (**MVN-2015-1356-EPP**) and Water Quality Certification (**WQC 180718-01**) submitted to the United States Army Corps of Engineers ("Corps") and Louisiana Department of Environmental Quality ("LDEQ"),respectively, by The Preserve at Goodbee Lakes ("Applicant").

The Applicant requests Section 404 permitting and a Water Quality Certification ("WQC") for its proposed construction of a multipurpose slab-on-grade development with parking ("Project"). The Project would remove more than 5.7 acres of forested wetlands from an highly vulnerable area in a key floodway within a heavily impacted watershed, Liberty Bayou -Tchefuncta (0809020102) in unincorporated St Tammany Parish. The indirect impacts of blocking interbasin flow from Liberty Bayou-Tchefuncta southwest into the Tangipahoa watershed are indeed significant. We also object to the project being piecemealed in to several permit applications. FEMA has spent at least $50 Million within this watershed for DR-4263-LA alone, and over $1.3 Billion in claims within 0809020102 over time[1]. It is not in the public's interest to subsidize more residential flooding by permitting this applicant to place even more residents in harm's way,

[1] FEMA LOUISIANA WATERSHED RESILIENCY STUDY, Aug 2017, Appendix I: Liberty Bayou-Tchefuncta Watershed

while removing much-needed flood mitigation in the form of riparian wetland forest, and blocking a natural floodway and wildlife corridor from one coastal basin into another.

This action is economically and hydrologically connected to billions of dollars of flood damages, and the cumulative impacts of many such wetland fills in the watershed. The Corps and LDEQ must demand the Applicant conduct an Area-Wide Environmental Impact Statement ("PEIS") for cumulative impacts to hydrology and to wetlands of residential and commercial slab construction within the Tangipahoa and Tchefuncta watersheds, in order to gain further insight into the economic impacts of this sort of wetland destruction in the Tchefuncta watershed. This is beyond urgent, given the multiple flood events of March 2016 and since, the increasing likelihood of other such events, and the extreme amount of repetitive-loss slab properties in unincorporated St Tammany Parish.

This PEIS would be the simplest way to update the costs to the public of purposefully building in a flood-prone manner in a flood prone area. Despite this type of development being recommended against by every planning document in many parishes and the state, the state and the federal government keep permitting these projects. The applicant must prepare dollar figures relevant to the public's subsidy of their pet project.

Although the Applicant also proposes to buy credits from a mitigation bank to offset any unavoidable losses to wetland functions caused by project implementation, we are concerned about the inevitable indirect and cumulative wetland effects that may result from a project of this scale, and the abysmal lack of information on local hydrology and floodplain mitigation. All known mitigation banks will not mitigate floodplain impacts of this development, as they are outside this watershed.

Wetland impacts must be mitigated in-kind, and maintain this critical northeast-southwest coastal floodway. There are no known mitigation banks that seek to preserve this flood cooridor between the river basins, north of the hydrologic barriers of I-12 and Highway 90.

GRN opposes the Applicant's request for a Section 404 Permit and WQC, and we ask The Corps and LDEQ to deny this request based on the following concerns:

1. The Project is inconsistent with Louisiana's Comprehensive Master Plan for a Sustainable Coast, the 2016 Executive Order.

Disrupting these wetlands directly conflicts with Louisiana's restoration and community-protection goals. The *Comprehensive Master Plan for a Sustainable Coast* ("Master Plan") clearly states that valuable wetlands must be preserved.

One of the key assumptions of 2007's Master Plan is that "a sustainable landscape is a prerequisite for both storm protection and ecological restoration."[2] And in 2012's iteration, these land-use specifications were further clarified:

We do not want construction of new hurricane protection systems to encourage unwise development in high risk areas, as has occurred in the past. Such development increases overall levels of risk and diminishes the effectiveness of the protection structures themselves. This phenomenon is called "Induced Risk," and it runs counter to the master plan's objectives of sustaining wetland ecosystems and reducing the flooding risks borne by coastal communities. *Similarly, wetland areas inside the hurricane protection system need to remain intact and undeveloped* [emphasis added].[3]

Filling in these wetlands removes both the ecosystem and flood-protection functions of these tracts of land, in direct conflict with the state's goals. The Master Plan further states that "overall hydrology must be improved by minimizing impediments to water flow."[4] Allowing the Applicant to fill and block flow in over 5.7 acres of forested wetlands not only limits ecological function, but it also fails to minimize water-flow impediments or improve overall hydrology in Tchefuncta.

We are particular concerned that this development will occur in a very sensitive and significant area important to the reduction of flood heights during flood events because it is on the boundary between two hydrologic units. It is also a wildlife corridor for similar historical reasons. Such a border is a bit arbitrary, and can lead to this area being of mutual disregard to both basins. This location acts as a spillway for excessive flood waters during Tchefuncte river flood events, allowing water to spill into the Bedico Creek and Tangipahoa watersheds, reducing flood heights for the immediate and downstream locations. This development, by filling in the Tchefuncte River Floodplain at this location dams up this important northeast-southwest spillway, which will lead to higher floods for current residents.

The entire property is fully within the flood hazard areas on the effective FIRM.

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[2] Coastal Protection and Restoration Authority of Louisiana, *Executive Summary*, *in* Louisiana's Comprehensive Master Plan for a Sustainable Coast 3 (2007).
[3] Coastal Protection and Restoration Authority of Louisiana, *2012 Comprehensive Master Plan for a Sustainable Coast*, p 159*)*.
[4] *Id.*

FEMA Regulations require a study of the effects of filling this site on flood levels prior to any construction.

During the floods of 1985, 1987, 1988, and 2016, the entire property was submerged and the Tchefuncte River flowed over Highway 1077 into the adjacent Bedico Creek Watershed. This east to west flow of floodwaters reduces flood heights downstream from the project, much like opening the Bonnet Carre Spillway protects New Orleans. Filling in these wetlands, and the entire property, to above BFE will have negative impacts on the surrounding communities.

The Applicant fails to provide information on wetlands mitigation, but the nearest mitigation banks are outside of the Tchefuncta watershed, and thus would not mitigate ecological functions necessary to comply with the Clean Water Act.

The Louisiana Legislature approved the latest version of the Coastal Master Plan during the 2012 Regular Session,[5] with overwhelming public support.[6]

On April 4th, 2016, Louisiana Governor John Bel Edwards gave even greater weight to the foundational recommendations laid out in the Master Plan by issuing Executive Order No. JBE 2016-09 ("Executive Order"). Like Executive Order No. BJ 2008-7 issued by his predecessor,[7] the Governor's mandate again requires all state agencies, departments, and offices to "administer their regulatory practices, programs, projects, contracts, grants, and all other functions vested in them in a manner consistent with the Coastal Master Plan and public interest to the maximum extent possible."[8] This requirement is intended to "effectively and efficiently pursue the State's integrated coastal protection goals."[9]

While the Executive Order strives to implement the Master Plan's goals to preserve wetland areas, the Applicant seeks to obtain a permit to fill 5.7 acres of riparian wetlands that protect communities from localized flooding, and fill that landscape with concrete. This is inconsistent with State Master Plan Project STT.01N, which proposes to spend $1.06 Billion to remove concrete slabs, elevate, and otherwise floodproof existing homes.

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[5] SCR No.62, 2012 Leg., Reg. Sess. (La. 2012).
[6] Louisiana Coastal Master Plan Public Opinion Survey, Southern Media & Opinion Research, Inc. Online at http://www.mississippiriverdelta.org/files/2012/04/2012-Louisiana-CMP-Opinion-Survey.pdf.
[7] *See* Exec. Order No. BJ 2008-7, issued 1/23/08: http://dnr.louisiana.gov/assets/docs/conservation/groundwater/Appendix_B.pdf
[8] *See* Exec. Order No. JBE 2016-09, issued 4/4/16: http://gov.louisiana.gov/assets/ExecutiveOrders/JBE16-09.pdf
[9] *Id.*

LDEQ cannot both follow the Executive Order and issue a WQC to the Applicant. The destruction of water flow and loss of ecosystem services is contrary to the unequivocal language of the Master Plan.

2. Water Dependence of The Project has not been demonstrated by the Applicant.

The intent of Corps regulation is to avoid the unnecessary destruction or alteration of Waters of the United States, including wetlands, and to compensate for the unavoidable loss of such waters. Corps regulations require that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.

Based on this provision, an evaluation is required in every case for use of non-aquatic areas and other aquatic sites that would result in less adverse impact to the aquatic ecosystem, irrespective of whether the discharge site is a special aquatic site or whether the activity associated with the discharge is water dependent. A permit cannot be issued, therefore, in circumstances where an environmentally preferable practicable alternative for the proposed discharge exists.

For proposed discharges into wetlands and other special aquatic sites, The Corps requires consideration of whether the activity associated with the proposed discharge is "water dependent." Water dependency is defined in terms of an activity requiring access or proximity to or siting within a special aquatic site to fulfill its basic project purpose. Human beings do not live in water.

According to the public notice, the purpose of the Project is to clear, grade, excavate, place, and maintain fill for a multipurpose development for single family residential lots[10]. Housing is not water dependent, and the Applicant has not demonstrated that the Project is an exception. The Applicant has also failed to demonstrate that practicable alternatives do not exist.

According to 40 CFR §230.10(a)(3):

[W]here the activity associated with a discharge which is proposed for a special aquatic site (as defined in subpart E) does not require access or proximity to or sitting within the special aquatic site in question to fulfill its basic purpose (i.e. not water dependent), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where discharge is proposed for a special aquatic site, all

[10] Joint Public Notice, MVN 2015-1356

practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the same aquatic ecosystem, unless clearly demonstrated otherwise.[11]

Wetlands are considered "special aquatic sites."[12] There is no reason or explanation given by the Applicant concerning why this development must be sited in wetlands to "fulfill its basic purpose." Since the burden of proof rests with the Applicant, it must therefore be concluded that this proposal is not water dependent. And according to the regulations, non-wet practicable alternatives must then exist.[13]

In its present form, The Corps and LDEQ must deny the Applicant's requests for a Section 404 Permit and WQC.

3. Project Alternatives have not been addressed.

In general, the regulations provide that no discharge of dredged or fill material shall be permitted: (1) if there is a practicable alternative to the proposed discharge; (2) if the discharge causes or contributes to violations of applicable state water quality standards; (3) if the discharge will cause or contribute to significant degradation of the environment; and (4) unless all appropriate steps have been taken to minimize potential adverse impacts.[14] The Corps' regulations also require that destruction of wetlands is to be avoided to the extent practicable.[15]

The regulations further provide that "practicable alternatives" include "not discharging into the waters of the U.S. or discharging into an alternative aquatic site with potentially less damaging consequences."[16] If a project is not "water dependent," as is the case with housing and commercial space, the guidelines contain a presumption that a less environmentally damaging practicable alternative exists while also requiring that the applicant clearly demonstrates that practicable alternatives which would not involve discharge of fill material into special aquatic sites were not available.[17]

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[11] 40 C.F.R. §230.10(a)(3) (2009).
[12] 40 C.F.R. §230.41.
[13] It should be further noted that 40 C.F.R. §230.20(a)(2) allows for the consideration of alternative sites *not owned* by the Applicant if they can be reasonably obtained and utilized for the basic purpose. Here, where the basic purpose is residential and commercial development, it can be easily assumed that numerous non-wetland properties could be reasonably obtained to fulfill the basic purpose, and it is clearly within the Applicant's burden to demonstrate otherwise.
[14] 40 C.F.R. § 230.10.
[15] 33 C.F.R. § 320.4(r).
[16] 40 C.F.R. §§ 230.5(c), 230.10(a).
[17] 40 C.F.R. § 230.10(a)(3).

The applicant must search for housing locations that do not block the flow of water between Liberty Bayou - Techfuncta and Bedico Creek Watersheds.

This east to west flow of floodwaters reduces flood heights downstream from the project, much like opening the Bonnet Carré Spillway protects New Orleans. Filling in these wetlands, and the entire property, to above BFE will have negative impacts on the surrounding communities.

It is widely known that elevated, pier construction is the historical, preferred, default construction method in flood-prone Louisiana[18]. The Applicant does not appear to be aware of the default construction methods widely available to keep local residents free from flood hazards. It is upon the applicant to demonstrate why this floodproof construction method is not feasible, when it is common practice throughout the state.

There are many public efforts in St Tammany and throughout the state, including LA-SAFE and the CRS program, to educate residents and developers on environmentally sensitive development, appropriate for high-risk flood hazard areas such as Tchefuncte River. None of these features of environmentally sensitive development, such as bioswales, seem to have been considered by the Applicant at all.

Publicly-available documents provide no evidence that the Applicant has engaged in a proper alternative analysis, to determine if non-wet potential project sites exist. The alternative analysis must include direct, indirect, secondary, and cumulative impacts that take into account aspects of water quality, wildlife, and flood protection. Presently, the public has not received any information as to why the Project must be sited in the Applicant's preferred location.

Impacts to wetland areas could obviously be minimized if the development were relocated to non-wetland areas, or outside of floodplains. As noted above, a burden to show the non-existence of practicable alternatives rests with the Applicant, when the proposed project is located in a special aquatic habitat and is not water-dependent.

Feasible sites can be identified using current aerial photography. Landowners can be identified through clerk of court records and contacted to determine availability of the land for purchase. Local newspapers also provide a source of available real estate offerings. A drive-by search for lots posted for sale in the general development vicinity also can be an effective method of finding available sites. Several websites offer listings of large tracts of land. Multiple Listing Real Estate Searches (MLS) also can be used to determine the availability of property for

[18] The History of Building Elevation in New Orleans, 2013. Produced by URS for the Federal Emergency Management Agency

development and also can be used to assess the current housing/real estate market in the development area. MLS or other real estate search results provided for site identification purposes must include the parameters used for the search.

If no available alternate sites can be identified, documentation demonstrating such (letters of refusal from landowners to sell property (or chronology and summary of attempts), MLS or other real estate searches resulting in no matches - include search parameters and full results; aerial photos showing no available undeveloped land, any other documentation showing an attempt to find less damaging properties) must be provided.

The Applicant has failed to demonstrate adequate consideration of alternatives, or an avoidance of impacts to the maximum extent practicable. Therefore, GRN respectfully submits that The Corps cannot issue the requested permit under Clean Water Act Section 404.

We request a Parishwide, adequate alternatives analysis in response to this letter. Such an alternatives analysis, for each property considered, must consider flood risk to residents in Tchefuncta watershed, surrounding land use, direct and cumulative impacts to wetlands by type, and secondary impacts like utilities necessary for residents and leasees. There must be a consideration of traditional and newer construction methods for mitigating flood risk and displacement of water.

4. Direct, indirect, secondary, and cumulative impacts must be fully considered.

Article IX, Section 1 of Louisiana's Constitution provides that "the natural resources of the state, including air and water, and the healthful, scenic, historic, and esthetic quality of the environment shall be protected, conserved, and replenished insofar as possible and consistent with the health, safety, and welfare of the people."[19]

In its 'Save Ourselves' decision, the Louisiana Supreme Court outlined how state agencies, as public trustees, can implement this constitutional guarantee. All agencies must determine whether a project avoids or minimizes adverse environmental impacts, balances environmental costs and benefits with economic and social factors, and consider whether alternate projects, sites, or mitigating measures would better protect the environment.[20]

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[19] *See* Article IX of Louisiana Constitution: http://senate.la.gov/Documents/Constitution/Article9.htm#%C2%A71.%20Natural%20Resources%20and%20Environment:%20Public%20Policy

[20] 452 So. 2d 1152 (La. 1984).

Given the information available in public documents, it does not appear that the Corps or the Applicant have fully weighed the costs and benefits relevant to the Project. Direct, indirect, secondary, and cumulative impacts of the proposed wetland fill and clearing remain overlooked.

The fill of such a large area is in violation of the federal and state anti-degradation policy. The Louisiana policy states that "administrative authority will not approve any wastewater discharge or certify any activity for federal permit that would impair water quality or use of state waters."[21]
As mentioned above, the Project's direct impact to as many as 5.7 forested wetland acres in Tchefuncta is certainly significant. There would be considerable impacts to water quality and wildlife habitat, including potential threats to threatened species that either reside or feed in this area such as such as Bachman's Sparrow, Bald Eagle, American Swallow-tailed Kite, Pine Woods Snake, and Ornate Chorus Frog, and even a rare migrating Cougar.
(see http://www.wlf.louisiana.gov/wildlife/species-parish-list?tid=263&type_1=All)

This site is of particular importance because it may be used as a wildlife and water corridor. Building a residential community in the wildlife and water corridor will have negative effects the ability of animals to move in the already fragmented landscape and put the residents in danger or perceived danger as unfamiliarity with how to coexist with wildlife is common.

Federal regulations have not been fully implemented. Per executive orders 11988 and 11990, in order to prevent impacts to wetlands certain aspects need to be analyzed. Title 18 of the Code of Federal Regulations states:

> It is the policy of the Council to provide leadership in floodplain management and the protection of wetlands. Further, the Council shall integrate the goals of the Orders to the greatest possible degree into its procedures for implementing the National Environmental Policy Act. The Council shall take action to: Avoid long- and short-term adverse impacts associated with the occupancy and modification of floodplains and the destruction or modification of wetlands; Avoid direct and indirect support of floodplain development and new construction in wetlands wherever there is a practicable alternative; Reduce the risk of flood loss; Promote the use of nonstructural loss reduction methods to reduce the risk of flood loss; Minimize the impact of floods on human health, safety and welfare; Minimize the destruction, loss or degradation of wetlands; Restore and preserve the natural and beneficial values served by floodplains; Preserve and enhance the natural and beneficial values served by wetlands.[22]

[21] La. Admin. Code tit. 33, pt. IX §1109(A)(2).
[22] 18 C.F.R. §725.2.

Given that the Public Notice does not thoroughly adhere to the executive order, The Corps and LDEQ should deny the permit application.

The destruction of these wetlands, in direct opposition to the Master Plan, would further weaken the state's storm defenses.

The Code of Federal Regulations recognizes the significance of secondary impacts from wetland destruction by emphasizing that "minor loss of wetland acreage may result in major losses through secondary impacts."[23] It is unacceptable that the Applicant offers no analysis of these probable impacts. FEMA lists the Soap Bayou-Tchefuncte watershed as one of the most heavily filled in the State, with up to 2.5 % of its area converted to impervious surface from 2001-2011, according to Land Cover data.[24]

The cumulative impacts on storm and flood protection must also be taken into consideration. This project would incite additional, secondary construction and jeopardize even more wetlands unique to this area. This type of activity, combined with similar wetland-destroying projects, has resulted in more flooding in nearby communities, as well as degraded water quality in the scenic Tchefuncte River and surrounding wetlands. The watershed must be looked at as an interrelated ecological unit in order to adequately assess the true cumulative impacts.

Within St Tammany Parish, from Sept 2013 to April 2018, USACE reviewed roughly 80 standard 404 applications, and about 75 % of those were Residential or Commercial Developments. About 40% of proposed impacts came from these two types. The overwhelming amount of Transportation impact evaluated came from one project, the Bush to I-12, a highway proposed to spur residential development in the eastern part of the Parish, through the existing mitigation areas. When that impact is considered, over 80% of total acreage is connected to slab development for residential or commercial projects.

The impacts proposed by this Project are part of many connected actions within the Parish to fill wetlands. Within St Tammany Parish and the Liberty Bayou-Techfuncta watershed, the majority of Corps actions that are not minimal impact, and thus under general permit, are for this connected purpose.

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[23] 40 C.F.R. §230.41.

[24] FEMA. Aug 2017 LAWRS Appendix I. Liberty Bayou-Tchefuncta

Proposed Wetland Impact Standard 404 Applications for Liberty Bayou-Tchefuncta Sep '13 to Apr '18		
Impact Type	Sum of Acres	Count of Applications
Transportation Projects	345.8	4
Residential Developments	197.3	45
Commercial Developments	117.5	17
Recreational Developments	41.9	5
Drainage Projects	13.58	6
Oil and Gas Facilities	3.13	2
Industrial Developments	7.75	2

Table 1. Summary of standard proposed wetland impacts USACE public notices concerning Liberty Bayou -Tchefuncta. Some acreages are outside the watershed boundaries, such as the northern portion of the proposed Bush to I-12 highway. Note the majority of applications are concerning Residential impacts.

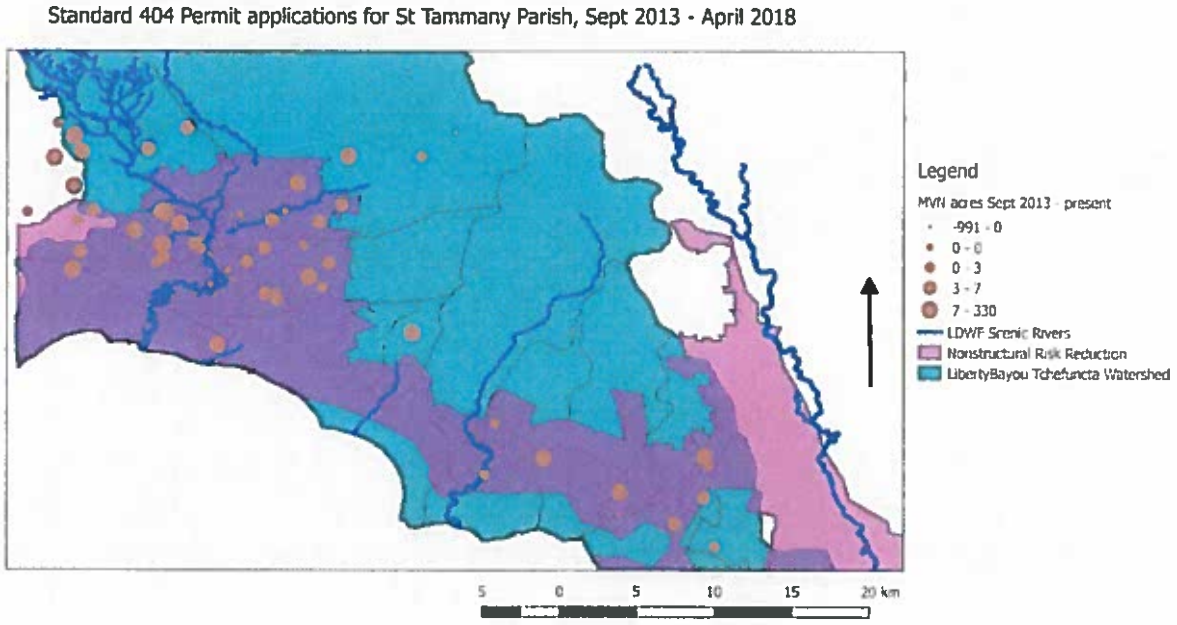

Figure 1. USACE wetland Permit applications for St Tammany Parish, in relation to Scenic Rivers, Watershed, and the 2017 Coastal Master Plan Non-Structural Risk Reduction Program

Since the Public Notice does not assess, or even recognize, the potential direct, indirect, and cumulative impacts that will result from the disruption of over 5.7 acres of forested wetlands in a critical floodway between watersheds, The Corps and LDEQ cannot approve this proposal as submitted. Degradation to the Scenic Tchefuncte River cannot be allowed. The Corps and LDEQ

have permitted too many of this kind of project to alter hydrology, affect wetlands in this watershed, and place residents in harm's way.

5. The fill of these waters is against Federal and State anti-degradation policy

The fill of such a large area itself is in violation of the federal and state anti-degradation policy for the scenic Tchefuncte River. When we consider the hundreds of acres that have been permitted to be removed from this area in the last 5 years, water quality in Lake Pontchartrain is affected. Since the storms of 2016, the Lake is very prone to algal blooms from the residential pollution that washed into the lake after those large rains.

Figure 2. West Lake Pontchartrain algal bloom, December 14th, 2017, south of the mouth of the Tchefuncte, St Tammany Parish. Winter algae blooms are a rare phenomenon, likely spurred by the runoff from floodprone residential areas such as the one proposed by the applicant. GRN % Southwings.org

The Louisiana policy states that "administrative authority will not approve any wastewater discharge or certify any activity for federal permit that would impair water quality or use of state waters."[25]

[25] La. Admin. Code tit. 33, pt. IX §1109(A)(2).

The Corps and LDEQ have permitted too many of this kind of project to alter hydrology, affect wetlands in this watershed, increase the pollution burden to the Tchefuncte and Lake Pontchartrain, and place residents in harm's way.

6. The Applicant must notify local floodplain officials of this permit application, since the proposed site sits within an area vulnerable to flooding.

The location of this proposed project is critical because of high amount of recent fill, the lack of mitigation, proven and increasing flood hazards, and the Tchefuncte River's status as a scenic river. The public interest is overwhelmingly for maintaining the local flood mitigation functions that these wetlands are providing. Naturally, these acres of wetlands, along with the entire site, lies within the 100-year floodplain. and are clearly susceptible to river flooding and storm-surge events (Figure 3).[26]

The responsibility of managing flood risk in Louisiana lies largely with individual parishes. Since parish officials are charged with administering the hazard mitigation program, they should also be informed of this request that impacts flood-mitigating wetlands. Relevant to this particular instance, the St Tammany Parish Floodplain Administrator is Alan Pelegrin (985-898-2574, apelegrin@stpgov.org) and the Emergency Preparedness contact is Dexter Accardo (985-898-2359).

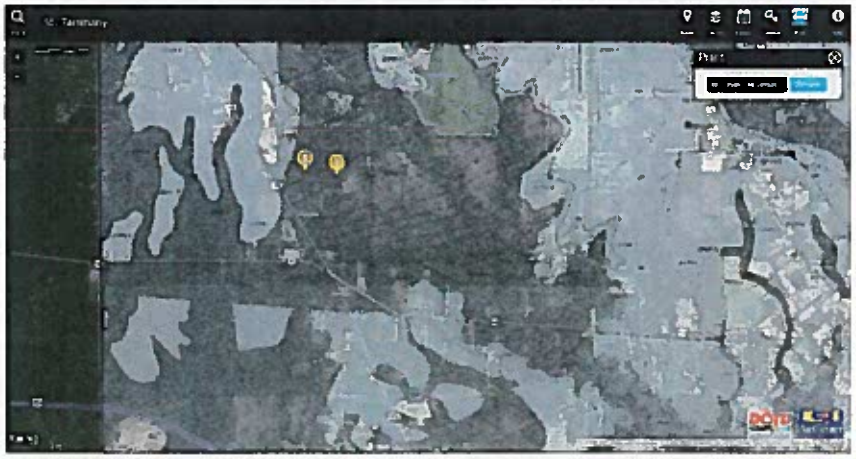

Figure 3: Proposed site in area at-risk for flooding. The Effective FIRM also shows the lateral connection between Bayou Liberty-Tchefuncta and Bedico Creek

We request that local floodplain managers be notified of the associated, significant flood risks.

[26] FEMA Flood Map, St Tammany Parish http://maps.lsuagcenter.com/floodmaps/.

7. The Public Notice fails to adequately describe the Mitigation Plan.

Federal law also requires the Applicant to compensate for, or mitigate, the damages resulting from the destruction of our nation's wetlands, should a permit be issued. In the public notice, there is only a vague mention of proposed plans for the use of a mitigation bank to offset any unavoidable losses to wetland functions caused by project implementation, although no mitigation bank exists in the Tchefuncta watershed.[27]

The Corps "must ensure that adequate [mitigation plan] information is included in the Public Notice to enable the public to provide meaningful comment," providing exception only for data which is "legitimately confidential for business purposes."[28] According to the joint EPA/USACE "Compensatory Mitigation for Losses of Aquatic Resources; Final Rule," mitigation plans for all wetland compensatory mitigation projects must contain the twelve elements, including:[29]

- ❑ site selection criteria
- ❑ baseline information for impact and compensation sites
- ❑ ecological performance standards
- ❑ monitoring requirements

The mere mention of legally-required details does not satisfy this requirement of "adequate information" to allow "meaningful comment." Considering that localities in coastal Louisiana have a strong public interest in minimizing the effects of storm surge and localized river flooding, the nature and location of compensatory mitigation is of vital importance to those who wish to provide public comments.As these areas are Forest Floodplains of Special Concern, canopy-cover values ought to be publically provided, given the significant impacts to forests that make up the majority of this proposal's potential wetland destruction.
For the sake of detail, further mitigation requirements in 33 C.F.R. § 332 are included below.

To satisfy the Clean Water Act, mitigation plans must provide a level of detail "commensurate with the scale and scope of the impacts"[30] and include the following information:

1. "A description of the resource type(s) and amount(s) that will be provided, the method of ecoregion, physiographic province, or other geographic areas of interest."[31]

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[27] Joint Public Notice, MVN 2015-1356
[28] 40 CFR § 230.94(b).
[29] 33 CFR § 322.4[c].
[30] 33 C.F.R. § 332.4(c).
[31] 33 C.F.R. § 332.4(c)(2).

The hydrologic functions of the site are as a unique spillway; no where is this mentioned in the application. This cannot be mitigated with any known banks. There are no known banks in the Liberty Bayou -Tchefuncta watershed.

2. "A description of the factors considered during the site selection process. This should include consideration of watershed needs, onsite alternatives where applicable, and the practicability of accomplishing ecologically self-sustaining aquatic resource restoration, establishment, enhancement, and/or preservation at the compensatory mitigation project site."[32]

3. "A description of the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the compensatory mitigation project."[33]

4. "A description of the ecological characteristics of the proposed compensatory mitigation project site.... This may include descriptions of historic and existing plant communities, historic and existing hydrology, soil conditions, a map showing the locations of the impact and mitigation site(s) or the geographic coordinates for those site(s), and other site characteristics appropriate to the type of resource proposed as compensation. The baseline information should also include a delineation of waters of the United States on the proposed compensatory mitigation project site."[34]

Again, the site has unique regional hydrologic characteristics and functions, as well as wildlife functions not listed.

5. "A description of the number of credits to be provided, including a brief explanation of the rationale for this determination," including "an explanation of how the compensatory mitigation project will provide the required compensation for unavoidable impacts to aquatic resources resulting from the permitted activity."[35]

We question the amount of credits to be granted in mitigation, especially since those are not listed.

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[32] 33 C.F.R. § 332.4(c)(3).
[33] 33 C.F.R. § 332.4(c)(4).
[34] 33 C.F.R. § 332.4(c)(5).
[35] 33 C.F.R. § 332.4(c)(6).

6. "Detailed written specifications and work descriptions for the compensatory mitigation project, including, but not limited to, the geographic boundaries of the project; construction methods, timing, and sequence; source(s) of water, including connections to existing waters and uplands; methods for establishing the desired plant community; plans to control invasive plant species; the proposed grading plan, including elevations and slopes of the substrate; soil management; and erosion control measures."[36]

7. "A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed."[37]

8. "Ecologically-based standards that will be used to determine whether the compensatory mitigation project is achieving its objectives."[38]

Flood attenuation functions are essential to Louisiana's economy and must be preserved, or at least listed.

9. "A description of parameters to be monitored in order to determine if the compensatory mitigation project is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting on monitoring results to the district engineer must be included."[39] The mitigation plan must provide for a monitoring period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years. A longer monitoring period must be required for aquatic resources with slow development rates (e.g., forested wetlands, bogs).[40]

10. "A description of how the compensatory mitigation project will be managed after performance standards have been achieved to ensure the long-term sustainability of the resources, including long-term financing mechanisms and the party responsible for long-term management."[41]

11. "A management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project, including the party or parties responsible for implementing adaptive management measures. The adaptive management plan will guide decisions for revising compensatory mitigation plans and

[36] 33 C.F.R. § 332.4(c)(7).
[37] 33 C.F.R. § 332.4(c)(8).
[38] 33 C.F.R. § 332.4(c)(9).
[39] 33 C.F.R. § 332.4(c)(10).
[40] 33 C.F.R. § 332.6.
[41] 33 C.F.R. § 332.4(c)(11).

implementing measures to address both foreseeable and unforeseen circumstances that adversely affect compensatory mitigation success."[42]

12. "A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standards."[43]

13. The mitigation plan must provide for a monitoring period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years. A longer monitoring period must be required for aquatic resources with slow development rates (e.g., forested wetlands, bogs).[44]

14. The compensatory mitigation requirements must be clearly stated and include special conditions that "must be enforceable." The special conditions must: "(i) Identify the party responsible for providing the compensatory mitigation; (ii) Incorporate, by reference, the final mitigation plan approved by the district engineer; (iii) State the objectives, performance standards, and monitoring required for the compensatory mitigation project, unless they are provided in the approved final mitigation plan; and (iv) Describe any required financial assurances or long-term management provisions for the compensatory mitigation project, unless they are specified in the approved final mitigation plan...."[45] "The special conditions must clearly indicate the party or parties responsible for the implementation, performance, and long-term management of the compensatory mitigation project."[46]

15. "The real estate instrument, management plan, or other mechanism providing long-term protection of the compensatory mitigation site must, to the extent appropriate and practicable, prohibit incompatible uses (e.g., clear cutting or mineral extraction) that might otherwise jeopardize the objectives of the compensatory mitigation project."[47]

A key element of a legally adequate mitigation plan is the inclusion of ecological performance standards for assessing whether the mitigation is achieving its objectives, and these are described under 33 C.F.R. § 332.5:

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[42] 33 C.F.R. § 332.4(c)(12).
[43] 33 C.F.R. § 332.4(c)(13).
[44] 33 C.F.R. § 332.6.
[45] 33 C.F.R. § 332.3(k).
[46] 33 C.F.R. § 332.3(l).
[47] 33 C.F.R. § 332.7(a).

> "Performance standards should relate to the objectives of the compensatory mitigation project, so that the project can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected functions, and attaining any other applicable metrics (e.g., acres)."[48]

And, further:

> "Performance standards must be based on attributes that are objective and verifiable. Ecological performance standards must be based on the best available science that can be measured or assessed in a practicable manner. Performance standards may be based on variables or measures of functional capacity described in functional assessment methodologies, measurements of hydrology or other aquatic resource characteristics, and/or comparisons to reference aquatic resources of similar type and landscape position. The use of reference aquatic resources to establish performance standards will help ensure that those performance standards are reasonably achievable, by reflecting the range of variability exhibited by the regional class of aquatic resources as a result of natural processes and anthropogenic disturbances. Performance standards based on measurements of hydrology should take into consideration the hydrologic variability exhibited by reference aquatic resources, especially wetlands. Where practicable, performances standards should take into account the expected stages of the aquatic resource development process, in order to allow early identification of potential problems and appropriate adaptive management."[49]

The information provided on impacts and mitigation is wildly insufficient to allow for meaningful comments, especially regarding bottomland hardwoods and the Scenic Tchefuncte River. However, what is clear is that the federal regulations are not being followed.

To assure that minimization and mitigation in the same watershed and for the correct type of wetlands are occurring, we request that, at the minimum, mitigation banks the and avoidance and minimization statement used are included in the Public Notice. Since this regulation is not followed, the Public Notice is incomplete and must be reissued with a mitigation plan.

8. The final plan, with mitigation plan included, should be made available to the public before any permits are granted.

We feel that the current Public Notice system is not adequate to fully involve the public in the Section 404 permitting process. The only items available to the public throughout the entire

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[48] 33 C.F.R. § 332.5(a).
[49] 33 C.F.R. § 332.5(b).

process is the joint Corps/LDEQ Public Notice. And significantly, these documents are released before The Corps and the Applicant go through the "avoid, minimize, and mitigate" process.

The public is therefore never given an opportunity to comment on the final project, including the mitigation plan. We have often been told that many changes happen to the permits before they are issued, but the public never sees them until the wetlands have already been filled and water quality altered.

We request more information in the initial Public Notice (e.g., mitigation plans, efforts made to avoid impacts, necessity of project location, adequate alternative analysis, environmental assessments, etc.). Because this regulation is not followed, the Public Notice is incomplete and must be reissued with a mitigation plan.

9.. We question whether any wetland mitigation could completely replace the functions and values lost.

Should any impacts to wetlands occur because of the Project, mitigation is required. Given the history of failure of mitigation, particularly in the New Orleans District, we feel that it would be extremely difficult to replace the function and values of this particular wetland if offsite mitigation takes place. Recent scientific literature reviews of wetland mitigation sites have described these kinds of failure in detail, but the failure is due partially to the fact that the functions of wetland soils are largely unaccounted for:[50,51]

> [O]verall lack of recovery of biogeochemical functioning may have been driven largely by the low recovery of the carbon storage and the low accumulation of soil organic matter.

A recent LSU master's thesis has outlined the failure to replace ecological functions by the New Orleans District 404 regulatory branch.[52] Although acreages were replaced around a 1:1 ratio, a functional analysis showed that the acreage of improved wetland needed to replace ecological functions was close to 2.4:1 for every acre destroyed. Similar reports for coastal Texas wetlands have been prepared.

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[50] Spieles, D. J. 2005. Vegetation Development in Created, Restored, and Enhanced Mitigation Wetland Banks of the United States. Wetlands. 25:51-63.

[51] Moreno-Mateos D , Power ME , Comín FA , Yockteng R , 2012 Structural and Functional Loss in Restored Wetland Ecosystems. PLoS Biol 10(1): e1001247. doi:10.1371/journal.pbio.1001247.

[52] WETLAND MITIGATION BANKS AND THE NO-NET-LOSS REQUIREMENT: AN EVALUATION OF THE SECTION 404 PERMIT PROGRAM IN SOUTHEAST LOUISIANA by Abbey Anne Tyrna http://etd.lsu.edu/docs/available/etd-04102008-141642/unrestricted/Tyrna_thesisx.pdf.

The mention of possibly purchasing compensatory credits is inadequate information to base an evaluation of cumulative impacts from loss of wetland function. Even if mitigation were to take place within the same hydrologic basin, we question whether any amount of acreage offsite would be able to replace the functions and values (local flood mitigation, local flora/fauna, etc.) that these wetland tracts currently perform.

As outlined in the below table of values provided with the joint Public Notice, the majority of proposed work would impact forested wetlands. While re-creating habitat is already a difficult task, forested regions require perhaps the most ingenuity and commitment. Unlike their peers, these sorts of habitats develop over centuries. These time-scales are in stark contrast to those expected by regulators, so we accordingly question any accompanying mitigation measures as well as the 'temporary' classification.

As a whole, it is essential to avoid and minimize wetland impacts.

We request more information in the initial Public Notice on efforts made to avoid impacts, necessity of project location, and agency comments.

10. The Project warrants a Programmatic, or Area-Wide, Environmental Impact Statement (PEIS).

Approval of this permit would induce many other permit applications for development within the Tchefuncta watershed.

We submit this additional section to address concerns that have been raised about comprehensive environmental review.

Claim: A PEIS is not warranted because The Corps has no program for comprehensively analyzing impacts to hydrology and riparian wetland forests in the Liberty Bayou - Tchefuncta watershed.
Facts: Wrong. NEPA expressly contemplates preparation of an EIS for situations just like this one: where an agency is facing multiple independent permitting decisions that have overlapping, shared, or cumulative impacts.[53,54,55]

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[53] See Native Ecosystems Council v. Dombeck, 304 F.3d 886 (9th Cir. 2002) ("A single NEPA review document is required for distinct projects when ... the projects are _connected,' _cumulative' or _similar' actions ...").
[54] 40 C.F.R. § 1508.25 (mandating single EIS for separate independent actions under some circumstances).
[55] 40 C.F.R. §1502.4(a), (c) (requiring a single EIS where proposals are "related to each other closely").

Federal guidance and courts sometimes refer to these reviews as "programmatic," || while in other cases, they are called "area-wide" or "overview" EISs. The label is not important. Rather, it is the content of such an assessment that matters. The federal Council on Environmental Quality offers further guidance (in Q&A format):

Question: When is an area-wide or overview EIS appropriate?
Answer: The preparation of an area-wide or overview EIS may be particularly useful when **similar actions, viewed with other reasonably foreseeable or proposed agency actions, share common timing or geography.** For example, when a variety of slab-on-grade projects may be located in a single watershed, or when a series of new energy technologies may be developed through federal funding, the overview or area-wide EIS would serve as a valuable and necessary analysis of the affected environment and the potential cumulative impacts of the reasonably foreseeable actions under that program or within that geographical area.[56]

Courts have agreed that a single EIS is required for multiple discrete actions under some circumstances, for example, when the projects have common timing, geography, and/or impacts.[57,58] Such circumstances exist here.

Claim: A comprehensive review of multiple residential projects would be "unprecedented." ||
Facts: Wrong. There is ample precedent for such a review, including regional examples. The Corps reviewed four independent phosphate mining projects that have cumulative impacts within a 1.32 million acre area of Central Florida.[59] This Florida EIS examined multiple independent projects from different applicants that share impacts on important resources.

Similarly, the National Marine Fisheries Service is conducting a large-scale programmatic EIS on anticipated permitting activities for exploratory drilling in an area of over 200,000 square miles in the Beaufort and Chuckchi Seas.[60] In a 2010 letter to The Corps, Region IV of the EPA asked for an area-wide EIS for multiple phosphate mines in central Florida, observing the following:

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[56] Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations 40 CFR Parts 1500 - 1508 (1987). http://energy.gov/sites/prod/files/G-CEQ-40Questions.pdf.
[57] See, e.g., Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1215 (9th Cir. 1998) (multiple timber sales must be evaluated in a single EIS where the sales were reasonably foreseeable, in a single general area, disclosed at the same time, and developed as part of a comprehensive strategy).
[58] Earth Island Institute v. U.S. Forest Service, 351 F.3d 1291 (9th Cir. 2003) (confirming that "similar actions"—i.e., actions which have similarities, such as common timing or geography, that warrant comprehensive review—must be considered in a single EIS if it is the "best way" to consider their impacts).
[59] Areawide Environmental Impact Statement for Phosphate Mining in the Central Florida Phosphate District http://www.phosphateaeis.org/.
[60] Supplemental Draft Environmental Impact Statement (SDEIS) on the Effects of Oil and Gas Activities in the Arctic Ocean. http://www.alaskafisheries.noaa.gov/protectedresources/arctic/.

Addressing cumulative and secondary (indirect) effects in a piecemeal manner through the regulatory process (i.e. permit by permit) for impacts of this magnitude, cannot effectively or sufficiently address cumulative impacts to the Peace River Watershed as a whole. An area-wide EIS could adequately address these cumulative and secondary effects.[61]

Claim: A programmatic EIS will take too much time, and be too speculative.
Facts: Wrong. Should the cumulative impacts information be necessary to make an informed and lawful decision—which it is—the agencies must develop it, whether it is part of a PEIS or individual EISs. There is no reason why one would go faster than the other. Nor are the questions to be asked speculative. It is, in fact, relatively simple to calculate future impacts from past trends. For issues where there is a disagreement over the existing impacts to forested floodplains and local hydrology, the PEIS will provide the best opportunity to develop data that is crucial to an informed decision.

11. The Project does not appear to be in the public interest.

As already noted, The Corps must not only consider alternative residential sites and methods, it must also choose the least-damaging practicable alternative.[62] The least-damaging practicable alternative is the "no action" alternative. This alternative goes to the heart of this entire process – whether there even exists a public need for such a Residential Commercial Project in a vulnerable area already subject to many such bad development ideas.

As noted, this watershed is notorious among areas in Louisiana for its repetitive flood loss properties, incurring over $50 Million from a single event in 2016, and over $1B over the history of the NFIP. Residents often purchase homes on such property without any knowledge of their flood risk; yet local residents and the federal government are left to subsidize the negligence of applicants like All State Financial in order to sustain the economy of St Tammany Parish against recurring, foreseeable, and the increasing cost of disasters.

No mention is made regarding how the residents of St Tammany Parish would benefit from the Project, when the risks of displacing cross-basin flood mitigation are obvious. Community members are likely to be left with the usual unaccounted, externalized costs of the Project that come from reduced flood protection.

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[61] Need for Area Wide Environmental Impact Statement "Bone Valley Phosphate Mining Region (Peace River Watershed, Florida) 10 Mar, 2010.
[62] 40 C.F.R. § 230.10(a).

SUMMARY

1. **The Project is inconsistent with Louisiana's Comprehensive Master Plan for a Sustainable Coast and a 2016 Executive Order.**

2. **Water dependence of the Project has not been demonstrated by the Applicant.**

3. **Project Alternatives have not been addressed.**

4. **Direct, indirect, secondary, and cumulative impacts must be fully considered.**

5. **Fill of these waters is against state and federal anti-degradation policy.**

6. **Local floodplain officials should be included in the notification of this permit, since the proposed site sits within an area vulnerable to flooding.**

7. **The Public Notice fails to adequately describe the mitigation plan.**

8. **The final plan, with mitigation plan included, should be made available to the public before any permits are granted.**

9. **We question whether any wetland mitigation could completely replace the functions and values lost.**

10. **The Project warrants a Programmatic, or Area-Wide, Environmental Impact Statement (PEIS).**

11. **The Project does not appear to offer any public benefit or be in the public interest.**

In conclusion, The Corps and LDEQ must take the mandates put forth by the Clean Water Act, Louisiana's *Comprehensive Master Plan for a Sustainable Coast,* Governor John Bel Edwards, and the Louisiana Supreme Court seriously. These responsibilities are only heightened when faced with the inadequacy of the Applicant's public documents.

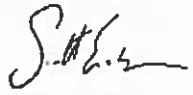
The Applicant has not shown that the basic purpose of the Project is water-dependent, has not demonstrated a lack of practicable alternatives, has not assessed significant impacts, has only vaguely described plans for compensatory mitigation, and has not explained how the Project offers public benefit or is in the public interest.

More than decade since the 2005 hurricane season, and especially since the large rains of 2016, GRN is beyond alarmed by the wetland destruction occurring throughout Louisiana, Gulf Coast, and St Tammany Parish especially. There are few places across the Gulf Coast where such greed inspires applicants to deny the basic nature of our wetland home. We hope The Corps and LDEQ will act upon the above comments accordingly.

In order to keep us and the public properly informed, we request notification of denials, approvals, and/or changes to the Applicant's request for a Section 404 Permit and WQC. As previously stated, we see pressing needs to conduct a PEIS and to hold a public hearing to fully weigh the continued impacts to hydrology and riparian forests in the Liberty Bayou -Tchefuncta watershed.

We look forward to a written response.

For a healthy Gulf,
[sent via e-mail]



Scott Eustis
Community Science Director
Gulf Restoration Network
330 Carondelet Street, 3rd Floor
New Orleans, LA 70130
(504) 525.1528 x212 Scott@healthygulf.org

Cc: Matt Rota, Senior Policy Director
May Nguyen, Tulane Environmental Law Clinic
Raul Gutierrez, U.S. EPA, Region 6

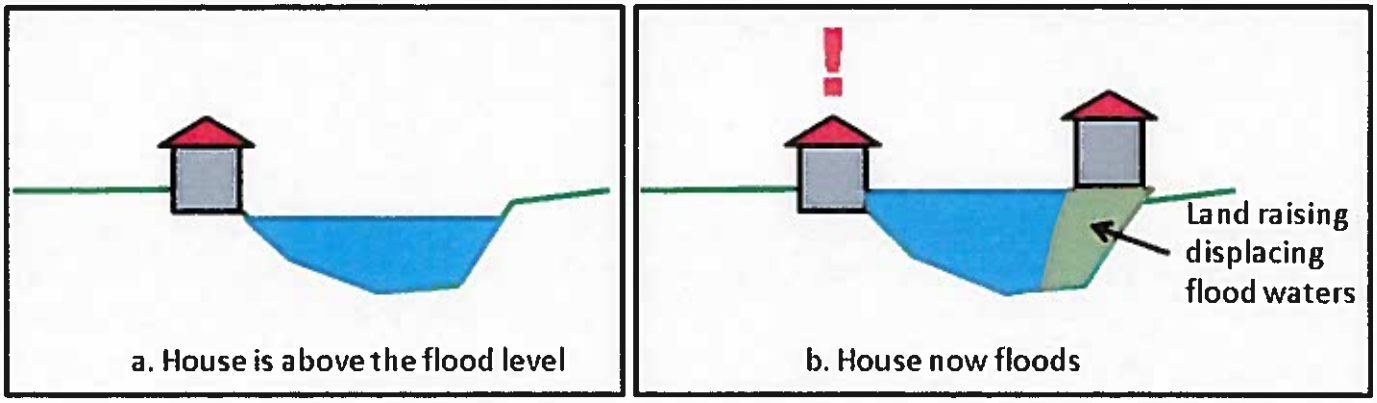
Storm Water and Flood Water Storage

St. Tammany Ordinance 6066

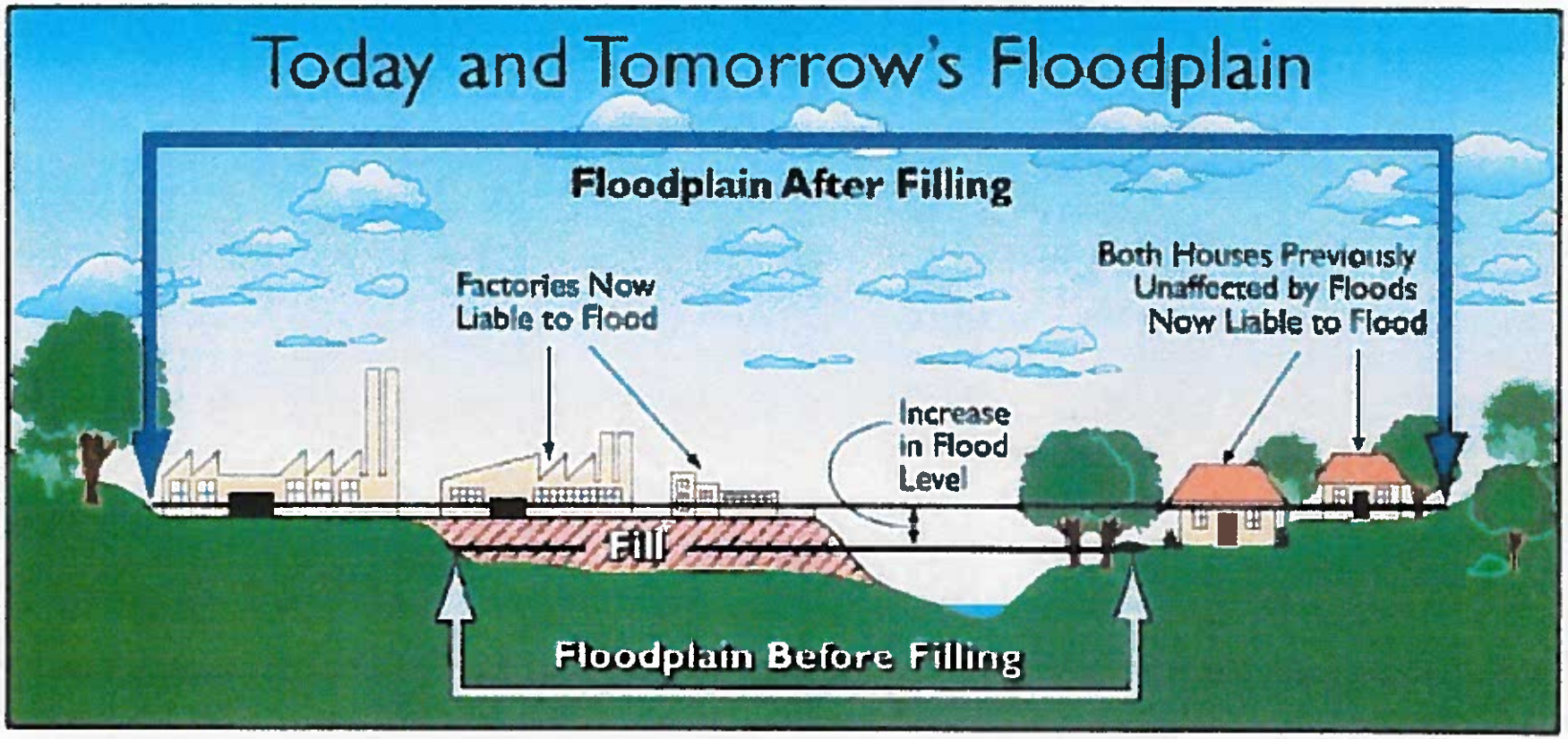
What We Should Know

Matthew Allen

CFM



How development can displace flood waters and increase flood risk.



If large areas of the floodplain are filled, then there will be an increase in the land area needed to store flood waters. This means your home or business may be impacted.

Flood Water Storage Compensatory Mitigation

- A practice that offset the loss of flood storage that results from filling by excavating an additional equivalent part of the floodplain.
- Floodplains provide the critical and beneficial functions of flood storage, flood water conveyance, natural habitat, and water quality. The placement of fill impairs these functions and should be avoided. Where some placement of fill is unavoidable, requiring compensatory storage can mitigate some of the negative impacts of floodplain fill. Compensatory storage does not address conveyance

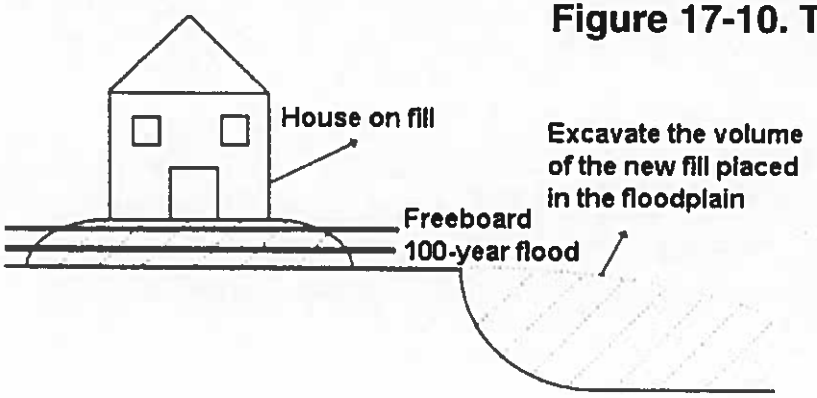
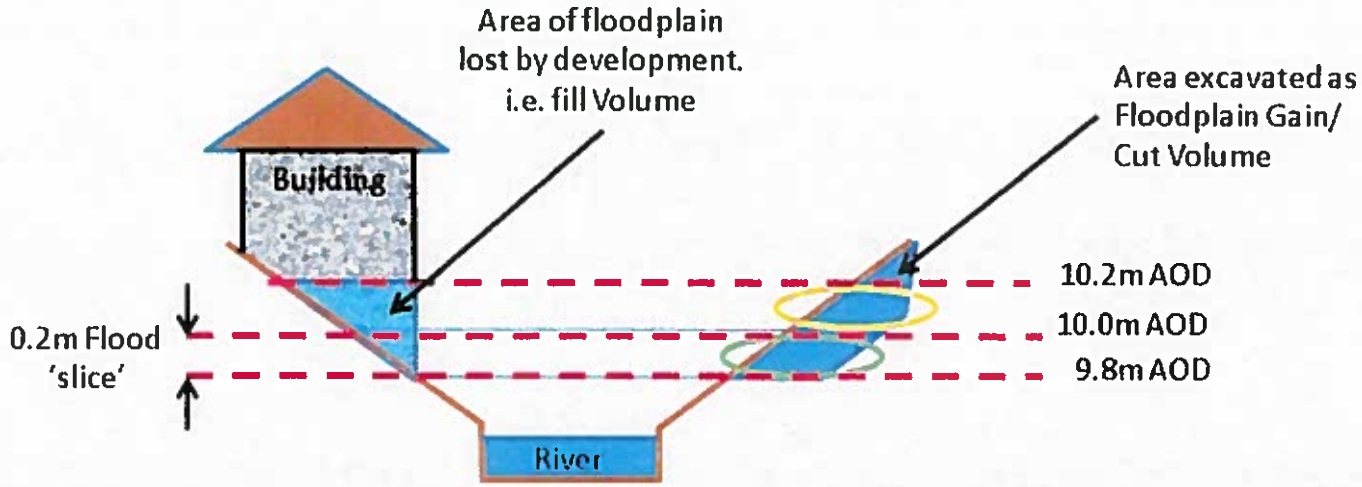


Figure 17-10. The compensatory storage concept.

2008 LDOTD Louisiana Floodplain Management Desk Reference Section 17.5.2

Flood Water Storage requires free flow of Floodwaters into and out of area



Example of how to calculate what volume of flood water is displaced by a new building in the floodplain and what volume is being provided by the compensation area.

Stormwater Storage Mitigation

2008 LDOTD Louisiana Floodplain Management Desk Reference

17.6.1. Stormwater management

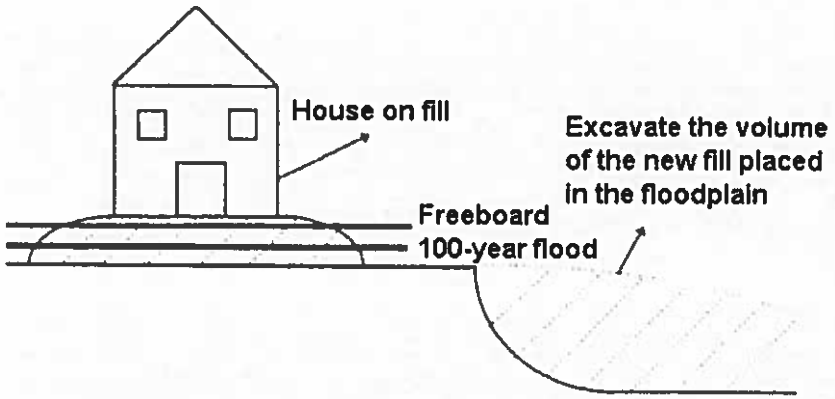
A floodplain management program in an urbanizing area must confront the increase in flood flows caused by development within the watershed. As forests, fields, and farms are covered by impermeable surfaces such as streets, rooftops, and parking lots, more rain runs off at a faster rate. In an urbanized area, the rate of runoff can increase four times or more (Section 2.3.1).

One way to reduce the impact of stormwater from new development is to require the developer to restrict the rate at which the increased runoff leaves the property. The developer must build a facility to store stormwater runoff on the site.

Runoff Flow Reduced by Using Smaller Pipes to Restrict Flow

http://mediad.publicbroadcasting.net/p/wcbu/files/styles/large/public/201308/stormwater.jpg

STPG Ordinance 6066 proposes to allow developers to use stormwater detention volume calculations to satisfy Flood Water Storage Compensatory Mitigation volume storage for fill in the floodplain.



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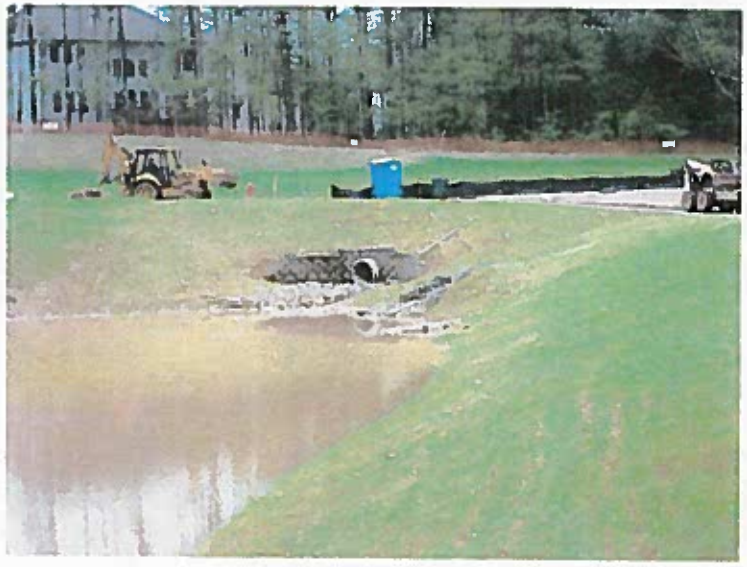


Issues with St. Tammany Flood Hazard Ordinances

St. Tammany relies the National Flood Insurance Program and their designation of the 1% Flood (100-year flood)

The reliance on FEMA determination of the 1% flood does not properly address the true flood risk for residents by:

1. Placing excessive emphasis on one flood hazard, the 1% flood, resulting in a false binary that outside the FEMA Flood Zones, there is no chance of flooding.
2. Relying on a decades old, obsolete and inaccurate map of the flood zones
    a. St. Tammany Flood Maps are based off a study done in the late 1970's, before the highest 5 floods of record.
3. FEMA does not address the large uncertainties in estimates based on the 1% flood, even on the most recent maps.
    a. For the Tchefuncte River west of Covington, the base flood elevation (1% or 100-year flood elevation) has been surpassed 5 times since the Flood Insurance Study was completed in 1979.
4. St. Tammany Parish does not acknowledge known flood hazards in the area unless it is based on the inaccurate FEMA Maps.

FEMA rewards communities for using higher standards than the minimum NFIP standards with reduced rates on flood insurance. Floodwater storage and storm water storage are higher standards that St. Tammany uses. There are other higher standards available for St. Tammany to further reduce flood insurance rates.

Historic Tchefuncte River Floods at the USGS Stream Gage Highway 190 Bridge West of Covington

BFE Approximately 30 feet

(1) 32.00 ft on 02/03/1988
(2) 31.25 ft on 02/28/1987
(3) 31.20 ft on 03/12/2016
(4) 30.02 ft on 08/14/2016
(5) 29.86 ft on 05/03/1953
(6) 28.70 ft on 01/21/1993
(7) 27.41 ft on 01/12/2013
(8) 27.34 ft on 07/01/2003
(9) 27.20 ft on 05/11/1995
(10) 26.81 ft on 08/31/2012
(11) 26.79 ft on 09/27/2002
(12) 26.48 ft on 04/27/1964
(13) 26.00 ft on 02/20/1988
(14) 25.43 ft on 10/05/2002
(15) 25.30 ft on 05/04/2008
(16) 24.81 ft on 06/08/2001
(17) 24.64 ft on 09/06/2011
(18) 24.00 ft on 03/04/1988
(19) 23.69 ft on 12/19/2009
(20) 23.24 ft on 03/30/2009

From Personal Experience, April 1983 was the highest flood, but was not recorded because the USGS Gage broke.

12 Of the 20 highest floods recorded since 1953 (56 years) have occurred in the last 19 years, when the area began to see major and minor subdivision development in the floodplain.

FEMA Flood Insurance Study used the May 3, 1953 flood as the flood of record to determine the BFE.

There have been 5 floods that have exceeded the 1953 flood since the FIS has been used.

Subdivisions that Flood in Tchefuncte River Floodplain

Permitted by St. Tammany Parish and built to or above BFE

Penn Mill Lakes March 12, 2016

Gottschalk Road March 12, 2016

Tuscany West March 12, 2016

Tantella Ranch Road

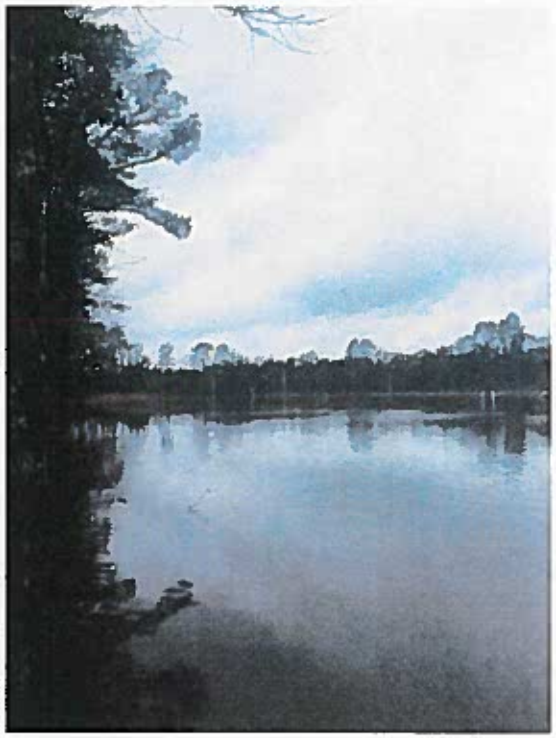
From Back of Army Rescue Truck March 2016

August 2016

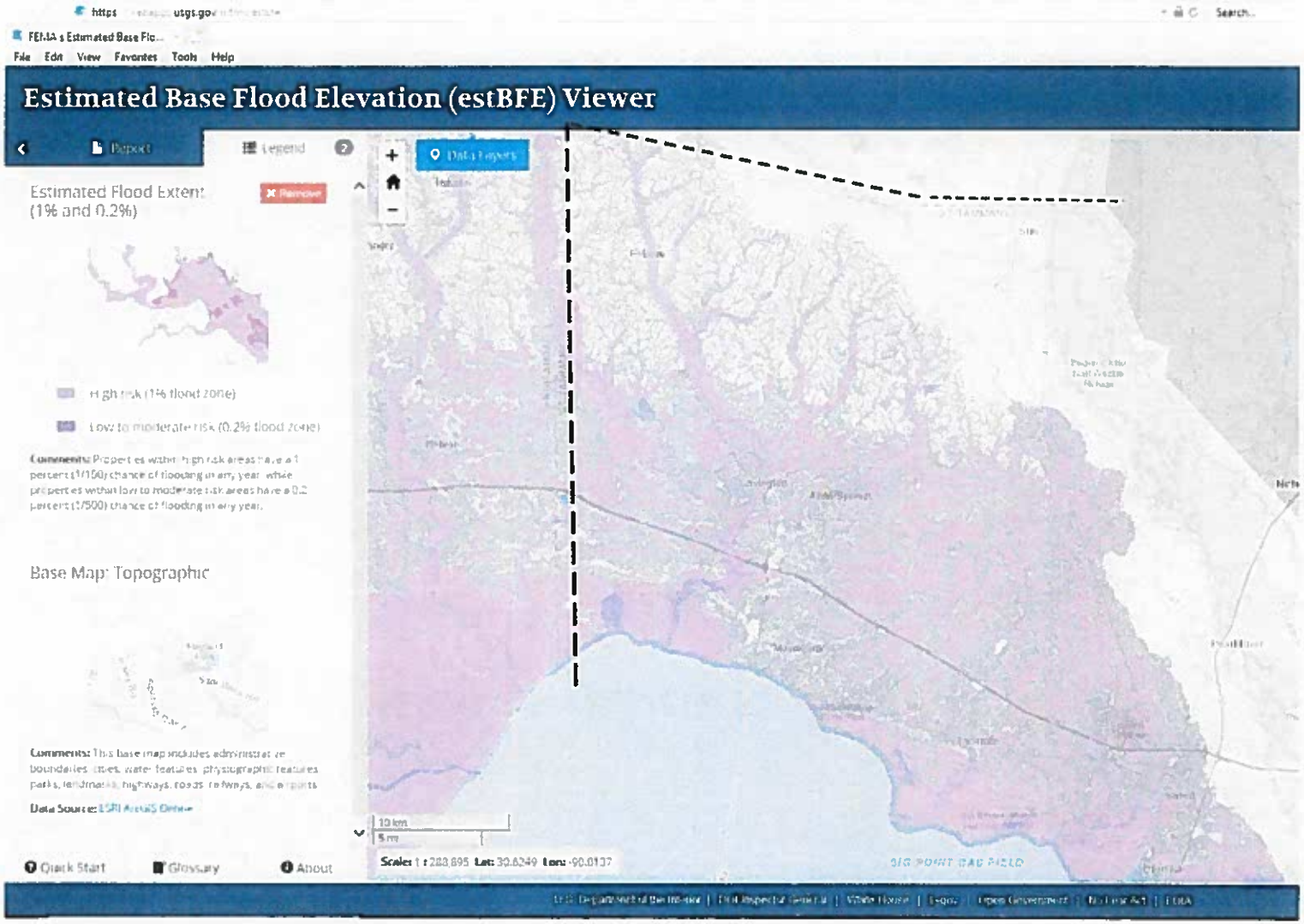
Country Side Gardens
March 2016

Pruden Creek Subdivision

March 2016 while under construction



December 28, 2018. Moderate Flood crest at 27 feet


Estimated Base Flood Elevation (estBFE) Viewer
Report
Legend
Data Layers
Estimated Flood Extent (1% and 0.2%)
Remove
High risk (1% flood zone)
Low to moderate risk (0.2% flood zone)
Base Map: Topographic
Quick Start
Glossary
About

COMPENSATORY STORAGE
AKA FILL MITIGATION
& STORMWATER DETENTION IN LOUISIANA

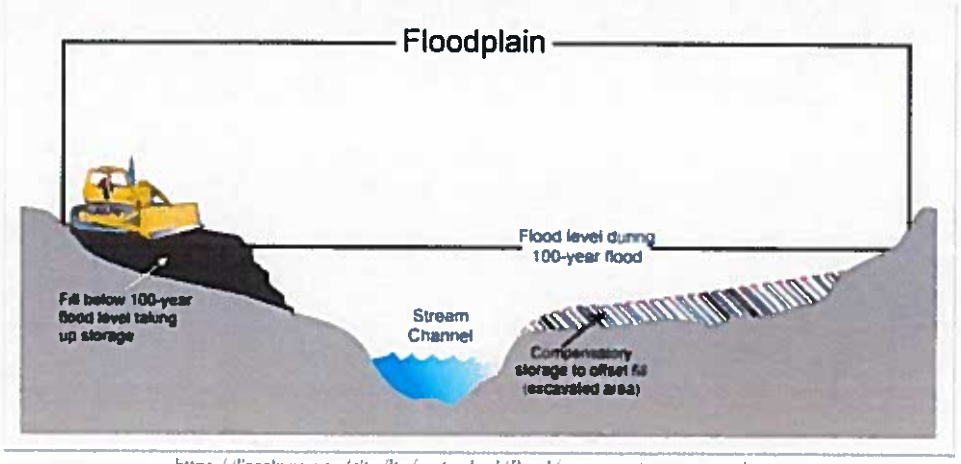
JASON ELLIS, P.E. (SLD ENGINEERING & SURVEYING)

FEBRUARY 11, 2019

COMPENSATORY STORAGE FEMA DEFINITION

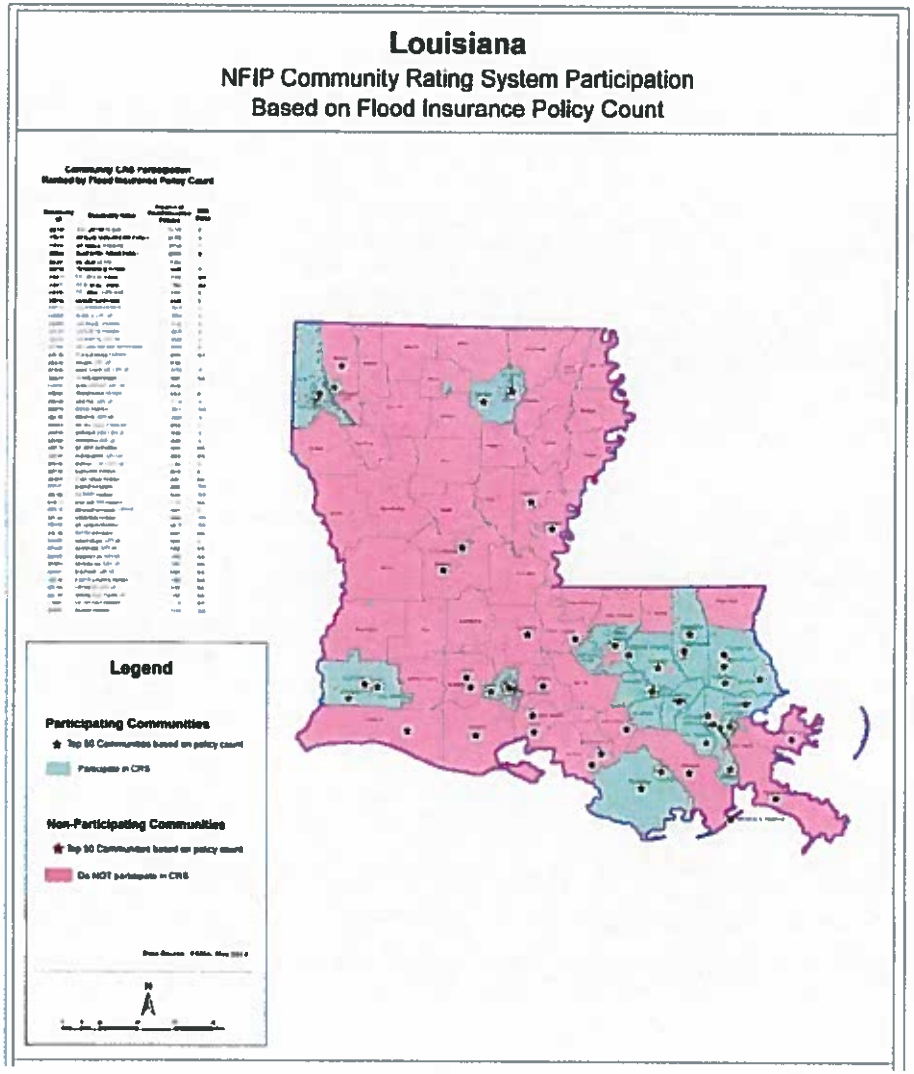
THE NFIP FLOODWAY STANDARD IN 44CFR 60.3 (D) RESTRICTS NEW DEVELOPMENT FROM OBSTRUCTING THE FLOW OF WATER AND INCREASING FLOOD HEIGHTS. HOWEVER, THIS PROVISION DOES NOT ADDRESS THE NEED TO MAINTAIN FLOOD STORAGE. ESPECIALLY IN FLAT AREAS, THE FLOODPLAIN PROVIDES A VALUABLE FUNCTION BY STORING FLOODWATERS. WHEN FILL OR BUILDINGS ARE PLACED IN THE FLOOD FRINGE, THE FLOOD STORAGE AREAS ARE LOST AND FLOOD HEIGHTS WILL GO UP BECAUSE THERE IS LESS ROOM FOR THE FLOODWATERS. THIS IS PARTICULARLY IMPORTANT IN SMALLER WATERSHEDS WHICH RESPOND SOONER TO CHANGES IN THE TOPOGRAPHY. ONE APPROACH THAT MAY BE USED TO ADDRESS THIS ISSUE IS TO REQUIRE COMPENSATORY STORAGE TO OFFSET ANY LOSS OF FLOOD STORAGE CAPACITY. SOME COMMUNITIES ADOPT MORE RESTRICTIVE STANDARDS THAT REGULATE THE AMOUNT OF FILL OR BUILDINGS THAT CAN DISPLACE FLOODWATER IN THE FLOOD FRINGE. COMMUNITY RATING SYSTEM CREDITS ARE AVAILABLE FOR COMMUNITIES THAT ADOPT COMPENSATORY STORAGE REQUIREMENTS.

https://www.fema.gov/compensatory-storage



https://lincoln.ne.gov/city/ltu/watershed/flood/compensatory-storage.htm

LOUISIANA CRS MAP



https://www.fema.gov/media-library/assets/documents/27808

Community CRS Participation
Ranked by Flood Insurance Policy Count

Community ID	Community Name	Number of Flood Insurance Policies	CRS Class
225199	JEFFERSON PARISH	97779	5
225201	NEW ORLEANS/ORLEANS PARISH	80075	5
225206	ST. TAMMANY PARISH	36736	7
225088	EAST BATON ROUGE, PARISH	29835	6
225201	KENNER, CITY OF	10197	7
225208	TERREBONNE PARISH	14403	6
225202	LAFOURCHE PARISH	12308	NA
225204	ST. BERNARD PARISH	12187	NA
220180	ST. CHARLES PARISH	11663	5
220113	LIVINGSTON PARISH	9408	5
220013	ASCENSION PARISH	9079	5
220204	SLIDELL, CITY OF	8062	5
220037	CALCASIEU PARISH	7120	6
220101	LAFAYETTE PARISH	6826	5
220105	LAFAYETTE, CITY OF	6588	5
220184	ST. JOHN THE BAPTIST PARISH	6503	5
220190	PLAQUEMINES PARISH	6068	NA
220229	HOUMA, CITY OF	5789	7
220040	LAKE CHARLES, CITY OF	5732	5
220221	VERMILION PARISH	4887	NA
220038	SHREVEPORT, CITY OF	4530	7
220206	TANGIPAHOA PARISH	4432	5
220186	GRETNA, CITY OF	3719	5
220079	IBERIA PARISH	3611	NA
220198	MONROE, CITY OF	3308	5
220282	MANDEVILLE, TOWN OF	3063	7
220033	BOSSIER CITY, CITY OF	3038	5
225200	HARAHAN, CITY OF	2949	5
220176	ST. MARTIN PARISH	2398	NA
220148	ALEXANDRIA, CITY OF	2264	NA
220186	MORGAN CITY, CITY OF	2199	6
220135	OUACHITA PARISH	2072	5
220083	CONCORDIA PARISH	2067	NA
220031	BOSSIER PARISH	2009	NA
220182	ST. MARY PARISH	1843	NA
220017	ASSUMPTION PARISH	1732	NA
220116	DENHAM SPRINGS, CITY OF	1687	5
220184	CAMERON PARISH	1684	NA
220165	ST. LANDRY PARISH	1678	NA
220146	RAPIDES PARISH	1567	NA
220084	WALSTHELGO, CITY OF	1533	5
220208	HAMMOND, CITY OF	1422	NA
220208	COVINGTON, CITY OF	1385	NA
220082	NEW IBERIA, CITY OF	1382	NA
220041	SULPHUR, CITY OF	1297	NA
220140	POINTE COUPEE PARISH	1293	NA
225196	CROWLEY, CITY OF	1209	NA
220197	GRAND ISLE, TOWN OF	1184	NA
220047	CATAHOULA PARISH	1178	NA
220001	ACADIA PARISH	1118	NA

FEMA COMMUNITY RATING SYSTEM (CRS) ACTIVITY 430 CREDIT FOR HIGHER REGULATORY STANDARDS

Common Problems

Some communities have submitted regulatory language that prohibits hazardous materials storage or one other type of critical facility. These have not received full PCF credit because they do not include the majority of critical facilities.

f. Protection of Floodplain Storage Capacity (PSC)

Although a building constructed on fill and elevated above the base flood elevation meets the NFIP regulations, filling a substantial portion of the floodplain reduces storage for flood water and tends to increase peak flows downstream. Prohibiting fill, or requiring that if fill is placed in the floodplain, an equal volume of storage be made available, will reduce this problem.

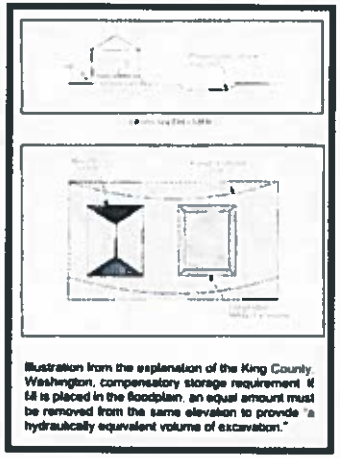


Illustration from the explanation of the King County, Washington, compensatory storage requirement. If fill is placed in the floodplain, an equal amount must be removed from the same elevation to provide "a hydraulically equivalent volume of excavation."

NFIP Requirement

The basic NFIP requirement in riverine situations is that new development must not restrict conveyance of floodwaters. A floodway is adopted to identify the area needed to convey the base flood and that area is kept free of obstructions (Sections 60.3(c)(10) and (d)(2) and (3)).

The balance of the floodplain, the fringe, may be filled or otherwise developed. Although the NFIP requirement has an important impact on future flood heights, it does not account for the loss of floodplain storage caused by allowing the fringe to be filled.

Storage is especially important in flat areas with wide floodplain fringes. Much of the slow-moving flood water is held in the fringe during a flood. Filling or constructing a levee that removes the storage capacity of the fringe means more water will be sent downstream, resulting in increased flood heights. On the other hand, in many places, building on fill is the safest form of floodplain construction, so communities should not summarily enact a prohibition just for CRS credit.

Scoring (maximum credit: 80 points)

Floodplain storage capacity can be preserved in two ways. The first is to simply prohibit fill, the major cause for loss of storage. Prohibiting fill will also prevent most floodplain development and will help preserve the natural and beneficial functions of the floodplain.

The other method is to require compensatory storage, i.e., the developer must compensate for each cubic foot of fill, building, or other item that is displacing flood water. Generally, this is done by removing an equal volume of fill from the lot, usually at the same elevation to maintain the same hydraulic conditions.

The credit for PSC is based on which approach is used.

1. 80, where regulations prohibit fill within floodplains or flood fringes, including construction of buildings on fill; or
2. 70, where regulations require that new developments provide compensatory storage at hydraulically equivalent sites.

Credit is not provided for protection of storage capacity in floodways only. Credit is not provided in coastal floodplains.

Example Regulatory Language

Whenever any portion of a floodplain is authorized for development, the volume of space occupied by the authorized fill or structure below the base flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the base flood elevation. All such excavations shall be constructed to drain freely to the watercourse. No area below the waterline of a pond or other body of water can be credited as a compensating excavation.

PSC = 70

[Another example can be found on page 61.]

No area below the waterline of a pond or other body of water can be credited as a compensating excavation

Records Needed for Verification

Prohibiting fill is verified by a review of site and grading plans. For compensatory storage, permit records are checked for engineering calculations showing the amount of compensatory storage needed and the site from which it is taken.

Common Problems

Some communities submit the section in their floodplain management ordinance that prohibits encroachments, including fill, from the floodway. This language is the minimum NFIP requirement from Section 60.3 (d)(3). Therefore, no credit is provided.

https://www.fema.gov/media-library/assets/documents/8651

LOUISIANA CRS PROFILE ACTIVITY 430 HIGHER REGULATORY STANDARDS

COMMUNITY RATING SYSTEM
Activity Descriptions

The following is a brief description of the eighteen (18) activities that receive credit under the Community Rating System. Only the activity numbers shown as (310, 320, ...) appear in the charts and graphs on the following pages.

- 300 Series - Public information

310 - Elevation Certificates
320 - Map Information Service
330 - Outreach Projects
340 - Hazard Disclosure
350 - Flood Protection Information
360 - Flood Protection Assistance

- 400 Series - Mapping and Regulations

410- Additional Flood Data
420 - Open Space Preservation
430 - Higher Regulatory Standards
440 - Flood Data Maintenance
450 - Stormwater Management

- 500 Series - Flood Damage Reduction

510- Floodplain Management Planning
520 - Acquisition and Relocation
530 - Flood Protection
540 - Drainage System Maintenance

- 600 Series - Flood Preparedness

610 - Flood Warning
620 - Levee Safety
630 - Dam Safety

Table 2.

Community	c310	c320	c330	c340	c350	c360	c410	c420	c430	c440	c450	c510	c520	c530	c540	c610	c620	c630	Total Points
Ascension Parish	86	140	84	25	83	61	0	44	214	126	43	98	105	0	330	85	0	68	1,690
Baker	112	140	139	15	12	0	0	0	95	0	0	143	0	0	215	85	0	68	1,025
Bossier City	56	140	111	15	38	0	0	38	236	89	75	168	65	0	195	9	0	68	1,382
Caddo Parish	70	140	56	15	16	0	19	54	113	104	95	98	140	8	0	35	0	68	1,050
Calcasieu Parish	60	140	25	25	37	0	0	44	132	120	75	135	115	84	215	102	0	68	1,382
Carencro	86	140	27	10	45	0	0	181	195	19	75	132	0	0	40	0	0	74	1,047
Denham Springs	70	140	71	15	20	0	0	0	100	10	105	121	0	15	285	0	0	68	1,071
Deridder	56	140	8	25	29	0	0	102	156	0	0	0	0	0	0	0	0	68	606
East Baton Rouge Parish	56	140	71	25	81	17	48	54	286	128	113	143	290	84	763	210	0	68	2,083
French Settlement	56	0	57	15	50	0	10	0	99	10	0	121	0	0	180	0	0	68	700
Gonzales	56	140	20	25	27	0	10	36	98	53	75	99	0	0	215	0	0	68	1,006
Greene	86	140	58	25	52	58	35	73	105	89	17	165	0	0	268	0	0	68	1,239
Hanahan	56	140	177	5	60	59	179	67	95	0	0	162	0	0	30	92	0	74	1,224
Houma	56	140	156	10	59	61	0	36	241	90	145	126	40	0	260	0	0	74	1,554
Jefferson Parish	56	140	154	5	67	66	157	446	178	81	15	164	105	84	330	130	0	74	2,213
Kenner	86	140	84	15	63	56	10	123	303	92	85	185	20	0	210	100	0	68	1,630
Lafayette Parish	66	140	18	15	59	0	0	36	251	123	74	120	0	0	315	0	0	68	1,329
Lafayette	60	140	18	15	59	0	0	36	201	123	74	120	0	0	315	0	0	68	1,284
Lake Charles	90	140	132	15	61	17	0	36	123	84	55	112	0	0	318	0	0	68	1,209
Livingston Parish	56	140	57	15	0	0	10	58	98	15	75	136	0	0	30	0	0	68	845
Lutcher	56	140	75	15	23	0	0	0	98	0	30	141	0	0	230	0	0	68	881
Mandeville	86	140	79	15	46	53	10	275	163	97	65	141	30	0	230	0	0	68	1,805
Morgan City	56	140	124	15	51	0	0	36	103	57	90	122	0	0	280	0	0	68	1,132
Orleans Parish	56	140	205	5	20	86	0	58	62	48	75	0	0	0	230	0	0	74	1,039
Ouachita Parish	56	140	77	15	50	0	0	149	167	10	0	148	0	0	30	0	0	68	923
Rayne	112	140	3	15	0	0	0	36	143	78	50	0	0	0	200	0	0	67	856
Ruston	56	0	68	15	20	0	0	36	241	101	60	0	0	0	240	0	0	68	945
Scott	80	140	15	15	29	0	0	36	141	139	79	120	0	0	240	0	0	68	1,101
Shreveport	110	140	56	15	16	62	80	44	184	184	78	101	245	0	190	150	0	68	1,725
Slidell	66	140	200	15	69	13	0	36	201	97	65	172	100	84	240	0	0	68	1,846
Sorrento	50	140	35	15	25	0	0	36	107	0	30	98	0	0	230	0	0	65	882
St. Charles Parish	96	140	54	25	89	66	0	144	146	100	30	136	85	0	130	185	0	66	1,730
St. Tammany Parish	51	140	30	10	25	0	0	144	225	105	55	230	265	17	205	0	0	68	1,718
St. James Parish	66	140	94	25	41	35	0	205	275	99	20	141	0	0	230	0	0	66	1,547
St. John The Baptist Parish	65	140	73	5	60	0	0	208	95	77	0	105	5	0	0	0	0	68	1,006
Tangipahoa Parish	56	0	4	15	14	0	0	58	103	107	0	87	0	0	115	0	0	68	642
Terrebonne Parish	56	140	158	10	63	63	0	46	241	90	144	122	300	168	280	0	0	74	2,021
Walker	30	140	47	5	21	66	0	36	0	19	70	0	0	0	200	0	0	74	709
West Baton Rouge Parish	56	140	99	25	69	31	122	139	403	77	0	0	0	0	330	0	0	68	1,639
Westwego	71	140	136	5	50	66	0	44	95	20	0	134	45	0	230	0	0	74	1,113
Zachary	56	140	159	25	48	0	0	36	204	109	104	202	0	0	259	150	0	68	1,563
Louisiana Average Credit	66	140	80	15	46	51	56	93	167	82	71	135	121	66	234	110	0	69	1,271
Louisiana % of Communities	100%	93%	100%	100%	95%	44%	28%	90%	98%	88%	78%	93%	39%	20%	93%	29%	0.0%	100%	
National Average Credit	66	140	99	14	45	47	89	182	291	97	111	129	237	79	201	93	312	63	1,538
National % of Communities	100%	93%	89%	75%	92%	47%	50%	91%	99%	90%	90%	49%	25%	13%	78%	40%	0.1%	91%	

https://crsresources.org/files/200/state-profiles/la-state_profile.pdf

ASCENSION PARISH FILL ORDINANCE

3. FOR RESIDENTIAL LOTS WHERE GREATER THAN 36" OF FILL IS REQUIRED, FOR A MAJOR OR MINOR SUBDIVISION OR FOR COMMERCIAL DEVELOPMENT.

(A) ANY VOLUME OF FILL PLACED BELOW THE BASE FLOOD ELEVATION SHALL BE COMPENSATED FOR AND BALANCED BY A HYDRAULICALLY EQUIVALENT VOLUME OF EXCAVATION TAKEN FROM BELOW THE BASE FLOOD ELEVATION:

(I) THE DETERMINING CRITERIA FOR LAND SUBJECT TO THIS REQUIREMENT SHALL BE ALL LAND BELOW THE BASE FLOOD ELEVATION AS DETERMINED BY ACTUAL ON-THE-GROUND CONTOURS REFERENCED TO THE OFFICIAL PARISH BENCHMARK SYSTEM, REGARDLESS OF WHETHER THE FEMA FLOOD INSURANCE RATE MAPS (FIRM) DEPICT THE PROPERTY IN QUESTION TO BE IN A RECOGNIZED FLOOD ZONE.

(II) WHERE LAKES ARE EXCAVATED, THE VOLUME OF DIRT REMOVED BELOW THE NORMAL WATER SURFACE (POOL ELEVATION) OF THE LAKE CANNOT BE CREDITED AS COMPENSATING STORAGE.

(III) COMPENSATING STORAGE EXCAVATIONS MUST BE CONSTRUCTED TO DRAIN FREELY TOWARDS THE ESTABLISHED DRAINAGE FOR THE AREA. DEAD STORAGE VOLUME WILL NOT BE CREDITED TOWARDS FILL MITIGATION.

(IV) IF THE COMPENSATING STORAGE IS DERIVED FROM AN OFF-SITE SOURCE THAT IS NOT A PART OF THE PROPOSED DEVELOPMENT IT MUST BE LOCATED IN THE SAME WATERSHED AS THE PROPOSED DEVELOPMENT AND THE BASE FLOOD ELEVATION AT THE OFF-SITE SOURCE SHALL NOT BE GREATER THAN ONE (1) FOOT HIGHER THAN OR ONE (1) FOOT LOWER THAN THE BASE FLOOD ELEVATION OF THE DEVELOPED SITE.

(V) EXCESS STORAGE CREDITS MAY BE CREATED BY A DEVELOPMENT AND UTILIZED BY ANOTHER DEVELOPMENT IF IT MEETS THE CRITERIA OF SECTION 17-507.B.3.A.IV IF EXCESS CREDITS ARE CREATED BY A DEVELOPMENT, THE OFFICE OF PLANNING & DEVELOPMENT SHALL ISSUE A CREDIT LETTER THAT MAY BE UTILIZED BY ANOTHER PROJECT IN THE SAME WATERSHED WITHIN FIVE (5) YEARS OF THE ISSUANCE OF THE LETTER.

(VI) WAIVERS TO THIS SECTION DUE TO A PROPERTY OWNER'S

INABILITY TO GENERATE FILL CREDITS MAY BE MADE ON A CASE BY-CASE BASIS BY THE DIRECTOR OF THE DEPARTMENT OF PLANNING & DEVELOPMENT AND/OR THE APPROPRIATE GRAVITY DRAINAGE DISTRICT.

(ORD.# DR07-01, 9/6/07; DR09-01, 716/09; DC09-09, 12/17/09; DR13-11, 12/05/13)

http://www.ascensionparish.net/downloads/planning/code/09drainage.pdf

CALCASIEU PARISH FILL ORDINANCE

F. *FILL MITIGATION REQUIREMENTS*.

1.NO FILL OF ANY TYPE SHALL BE PLACED ON OR OVER ANY PORTION OF A REGULATORY FLOODWAY, COASTAL HIGH HAZARD AREA OR ANY AREAS OF SPECIAL FLOOD HAZARD OR THE FLOODPLAIN, EXISTING WATERCOURSE WHICH, ALONE OR CUMULATIVELY WITH OTHER SUCH ACTIVITIES, WOULD CAUSE OR RESULT IN A BARRIER THAT WILL ADVERSELY AFFECT THE EFFICIENCY OF, OR RESTRICT THE FLOW OR CAPACITY OF, A DESIGNATED FLOODWAY OR WATERCOURSE SO AS TO CAUSE FORESEEABLE DAMAGE TO OTHERS, WHEREVER LOCATED. FOR THE PURPOSE OF FILL MITIGATION REQUIREMENTS, SITE SPECIFIC STAGE-STORAGE CURVES FOR THE PRE AND POST DEVELOPMENT CONDITIONS SHALL BE PREPARED AND COMPARED FOR CONSISTENCY, CONFORMANCE AND BALANCE SO THAT NO NET LOSS IN STAGE-STORAGE RELATIONSHIP RESULTS FOR THE DEVELOPMENT FOR BOTH THE 10-YEAR AND 100-YEAR STORMS. FILL MITIGATION PLAN SHOULD FULLY COMPENSATE FOR ANY FILL OR POTENTIAL TO BE DEPOSITED WITH IN THE DELINEATED FLOODPLAIN. DEVELOPER MAY DECIDE TO LIMIT FUTURE FILL PLACEMENT IN RESTRICTED AREAS TO REDUCE MITIGATION REQUIREMENTS. THE FILL PROPOSED UNDER THE REQUIREMENTS OF THIS SECTION DOES NOT NECESSARILY NEED TO BE PLACED AT THE TIME OF SUBDIVISION CONSTRUCTION, BUT THIS PROPOSED FILL IS INTENDED TO INCLUDE THE COMPLETE REQUIREMENTS FOR FUTURE DEVELOPMENT INCLUDING LIMIT AND QUANTITIES OF ALLOWABLE FILL THAT MAY BE PLACED LATER. ALL FILL MUST BE PRE-MITIGATED UNLESS THE FINAL PLAT INCLUDES RESTRICTIONS ON PLACEMENT OF ADDITIONAL FILL IN EXCESS OF THE MITIGATION PLAN.

2.A FILL MITIGATION PLAN SHALL BE SUBMITTED BY A CERTIFIED LICENSED LOUISIANA ENGINEER AND IS SUBJECT TO REVIEW AND APPROVAL OR DENIAL BY THE FLOODPLAIN ADMINISTRATOR, THE PARISH ENGINEER OR DESIGNEE.

3.SUBMITTAL REQUIREMENTS. (INFORMATION FOR FILL MITIGATION SHALL BE INCORPORATED INTO THE REQUIRED SITE GRADING PLAN FOR REVIEW AND APPROVAL.)

I. DELINEATED 100-YEAR FLOODPLAIN ELEVATION ON PREDEVELOPMENT CONSTRUCTION ONE-FOOT CONTOUR INTERVALS.

II. POST DEVELOPMENT ONE-FOOT CONTOURS.

III. POST DEVELOPMENT FILL VOLUME TO BE DEPOSITED BELOW THE DESIGNATED 100-YEAR FLOOD ELEVATION.

IV. LOCATION OF PROPOSED FILL CREDITS TO MITIGATE THE FILL VOLUME BELOW THE DELINEATED 100-YEAR FLOOD ELEVATION WITH CROSS-SECTIONS.

V. WATERSHED BOUNDARIES ARE TO BE INCLUDED.

4. *ADDITIONAL REQUIREMENTS*.

I. WHERE DETENTION PONDS ARE TO BE EXCAVATED, THE VOLUME OF DIRT REMOVED BELOW THE NORMAL POOL WATER SURFACE LEVEL OF THE REQUIRED MINIMUM POND SIZE CANNOT BE CREDITED AS COMPENSATING FILL MITIGATION VOLUME.

II. IF THE COMPENSATING STORAGE FOR FILL MITIGATION IS DERIVED FROM AN OFF-SITE SOURCE THAT IS NOT PART OF THE DEVELOPMENT, THE STORAGE MUST BE LOCATED IN THE SAME WATERSHED AS THE DEVELOPMENT. ADDITIONALLY, THE BASE FLOOD ELEVATION AT THE OFF-SITE SOURCE SHALL NOT BE GREATER THAN ONE (1) FOOT ABOVE OR BELOW THE BASE FLOOD ELEVATION OF THE DEVELOPMENT SITE.

III. FILL REQUIRED FOR NEW CONSTRUCTION, BUILDING PADS OR ANY DEVELOPMENT SHALL MEET THE FOLLOWING STANDARDS:

(A) FILL ABOVE NATURAL GROUND SHOULD NOT BE PLACED ANY CLOSER THAN FIVE (5) FEET TO ANY PROPERTY LINE IN ORDER TO FACILITATE THE COLLECTION AND TRANSPORTATION OF ANY RUNOFF VIA SIDE-YARD SWALES WHERE NECESSARY.

5. *FILL MITIGATION EXEMPTION*.

I. THE PARISH ENGINEER OR DESIGNEE SHALL ISSUE A WAIVER FOR EITHER PARTIAL OR FULL FILL MITIGATION REQUIREMENTS BASED ON ONE (1) OF THE FOLLOWING (DEVELOPER MAY ONLY USE EITHER OPTION 1 OR 2 WHEN DETERMINING REQUIRED FILL MITIGATION VOLUMES):

(A) MINIMAL FILL UTILIZED FOR FILLING OF DEPRESSIONS OR REGRADING THE SITE TO PROMOTE POSITIVE DRAINAGE SHALL NOT BE REQUIRED TO BE MEASURED FOR FILL MITIGATION PURPOSES IF IT DOES NOT EXCEED 6-INCHES ABOVE THE PREVAILING NATURAL GROUND;

(B) TEN (10) PERCENT OF TOTAL CALCULATED FILL VOLUME CALCULATED IN PREPARATION OF THE OVERALL FILL MITIGATION PLANS MAY BE EXEMPTED FROM THE TOTAL REQUIRED MITIGATION VOLUME TO ACCOUNT FOR VARIATIONS IN GROUND CONDITIONS.

II. ON A CASE BY CASE BASIS, DUE TO A DEVELOPER'S INABILITY TO GENERATE FILL CREDITS, THE PARISH ENGINEER MAY ISSUE A WAIVER FOR FILL MITIGATION REQUIREMENTS BASED ON THE DEVELOPER PROVIDING ADEQUATE INFORMATION THAT CREDITS ARE NOT OBTAINABLE AND/OR ALTERNATE DESIGN CONSTRUCTION TECHNIQUES CANNOT BE UTILIZED.

EAST BATON ROUGE PARISH FILL ORDINANCE

F. USE OF FILL MATERIAL RESTRICTED.

1. EXCEPT AS PROVIDED BELOW, IN SPECIAL FLOOD HAZARD AREAS NO ON-SITE OR OFF-SITE FILL MATERIAL SHALL BE ALLOWED EXCEPT FOR:

A. FILL REQUIRED FOR CONSTRUCTION. THIS EXEMPTION SHALL APPLY TO IF THE COMBINED AREA OF ALL STRUCTURES ON THE LOT IS NO MORE THAN 3,500 SQUARE FEET.

B. BUILDING PADS FOR MANUFACTURED HOMES AND PIER/COLUMN CONSTRUCTION. THIS EXEMPTION SHALL ALLOW FOR THE BUILDING PAD TO BE FILLED TO A MAXIMUM OF 18 INCHES ABOVE NATURAL GRADE UNDER THE ELEVATED STRUCTURE TO FACILITATE DRAINAGE. THE BUILDING PAD SHALL BE TRANSITIONED BACK TO NATURAL GRADE WITHIN FIVE FEET OF THE OUTSIDE LIMITS OF THE FOOTPRINT OF THE ELEVATED STRUCTURE.

C. TRANSITION OF DRIVEWAYS INTO CARPORTS OR GARAGES. THE TRANSITION DISTANCE SHALL EXTEND ONLY THROUGH THE LIMITS OF THE STRUCTURE. THE DRIVEWAY FROM THE STREET CONNECTION TO THE START OF TRANSITION SHALL BE CONSTRUCTED IN SUCH A MANNER THAT THE FINISHED DRIVEWAY GRADE IS AT OR BELOW THE NATURAL GRADE PRIOR TO CONSTRUCTION. APPROPRIATE DRAINAGE FACILITIES SHALL BE PROVIDED TO PREVENT THE REDIRECTION OF RUNOFF WATER ONTO ADJACENT PROPERTIES OR THE BLOCKAGE OF SURFACE SHEET RUNOFF. FILL RESTRICTIONS SHALL NOT APPLY TO IMPROVEMENT AND REASONABLE TRANSITION GRADING ON EXISTING TRACTS OR LOTS OF FIVE ACRES OR LESS LOCATED WITHIN EXISTING RECOGNIZED SUBDIVISIONS THAT HAVE NOT EXPERIENCED ANY REPORTED INUNDATION OF STRUCTURES CONSTRUCTED AFTER JULY 2, 1979.

2. UNLESS OTHERWISE PROVIDED, NO FILL SHALL BE PERMITTED IN SPECIAL FLOOD HAZARD AREAS UNLESS, THE FILL IS MITIGATED BY EXCAVATION AND MEETS THE FOLLOWING REQUIREMENTS: NO ENCROACHMENTS, INCLUDING FILL FOR DEVELOPMENT OR OTHER PURPOSES, NEW CONSTRUCTION, SUBSTANTIAL IMPROVEMENTS OR OTHER TYPE OF DEVELOPMENTS, WILL BE ALLOWED UNLESS A TECHNICAL EVALUATION DEMONSTRATES THAT THE PROPOSED ENCROACHMENTS WILL NOT DECREASE THE EXISTING VOLUME STORAGE CAPACITY, BASED UPON THE BASE FLOOD ELEVATION, WITHIN THE BOUNDARIES OF THE PROPOSED DEVELOPMENT OR ENCROACHMENT SITE LOCATED WITHIN THE SPECIAL FLOOD HAZARD AREA. ADDITIONALLY, ENCROACHMENT SHALL NOT INCREASE THE EXISTING CALCULATED BASE FLOOD ELEVATION.

A TECHNICAL EVALUATION SHALL INCLUDE ANY ONE OR A COMBINATION OF THE FOLLOWING METHODS:

A. FOR DEVELOPMENTS WITH PROPOSED ON-SITE FILL AND EXCAVATION CONSTRUCTION (NO IMPORTED OR OFF-SITE FILL), A BEFORE AND AFTER DEVELOPMENT CONSTRUCTION GRADING PLAN SHALL BE PROVIDED TO SHOW NO DECREASE IN THE EXISTING FLOOD VOLUME STORAGE CAPACITY BELOW THE BASE FLOOD ELEVATION ESTABLISHED FOR THE SITE.

(1) FILL SHALL NOT BE USED TO RESTRICT THE EXISTING CHANNEL CROSS-SECTIONAL AREA.

(2) FOR CHANNELS WITH INTERMITTENT FLOW, THE EXCAVATION SITE SHALL DRAIN TO THE EXISTING ADJACENT CHANNEL.

(3) FOR CHANNELS WITH CONTINUOUS FLOW, THE EXCAVATION SITES SHALL DRAIN TO THE EXISTING CHANNEL.

(4) FOR MITIGATION PURPOSES, NO CREDIT SHALL BE GIVEN FOR THAT PORTION OF THE EXCAVATION THAT IS LOWER THAN THE EXISTING CHANNEL.

ST. TAMMANY PARISH FILL ORDINANCE

(7) NONRESIDENTIAL STANDARDS. ANY PAVING, GRADING, EXCAVATION, OR PLACEMENT OF FILL ON COMMERCIAL, INDUSTRIAL, INSTITUTIONAL OR MULTIFAMILY DEVELOPMENT SITES MUST OBTAIN AN APPROVED DEVELOPMENT PLAN IN THE FORM OF A PROPERLY ISSUED BUILDING PERMIT, SITE WORK PERMIT OR SUBDIVISION WORK ORDER PRIOR TO THE COMMENCEMENT OF WORK. IN CASES OF COMMERCIAL, INDUSTRIAL, OR INSTITUTIONAL DEVELOPMENT ON ANY LOT OR PARCEL OF PROPERTY THAT HAS ANY PART THEREOF LOCATED WITHIN A CRITICAL DRAINAGE AREA, THE PLACEMENT OF FILL ON SUCH LOT OR PARCEL MAY BE PERMITTED, IN THE DISCRETION OF THE DEPARTMENT OF ENGINEERING, PROVIDED THAT:

A. SOIL MATERIAL IN A VOLUME EQUAL TO THE FILL MATERIAL PROPOSED TO BE PLACED ON THE PROPERTY IS EXCAVATED AND REMOVED FROM THE PROPERTY, SUCH THAT THE FLOOD STORAGE CAPACITY OF THE PROPERTY IS MAINTAINED FOR A 100-YEAR FREQUENCY FLOOD EVENT;

B. OFF-SITE MITIGATION WILL BE PROVIDED, AND THE DEPARTMENT OF PLANNING AND DEVELOPMENT ALSO DETERMINES THAT THERE WILL BE NO LOSS OF FLOODPLAIN STORAGE AND NO LOSS OF STREAM FLOW CAPACITY. IT IS EXPRESSLY PROHIBITED TO UTILIZE OFF-SITE MITIGATION WITHIN THE BOUNDARIES OF GRAVITY DRAINAGE DISTRICT NO. 5;

C. THE APPLICANT CAN DEMONSTRATE THAT NO ADVERSE IMPACTS WILL OCCUR TO ADJACENT PROPERTIES, TO OTHER PROPERTIES WITHIN THE SUBJECT WATERSHED, AND TO THE FUNCTION OF THE CRITICAL DRAINAGE AREA; AND

D. THE PROPOSED DEVELOPMENT COMPLIES WITH ALL OTHER APPLICABLE DRAINAGE REGULATIONS.

(ORD. NO. 499, § 40-037.06, 5-21-1970; ORD. NO. 01-0336, 6-5-2001; ORD. NO. 05-1089, 4-7-2005)

(4) PROCEDURES.

A. ANY REQUEST FOR APPROVAL TO PLACE FILL ON A LOT OR PARCEL GOVERNED BY THIS CHAPTER SHALL INCLUDE A DETAILED DESCRIPTION OF THE FILL ACTIVITY. A DRAINAGE AND PAVING PLAN, IF REQUIRED, MUST BE COMPLETED IN ACCORDANCE WITH SECTION 115-111. AN EXISTING AND PROPOSED GRADE ELEVATION FORM, IF REQUIRED, MUST BE PREPARED BY A STATE-LICENSED ENGINEER OR LAND SURVEYOR AND INCLUDE THE FOLLOWING INFORMATION:

1. VOLUME OF FILL TO BE PLACED;

2. THE FOOTPRINT OF THE FILL WORK;

3. VOLUME AND SOURCE LOCATION OF ANY EXCAVATION WORK;

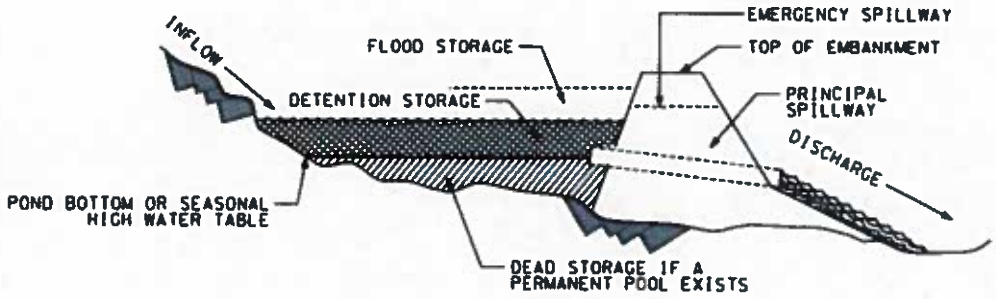
4. THE LOCATION OF THE ULTIMATE DISPOSITION OF THE SPOIL BEING REMOVED;

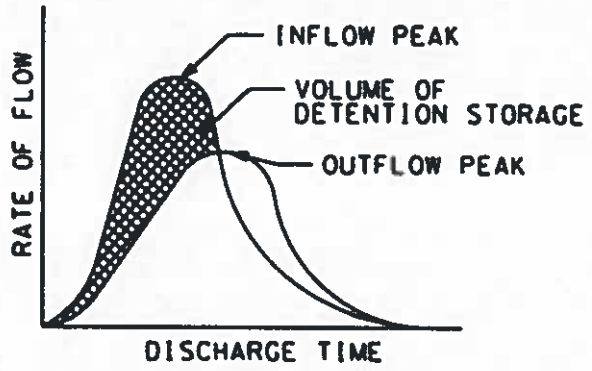
5. THE DIRECTION OF WATER FLOW ACROSS THE SITE;

6. A PROFILE THROUGH THE CONSTRUCTION FOOTPRINT SHOWING THE NATURAL AND FINISHED ELEVATIONS OF THE SITE; AND

7. THE SEDIMENT RETENTION MEASURES PROPOSED FOR THE SITE.

DETENTION PONDS & PEAK FLOW ATTENUATION





https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/drainage_manual/DM-Chapter_08.pdf

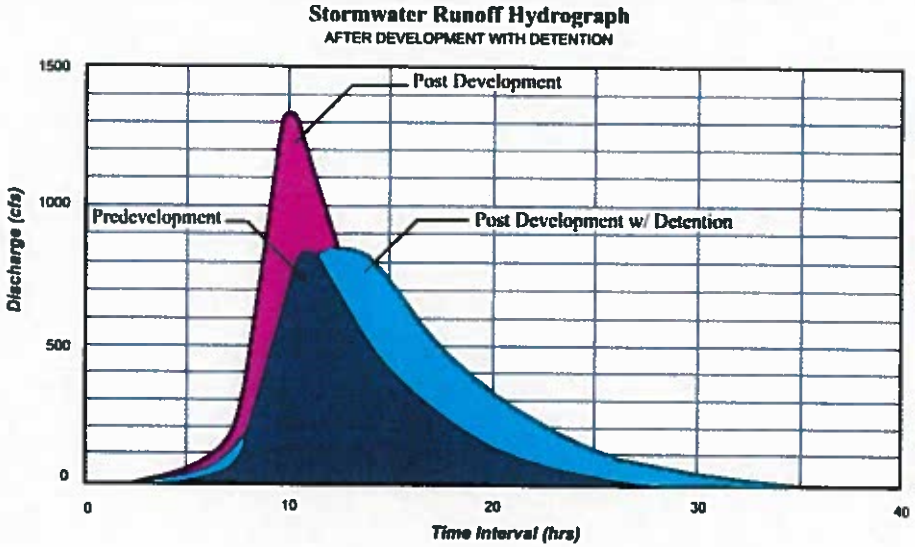


Figure 2-14. Hydrographs Comparing Pre-development Conditions to Post-development Conditions, with Detention Stormwater Management.

http://www.dep.state.pa.us/dep/subject/advcoun/stormwater/Manual_Draft/Jan05/Section02-jan-rev.pdf

"Detention" - The delay of stormwater runoff prior to discharge into receiving waters.
"Detention volume" - The volume of open surface storage behind the discharge structure between the overflow elevation and control elevation.
"Wet detention systems" - Permanently wet ponds which are designed to slowly release collected stormwater runoff through an outlet structure.

FEMA COMMUNITY RATING SYSTEM (CRS) ACTIVITY 450 CREDIT FOR STORMWATER MANAGEMENT

National Flood Insurance Program
Community Rating System

CRS Credit for Stormwater Management

2006

FEMA

Design Storms (DS)

DS credit is provided based on the design sizing of the runoff control facilities. For DS credit, the community's regulations generally must require pre- and post-development hydrology calculations and post-development runoff must be limited to pre-development levels. The standard used may be peak flow, volume, or a combination of the two.

DS is the total of the following points based on the design storms used in the regulations (i.e., the storms used to measure the impact of new developments). For DS credit, the community's regulations must require pre- and post-development hydrology calculations and post-development runoff must be limited to pre-development levels. The standard used may be peak flow, volume, or a combination of the two.

(a) 60, if detention/retention is designed for the 100-year storm;

(b) 20, if detention/retention is designed for a storm larger than the 10-year but smaller than the 100-year storm; and

(c) 10, if detention/retention is designed for a 10-year storm.

The basic requirement is that the peak flow after development must not be increased as a result of the development. Picturing the change from farmland to subdivision, how is this done?
Generally, the developer builds a storage basin at the lower end of the development to store the extra water that runs off. Usually, the developer is allowed to release the water from this storage basin at the peak flow rate before development.

https://www.fema.gov/media-library-data/20130726-1558-20490-7059/stormwatercredit2006.pdf

LOUISIANA CRS PROFILE ACTIVITY 450 STORMWATER MANAGEMENT

COMMUNITY RATING SYSTEM
Activity Descriptions

The following is a brief description of the eighteen (18) activities that receive credit under the Community Rating System. Only the activity numbers shown as (310, 320, ...) appear in the charts and graphs on the following pages.

- 300 Series - Public Information

310 - Elevation Certificates
320 - Map Information Service
330 - Outreach Projects
340 - Hazard Disclosure
350 - Flood Protection Information
360 - Flood Protection Assistance

- 400 Series - Mapping and Regulations

410- Additional Flood Data
420 - Open Space Preservation
430 - Higher Regulatory Standards
440 - Flood Data Maintenance
450 - Stormwater Management

- 500 Series - Flood Damage Reduction

510- Floodplain Management Planning
520 - Acquisition and Relocation
530 - Flood Protection
540 - Drainage System Maintenance

- 600 Series - Flood Preparedness

610 - Flood Warning
620 - Levee Safety
630 - Dam Safety

Table 2.

Community	c310	c320	c330	c340	c350	c360	c410	c420	c430	c440	c450	c510	c520	c530	c540	c610	c620	c630	Total Points
Ascension Parish	96	140	54	25	93	61	0	44	214	126	45	99	105	0	330	95	0	59	1,680
Baker	112	140	139	15	12	0	0	0	95	0	0	143	0	0	215	85	0	68	1,025
Bossier City	56	140	111	15	38	0	0	38	238	89	75	168	65	0	195	9	0	68	1,340
Caddo Parish	70	140	56	15	16	0	19	54	113	104	85	98	140	6	0	28	0	59	1,055
Calcasieu Parish	60	140	25	25	37	0	0	44	132	120	75	136	115	84	215	102	0	68	1,380
Carencro	68	140	27	10	45	0	0	181	195	19	75	132	0	0	40	0	0	74	1,047
Denham Springs	70	140	71	15	20	0	0	0	100	10	105	121	0	13	205	0	0	59	1,071
Denidder	56	140	8	25	29	0	0	102	156	0	0	0	0	0	0	0	0	68	606
East Baton Rouge Parish	56	140	71	25	91	17	48	54	286	126	113	143	200	84	263	210	0	68	2,083
French Settlement	56	0	57	15	50	0	10	0	95	10	0	121	0	0	180	0	0	68	700
Gonzales	56	140	20	25	27	0	10	36	96	53	75	96	0	0	210	0	0	68	1,006
Gretna	86	140	58	25	52	58	35	73	105	89	17	185	0	0	268	0	0	59	1,239
Harahan	59	140	177	5	80	59	179	87	95	0	0	152	0	0	30	60	0	74	1,204
Houma	56	140	158	10	59	63	0	36	241	90	145	128	40	0	260	0	0	74	1,554
Jefferson Parish	56	140	154	5	67	66	157	448	139	81	15	184	105	84	330	130	0	74	2,213
Kenner	96	140	84	15	83	56	10	123	303	92	95	160	20	0	210	100	0	59	1,630
Lafayette Parish	66	140	18	15	59	0	0	36	201	123	74	120	0	0	315	0	0	59	1,329
Lafayette	60	140	18	15	59	0	0	36	201	123	74	120	0	0	315	0	0	68	1,284
Lake Charles	50	140	132	15	61	17	0	36	123	64	55	115	0	0	219	0	0	59	1,206
Livingston Parish	56	140	57	15	0	0	10	56	96	15	75	136	0	0	30	0	0	68	845
Lutcher	56	140	75	15	23	0	0	0	96	0	30	141	0	0	230	0	0	68	881
Mandeville	66	140	78	15	46	63	10	275	163	97	65	141	30	0	210	0	0	59	1,609
Morgan City	56	140	134	15	51	0	0	36	103	57	80	122	0	0	280	0	0	68	1,132
Orleans Parish	56	140	205	5	20	66	0	58	62	48	75	0	0	0	230	0	0	74	1,039
Ouachita Parish	56	140	77	15	50	0	0	149	167	10	0	148	0	0	30	0	0	68	923
Rayne	112	140	3	15	0	0	0	36	143	78	50	0	0	0	200	0	0	67	856
Ruston	56	0	68	15	20	0	0	36	241	101	80	0	0	0	240	0	0	68	949
Scott	80	140	15	15	29	0	0	36	141	139	79	120	0	0	240	0	0	68	1,161
Shreveport	110	140	56	15	16	62	60	44	194	194	78	101	245	0	190	150	0	68	1,725
Slidell	66	140	200	15	69	13	0	36	201	97	65	172	100	84	240	0	0	68	1,645
Sorrento	50	140	33	15	25	0	0	36	107	0	30	98	0	0	230	0	0	68	882
St. Charles Parish	95	140	54	25	89	66	0	144	145	109	50	136	65	0	330	185	0	68	1,730
St Tammany Parish	81	140	30	10	25	0	0	148	226	105	55	230	205	17	208	0	0	68	1,716
St James Parish	66	140	84	25	41	25	0	205	275	89	20	141	0	0	230	0	0	68	1,547
St. John The Baptist Parish	65	140	73	5	80	0	0	264	95	77	0	105	5	0	0	0	0	68	1,006
Tangipahoa Parish	56	0	4	15	14	0	0	56	103	107	0	67	0	0	115	0	0	68	642
Terrebonne Parish	56	140	158	10	83	63	0	46	241	90	144	172	300	168	280	0	0	74	2,021
Walker	50	140	47	5	21	66	0	36	0	10	70	0	0	0	200	0	0	74	719
West Baton Rouge Parish	56	140	99	25	89	31	122	136	403	77	0	0	0	0	330	0	0	68	1,636
Westwego	71	140	136	5	50	66	0	44	95	20	0	134	45	0	230	0	0	74	1,111
Zachary	56	140	159	25	46	0	0	36	204	109	104	252	0	0	256	150	0	68	1,583
Louisiana Average Credit	66	140	80	15	46	51	56	93	187	82	71	135	121	66	224	110	0	69	1,771
Louisiana % of Communities	100%	93%	100%	100%	95%	44%	29%	90%	98%	88%	78%	85%	39%	20%	93%	29%	0.0%	100%	
National Average Credit	68	140	99	14	45	47	89	182	291	97	111	129	237	79	201	93	312	63	1,526
National % of Communities	100%	93%	99%	75%	92%	47%	50%	91%	93%	90%	90%	49%	25%	13%	78%	40%	0.1%	91%	

https://crsresources.org/files/200/state-profiles/la-state_profile.pdf

COMPARISON OF LOUISIANA DETENTION POND DESIGN REQUIREMENTS BY PARISH

ASCENSION PARISH (25 YEAR DESIGN STORM) HTTP://WWW.ASCENSIONPARISH.NET/DOWNLOADS/PLANNING/01301DRAINAGEIMPACTSTUDY.PDF

CALCASIEU PARISH (25 YEAR DESIGN STORM) HTTPS://LIBRARY.MUNICODE.COM/LA/CALCASIEU_PARISH_POLICE_JURY/CODES/CODE_OF_ORDINANCES?NODEID=COOR_CH26ZODE_ARTIIIZO_DIV2GEDEST_S26-45DEST

EAST BATON ROUGE PARISH (25 YEAR DESIGN STORM) HTTPS://WWW.BRLA.GOV/DOCUMENTCENTER/VIEW/2257/CHAPTER-15---FLOODWAYS-FLOODPLAINS-DRAINAGE-AND-WATER-QUALITY-PDF

LAFAYETTE PARISH (25 YEAR DESIGN STORM) HTTP://WWW.LAFAYETTELA.GOV/PZD/DOCUMENTS/UNIFIED%20DEVELOPMENT%20CODE.PDF

LIVINGSTON PARISH (25 YEAR DESIGN STORM) HTTPS://LIBRARY.MUNICODE.COM/LA/LIVINGSTON_PARISH_COUNCIL/ORDINANCES/CODE_OF_ORDINANCES?NODEID=937202

ST TAMMANY PARISH (100 YEAR DESIGN STORM + 25% REDUCTION)
HTTPS://LIBRARY.MUNICODE.COM/LA/ST_TAMMANY_PARISH/CODES/CODE_OF_ORDINANCES?NODEID=PTIIILADECO_CH125SURE_ARTVISTPLREPR_S125-139THYSTPL

TERREBONNE PARISH (25 YEAR DESIGN STORM) HTTPS://LIBRARY.MUNICODE.COM/LA/TERREBONNE_PARISH/CODES/CODE_OF_ORDINANCES?NODEID=PTIIPACO_APXBSTORDEDEMA_S1.5YSTORDEFA

Louisiana Watershed Initiative Update

MARCH 11, 2019

Evelyn Campo, CFM

Resilience Planning Analyst, Louisiana Office of Community Development

LOUISIANA
WATERSHED
INITIATIVE

working together for sustainability and resilience

Agenda

- Introduction/Recap
- Statewide Data & Modeling
- Project Funding: Round 1
- Outreach Activities

Intro to the Louisiana Watershed Initiative

It's not a matter of if Louisiana will flood again, it's when. **NOW is the time to act.**

LOUISIANA WATERSHED INITIATIVE

WORKING TOGETHER FOR SUSTAINABILITY AND RESILIENCE

Water Knows No Boundary

It requires a new way of thinking

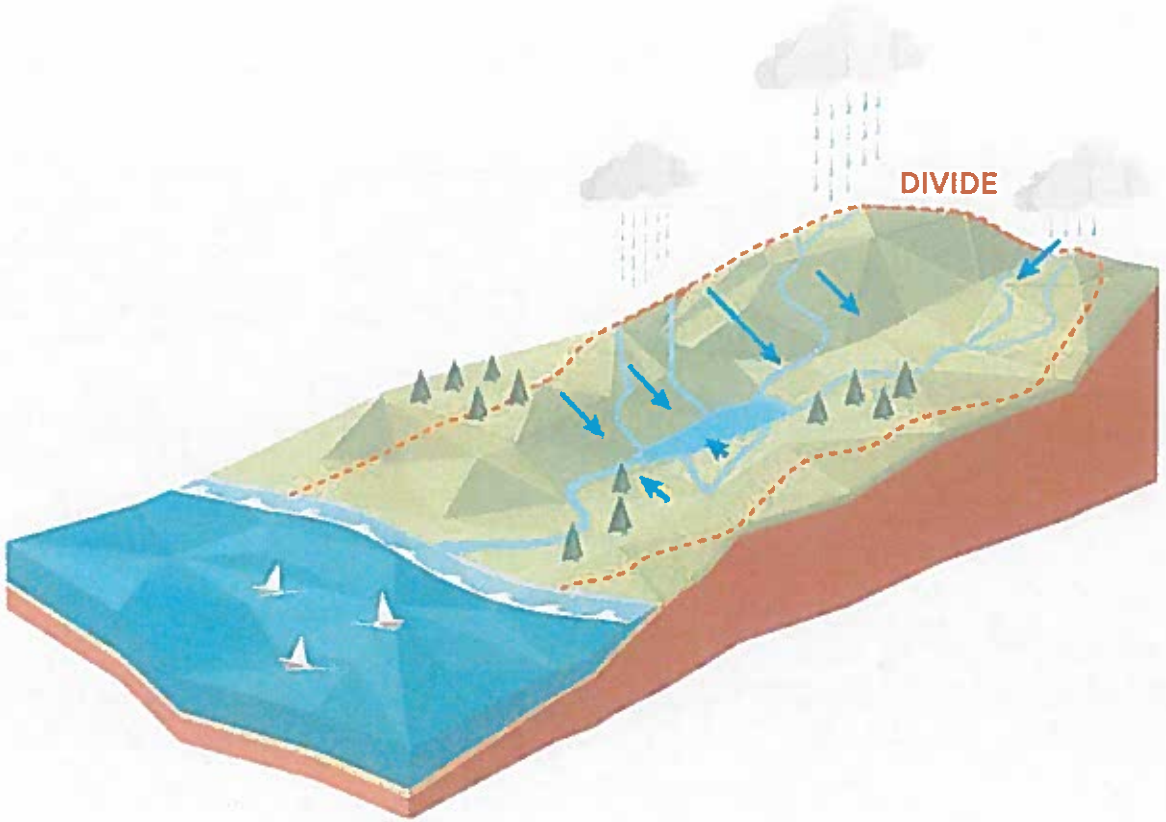
It requires a watershed approach

LOUISIANA WATERSHED INITIATIVE

WORKING TOGETHER FOR SUSTAINABILITY AND RESILIENCE

What is a Watershed?

A watershed is an area of land that all drains to a single point.



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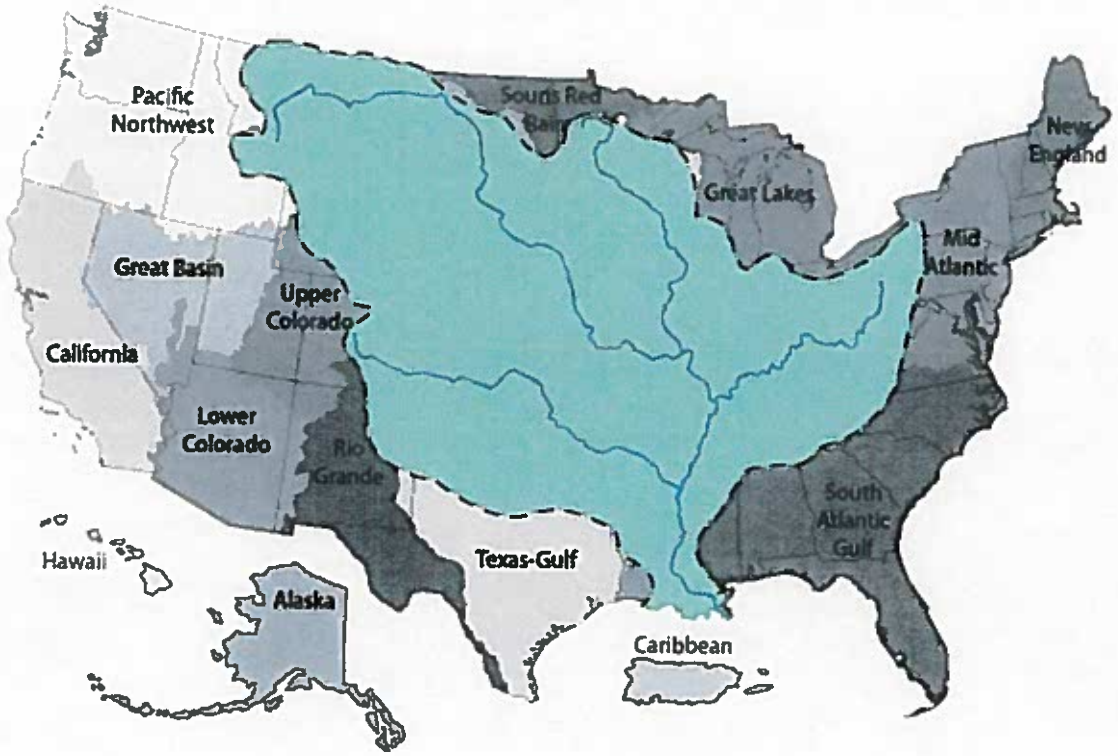
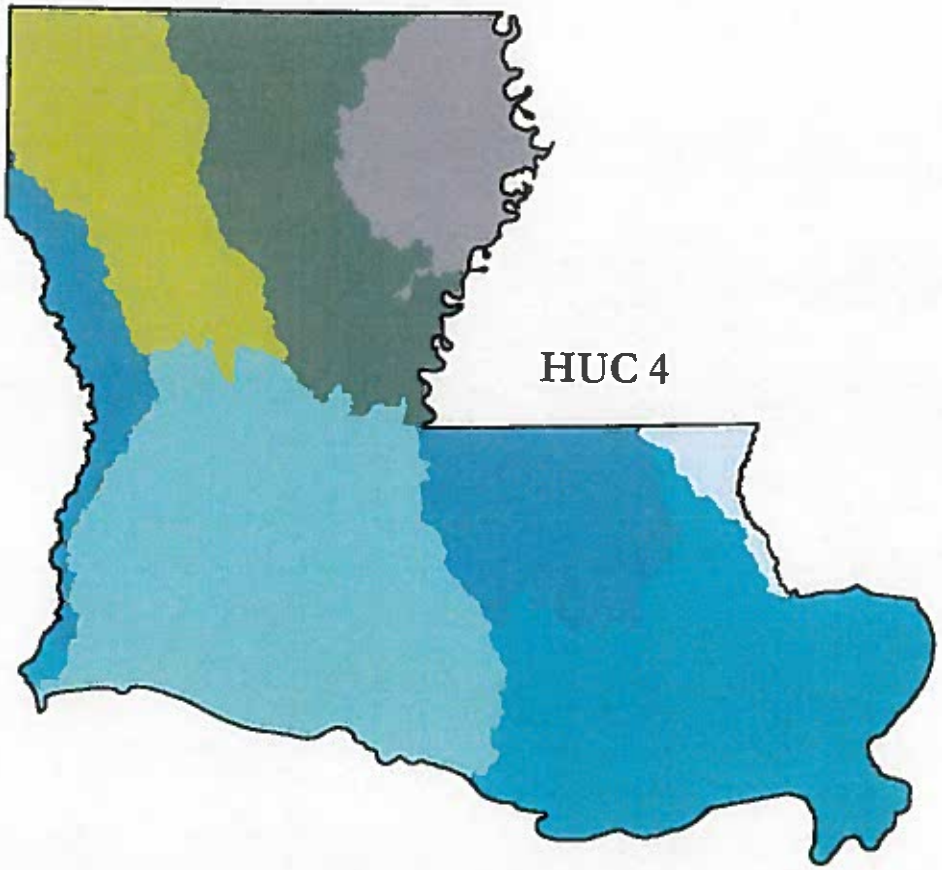


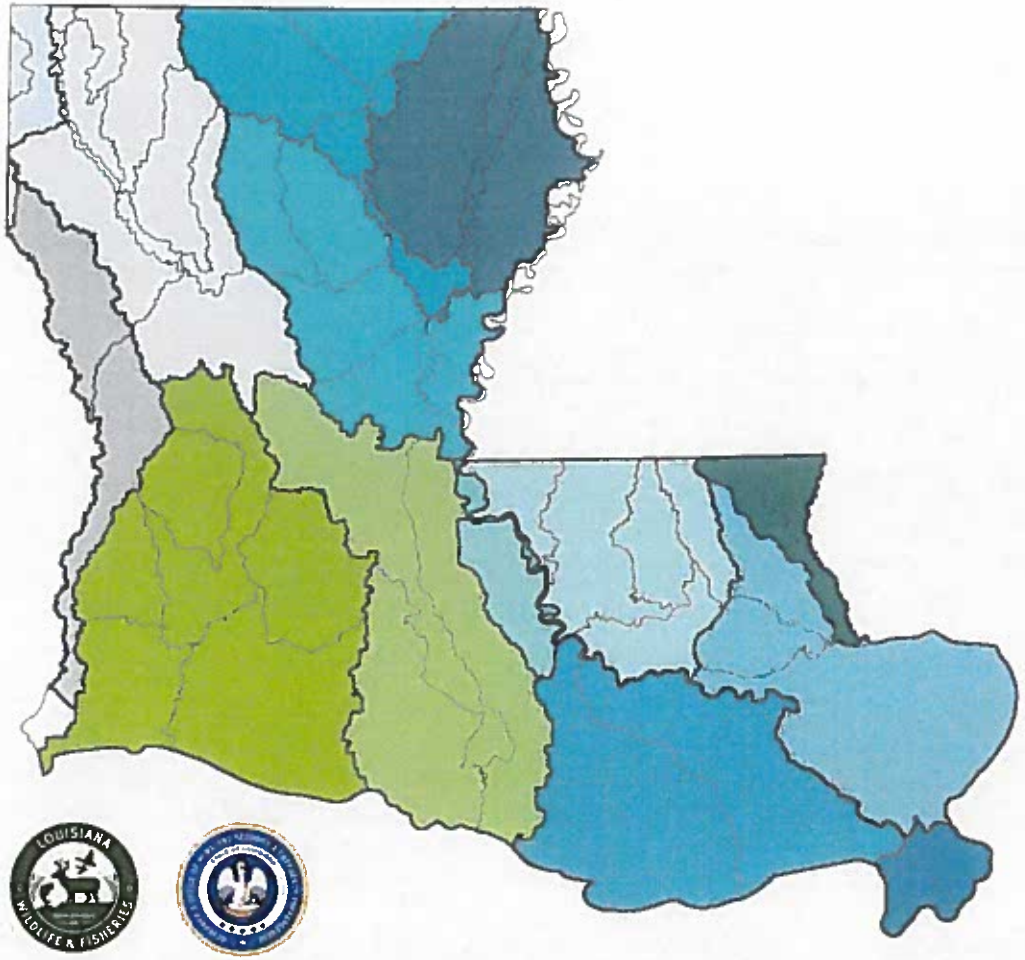
Louisiana's Watersheds

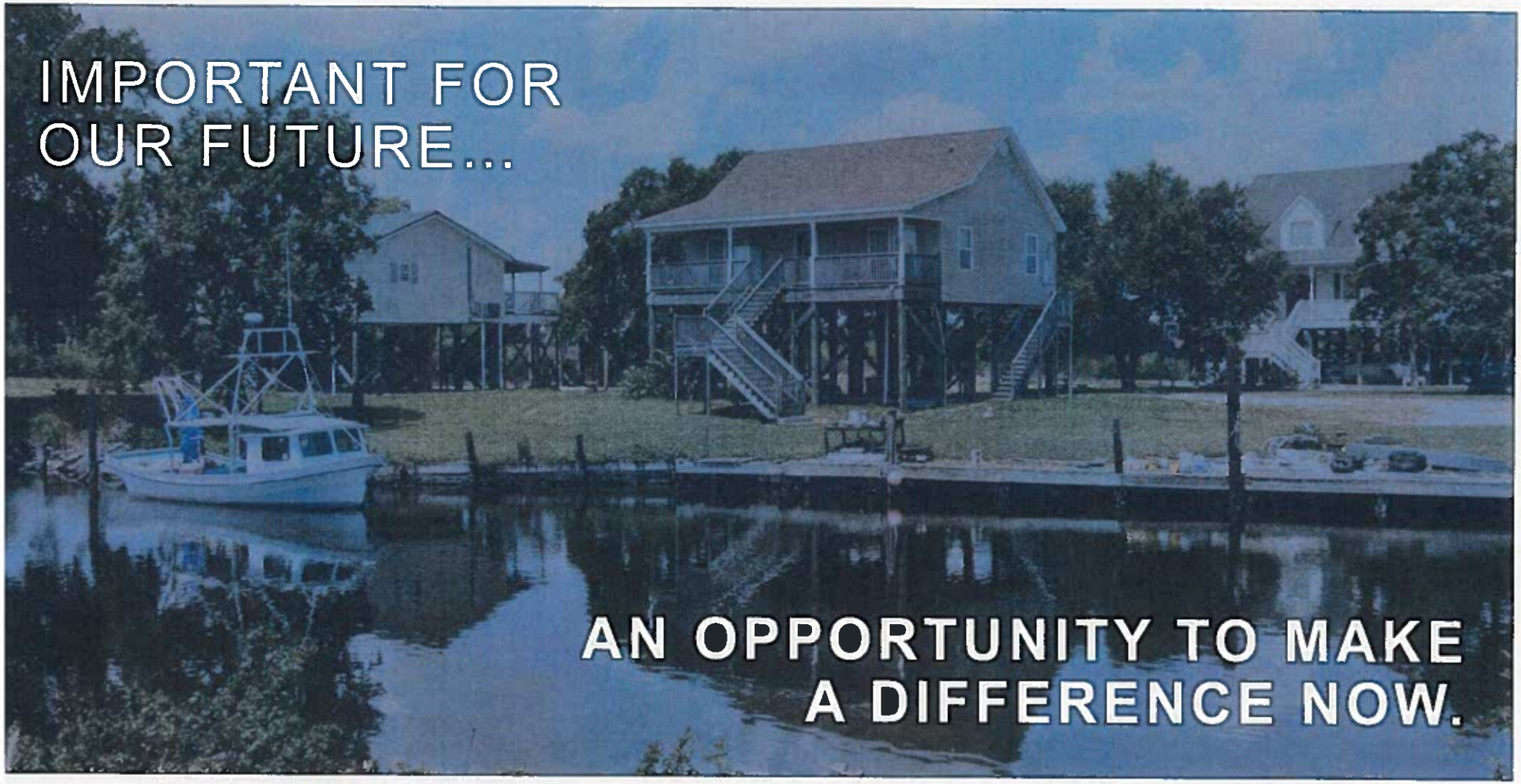
Our watersheds are not defined by our political boundaries.



Our Mission

Reduce flood risk and improve floodplain management across the state, including through maximizing the natural and beneficial functions of the floodplain.





LOUISIANA WATERSHED INITIATIVE

WORKING TOGETHER FOR SUSTAINABILITY AND RESILIENCE

UPDATE

Statewide Data & Modeling

Overall Approach

Overall Approach

STATEWIDE DATA & MODELING

Phase 1: Pre-Programming

Design statewide monitoring network, a modeling approach and standards.

Phase 2: Program Implementation

QA/QC, ongoing assessment of mitigation project outcomes and impacts, and development of a long-term maintenance and access plan for monitoring and modeling products.

UPDATE

Local & Regional Projects

Round 1

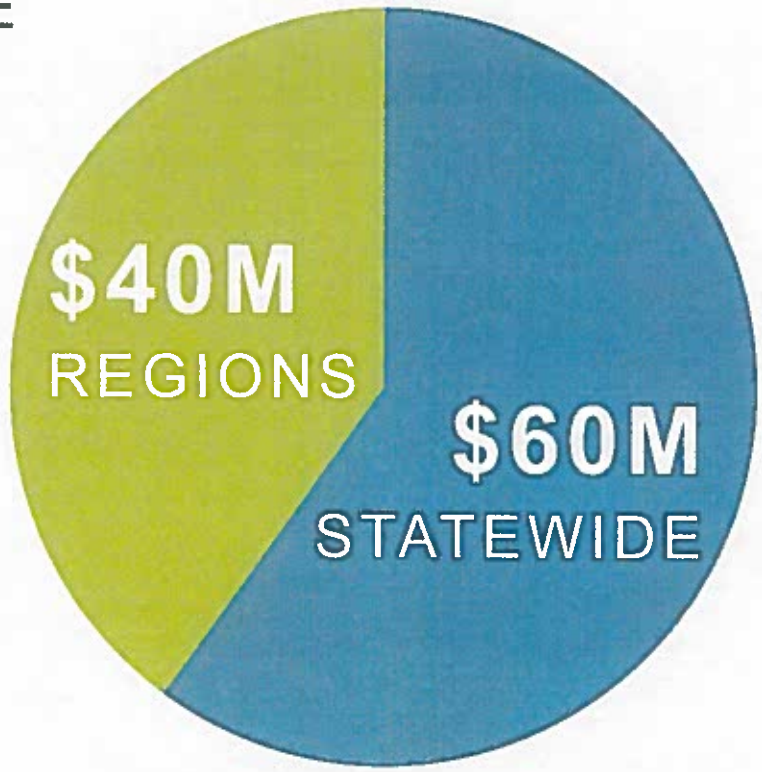
Funding Distribution
Goals and Objectives
Eligible Activities

Projects

Round 1 Funding Opportunity

PENDING HUD GUIDANCE

COMPETITIVE PROCESS



Round 1 Funding

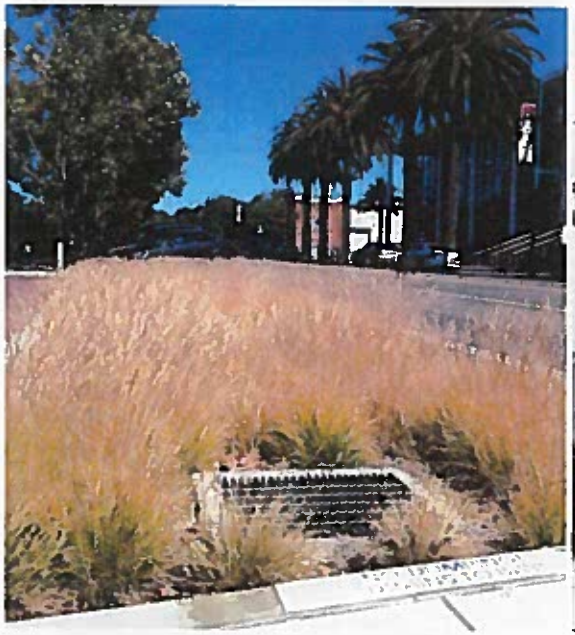
GOALS & OBJECTIVES

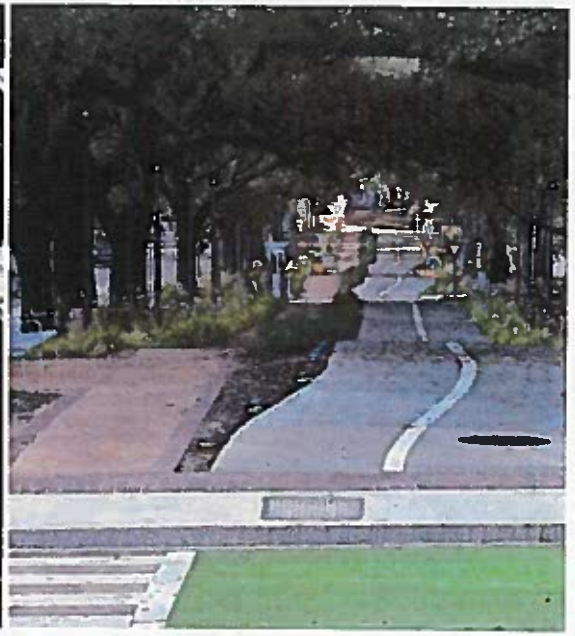
- Reduce flood risk
- Transparency
- Encourage cooperation
- Reward and incentivize resilient land use and development

Projects

Round 1 Funding Opportunity

ELIGIBLE ACTIVITIES:
LOW RISK, HIGH REWARD PROJECTS





UPDATE

Outreach Activities

2018 Listening Tour
Best Practices Summit
March 28, 2019 Council Meeting
Interstate Summit

Statewide Listening Tour
WHERE WE'VE BEEN

BATON ROUGE

SHREVEPORT

ALEXANDRIA

HAMMOND

LAFAYETTE

MONROE

HOUMA

LAKE CHARLES

555 engineers, planners, floodplain managers, public works staff, emergency responders, code enforcement staff, elected officials, and more

Statewide Listening Tour
KEY STATEWIDE THEMES

- "2018 Statewide Listening Tour Key Findings Summary Report"
- Webinar hosted on January 25, 2019
- Available online at watershed.la.gov

Outreach

Best Practices Interstate Summit

FEBRUARY 19, 2019

Building the Foundation: Sharing Lessons Learned & Collaborating on Challenges Specific to Louisiana

Lafayette, LA

Outreach

Watershed Council Meeting

MARCH 28, 2019

Baton Rouge, LA

Neighboring State Summit

SUMMER 2019

Regional Partnership Building:
Shared Challenges Across State Lines

New Orleans, LA

@LAWATERSHEDINITIATIVE

@LAWATERSHED

WATERSHED@LA.GOV

Thank You

Chapter 115 - DRAINAGE AND FLOOD CONTROL ARTICLE II. - FLOOD HAZARD AREA

ARTICLE I. - IN GENERAL

Sec. 115-1. - Conflict.

In the event of any conflict between the subdivision regulations in the Land Development Code and the provisions of this chapter, the more stringent or restrictive regulation or provision shall apply.

Sec. 115-2. - Flooding roads.

It shall be unlawful for any owner or user of water from artesian wells or other artificial sources of water supply to allow said water to flow or drain into any ditch along a parish road, highway or other public right-of-way without receiving approval from the parish and without obtaining a permit from the state department of transportation and development, office of water resources. It shall be unlawful for any owner or user of water from artesian wells or other artificial sources of water supply to allow said water to flow or drain into any ditch along any public road, highway or public right-of-way so that such ditch overflows onto a public road or highway.

(Code 1998, § 7-001.00; Ord. No. 180, Bk. 3, P. 195, 1-21-1954; Ord. No. 93-1699, 2-18-1993)

Sec. 115-3. - Use of fill materials prohibited.

(a) *Adverse drainage impact.* It shall be prohibited to place fill or construct improvements on any parcel of property so as to cause adverse drainage impacts on any adjacent parcel.

(b) *Placement of fill material.*

(1) Definitions. The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them in this subsection, except where the context clearly indicates a different meaning:

Approved development plan may be a properly issued building permit or site work permit, subdivision work order, or existing and proposed grade elevation form approved by the department of planning and development. Plans proposed within the boundaries of St. Tammany Parish Gravity Drainage District No. 5 (GDD5) shall require review and comment from GDD5's engineer.

Area of special concern means an area that is experiencing development without an approved hydrological plan for the area and, although it may not be located within a critical drainage area, has been determined by the parish department of engineering, after careful consideration of the available data, to be an area that is particularly susceptible to adverse drainage and flooding impacts that are likely to result from continued development and fill, necessitating the application of specific fill and building regulations to address those impacts.

Critical drainage area means an area determined by the parish department of engineering, after careful consideration of the available data, to be of critical importance for its role in the conveyance, moderation or storage of stormwater. Areas within this designation include, but are not limited to, the following:

1. Areas anticipated to be inundated by a 100-year storm event, including areas adjacent to streams, upland areas, and areas of isolated or permanent flooding.
2. Areas of concentrated storm water flow, including but not limited to concentrated sheet flow, channelized flow, and natural hydrologic features or channels of all types and sizes.
3. Any area designated by FEMA as Flood Hazard Area A, V, or the equivalent, indicating inundation during a 100-year event.
4. Areas included within wetlands as defined by the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual.
5. Those areas that are designated as a critical drainage area on the most current critical drainage area map that is on file in the office of the parish department of engineering.

Critical drainage area map means the official critical drainage area map generated and maintained by the department of engineering. The map will be periodically revised, based on information and data available at the time, in an effort to provide reasonably updated information to the public regarding the areas of the parish considered to be critical drainage areas.

Lots and parcels 90 feet or less in width. The determination of whether a lot or parcel is 90 feet in width or less is to be made by averaging the measurement of the width of the property at the point of the rear roof line of an existing or proposed principal structure and the measurement of the width of the property at the front boundary line. The rear roof line is the point where the roof is closest to the rear boundary.

Multiple-family structure means a structure containing three or more dwelling units located on a single lot (as opposed to party wall and townhouses located on separate lots of record.)

Natural ground means the natural or pre-development elevation of the property, prior to any surface alteration work being performed.

Net fill means the placement of any fill material that results in any increase in the surface elevation of property or adjacent property from its natural or pre-development state.

Site work permit means a permit issued for paving, grading, excavation, or placement of fill on a site within unincorporated St. Tammany Parish. This permit is needed if the proposed site improvements are not already being reviewed as part of a properly issued building permit or subdivision work order.

(2) Net fill prohibited.

a. Net fill shall be strictly prohibited in any critical drainage area and on any lot or parcel 90 feet or less in width, except with an approved development plan or with the express written consent of the department of planning and development. Any request to place fill in a critical drainage area or a lot or parcel 90 feet or less in width shall be in accordance with the procedures and guidelines outlined herein.

b. A lot or parcel of property shall be deemed to be located in a critical drainage area when any part thereof is located within a critical drainage area. Net fill shall not be placed on any part of such property, except with an approved development plan or with the express written consent of the department of engineering.

(3) Jurisdictional wetlands. All fill/excavation activities within jurisdictional wetlands shall secure all necessary permits from the U.S. Army Corps of Engineers and any other relevant local, state or federal agencies before such activities are commenced.

(4) Procedures.

a. Any request for approval to place fill on a lot or parcel governed by this chapter shall include a detailed description of the fill activity. A drainage and paving plan, if required, must be completed in accordance with section 115-111. An existing and proposed grade elevation form, if required, must be prepared by a state-licensed engineer or land surveyor and include the following information:

1. Volume of fill to be placed;

2. The footprint of the fill work;

3. Volume and source location of any excavation work;

4. The location of the ultimate disposition of the spoil being removed;

5. The direction of water flow across the site;

6. A profile through the construction footprint showing the natural and finished elevations of the site; and

7. The sediment retention measures proposed for the site.

b. Upon receiving approval to fill by the department of planning and development, whenever a concrete slab or any other structural foundation of a permanent nature is to be constructed, the applicant or builder shall certify, after excavation of the site and prior to pouring any concrete or installing any permanent foundation, that the foundation is ready to be installed and that all fill work complies with the relevant standards. The foundation shall not be poured or installed prior to certification and inspection.

c. Prior to the issuance of the certificate of occupancy, the applicant or builder shall submit an official survey which confirms compliance with the provisions of this chapter. A final drainage inspection by the department of planning and development shall be conducted to verify compliance with these standards, and no certificate of occupancy shall be issued unless and until compliance has been verified.

(5) General residential fill standards. The placement of fill material on any lot or parcel located within any critical drainage area shall be permitted only after a development plan has been submitted and approved by the department of engineering. In the event that the department of engineering determines that fill work is permitted on the particular parcel, the fill work must comply with the following specific standards:

a. In some cases, subject to the discretion of the department of engineering, excavation of existing soil and its replacement with fill is permissible at the site provided it can be demonstrated to have no increase in the natural ground elevation and no net impact on the function of the critical drainage area.

b. Fill shall be limited to the roof-shed area of the proposed primary structure and access to the site and shall not exceed that which is necessary to prepare an adequate building footprint.

c. Site improvements (roads, structures, fill, etc.) shall not impede natural drainage pathways or parish road or drainage easements, servitudes, or rights-of-way.

d. Fill for driveways must not exceed six inches above natural ground elevation except where fill is part of the foundation for the main residence, carport, or garage. Fill may also be placed to soften the transition between elevations to a slope not less than four horizontal feet to every one vertical foot.

e. Fill may be authorized by the department of engineering in those cases where, due to the size and location of the parcel of property, on-site or off-site mitigation can be provided and the department of engineering also determines that there will be no loss of flood plain storage, no loss of stream flow capacity and the applicant demonstrates that no adverse impacts will occur to adjacent properties, to other properties within the subject watershed, and to the function of the critical drainage area. GDD5 review and comments shall be required if subject property is within GDD5 boundaries. It is expressly prohibited to utilize offsite mitigation within the boundaries of Gravity Drainage District No. 5.

f. In those cases where fill mitigation is authorized, the standards outlined above in paragraphs (5)a through (5)e are otherwise met, and detention storage capacity is created within the same floodplain in order to comply with Section 125-197€(4), said storage capacity ~~may~~ shall not be utilized to meet the fill mitigation required in this Section. In those cases where the fill mitigation requirement exceeds the said storage capacity, the difference between the two volumes must be provided as additional storage capacity. EXCEPT in the event (i) the project engineer can demonstrate to the satisfaction of the Parish Engineer, based on sound and accepted engineering principles, that the use of such fill will not have a material effect in the applicable drainage basin or such pond storage volume above the static water elevation or portion of the proposed pond storage volume above the static water elevation will be unoccupied by stormwater at the time that the Base Flood Elevation/100 Year Flood Elevation occurs at the proposed project site in the applicable drainage basin and (ii) such finding is corroborated by an independent, third-party engineer approved by the Parish, the cost of which shall be the responsibility of the Developer.

(6) Lots 90 feet or less in width. The placement of fill material on any lot or parcel 90 feet or less in width shall be permitted only when a development plan has been submitted and approved by the department of engineering regardless of its location or critical drainage area status. If it is located in a critical drainage area, the provisions of this section governing fill in a critical drainage area apply. If not in a critical drainage area, the fill work proposed must comply with the following standards:

a. Fill shall be limited to the roof-shed area of the lot or parcel' primary structure and shall not exceed the volume required to prepare an adequate building footprint.

b. A concrete slab shall be permitted under the primary structure provided that the finished surface or footing does not exceed an average of 24 inches above natural ground grade. Fill for a slab with a finished surface

less than 24 inches above natural ground shall taper out from the slab at a slope of two horizontal feet for one vertical foot.

c. Construction shall be accomplished using pier or piling construction according to applicable building codes for finished elevations above 24 inches above natural ground.

d. Site improvements shall not impede natural drainage pathways or road or drainage easements, servitudes, or rights-of-way.

e. There shall be no net change in the average elevation of the natural of the lot or parcel outside of the roof-shed area of the primary .

f. Fill for driveways must not exceed 12 inches above natural ground grade except where fill is part of the transition from the foundation for the primary structure, carport, or garage. Fill may also be placed adjacent to the driveway to soften the transition between elevations to a slope not steeper than four horizontal feet for every one vertical foot.

g. The placement of fill may not encroach into the required side yard setbacks, except as otherwise permitted in this chapter.

h. Fill for non-contiguous landscaping areas within the front and rear yards resulting in the finished ground elevation up to an average of six inches above natural ground for each such area is permitted, provided that an equal volume of fill is removed from the lot.

i. f. In those cases where fill mitigation is authorized, the standards outlined above in paragraphs (6)a through (6)h are otherwise met, and detention storage capacity is created within the same floodplain in order to comply with Section 125-197(e)(4), said storage capacity ~~may~~ shall not be utilized to meet the fill mitigation required in this Section. In those cases where the fill mitigation requirement exceeds the said storage capacity, the difference between the two volumes must be provided as additional storage capacity. EXCEPT in the event (i) the project engineer can demonstrate to the satisfaction of the Parish Engineer, based on sound and accepted engineering principles, that the use of such fill will not have a material effect in the applicable drainage basin or such pond storage volume above the static water elevation or portion of the proposed pond storage volume above the static water elevation will be unoccupied by stormwater at the time that the Base Flood Elevation/100 Year Flood Elevation occurs at the proposed project site in the applicable drainage basin and (ii) such finding is corroborated by an independent, third-party engineer approved by the Parish, the cost of which shall be the responsibility of the Developer.

(7) *Nonresidential standards*. Any paving, grading, excavation, or placement of fill on commercial, industrial, institutional or multifamily development sites must obtain an approved development plan in the form of a properly issued building permit, site work permit or subdivision work order prior to the commencement of work. In cases of commercial, industrial, or institutional development on any lot or parcel of property that has any part thereof located within a critical drainage area, the placement of fill on such lot or parcel may be permitted, in the discretion of the department of engineering, provided that:

a. Soil material in a volume equal to the fill material proposed to be placed on the property is excavated and removed from the property, such that the flood storage capacity of the property is maintained for a 100-year frequency flood event;

b. Off-site mitigation will be provided, and the department of planning and development also determines that there will be no loss of floodplain storage and no loss of stream flow capacity. It is expressly prohibited to utilize off-site mitigation within the boundaries of Gravity Drainage District No. 5;

c. The applicant can demonstrate that no adverse impacts will occur to adjacent properties, to other properties within the subject watershed, and to the function of the critical drainage area; and

d. The proposed development complies with all other applicable drainage regulations.

e. In those cases where fill mitigation is authorized, the standards outlined above in paragraphs (7)a through (7)d are otherwise met, and detention storage capacity is created within the same floodplain in order to comply with Section 125-197€(4), said storage capacity ~~may~~ shall not be utilized to meet the fill mitigation required in this Section. In those cases where the fill mitigation requirement exceeds the said storage capacity, the difference between the two volumes must be provided as additional storage capacity. EXCEPT in the event (i) the project engineer can demonstrate to the satisfaction of the Parish Engineer, based on sound and accepted engineering principles, that the use of such fill will not have a material effect in the applicable drainage basin or such pond storage volume above the static water elevation or portion of the proposed pond storage volume above the static water elevation will be unoccupied by stormwater at the time that the Base Flood Elevation/100 Year Flood Elevation occurs at the proposed project site in the applicable drainage basin and (ii) such finding is corroborated by an independent, third-party engineer approved by the Parish, the cost of which shall be the responsibility of the Developer.

GDD5 review and comment is required if subject property is within the boundaries of GDD5.

(8) *Areas of special concern.*

a. A certain portion of Tammany Hills and Alexiusville Subdivisions, Ward 3, District 5, located inside the boundaries described immediately below, to wit:

Beginning at the northeast corner of 9th Avenue and U.S. Highway 190, proceed in a northerly direction along the eastern edge of U.S. Highway 190 to its intersection with Harrison Avenue, then proceed in an easterly direction along Harrison Avenue to its intersection with 11th Street, then proceed in a southerly direction along 11th Street to its intersection with Madison Avenue, then proceed in a westerly direction along Madison Avenue to its intersection with 5th Street, then northerly along the 5th Street right-of-way to its intersection with Quincy Avenue, then westerly along Quincy Avenue to its intersection with K Street, then south on K Street to its intersection with 9th Avenue, then proceed west on 9th Avenue to its intersection with U.S. Highway 190 and the point of beginning.

b. A certain portion of Cypress Park and Erindale Subdivisions, Ward 7, District 7, located inside the boundaries described immediately below, to wit:

Beginning at the intersection of U.S. Highway 190 and Anchorage Drive, the point of beginning, proceed along the eastern edge of Anchorage Drive in a northerly direction to its intersection with Berry Todd Road, thence proceed along the southern edge of Berry Todd Road in an easterly direction to its intersection with Graci Avenue, thence follow an imaginary line due south from said intersection to the northern most point of Emerald Drive, thence proceed along the western edge of Emerald Drive south to its intersection with U.S. Highway 190, thence proceed along the northern edge of U.S. Highway 190 west northwest to its intersection with Anchorage Drive, the point of beginning.

c. All that property situated within a re-subdivided portion of Tammany Subdivision, Ward 7, District 7, all as more particularly described immediately below, to wit:

Any and all squares and lots of record within the re-subdivided portion of Tammany Forest Subdivision, located within Section 43, Township 8 South, Range 13 East and as more fully described on the finalized subdivision plat dated August 7, 1985, by NRW and Associates, Inc.

d. All that property situated within the subdivision known as Dove Park, Ward 4, District 5, Section 26, Township 7 South, Range 11 East, located

within the boundaries described immediately below and more particularly depicted on the attached subdivision plat filed for record with the parish clerk of court on June 20, 1957, and identified as Map #16A, to wit:

Any lot or parcel of ground between Sparrow Street and the proposed Judge Tanner Boulevard (formerly the proposed E. Fairway Drive Extension) that abuts or has access to Swallow Street, Egret Street or Partridge Street.

In addition to any of the requirements of section 115-3, within the Dove Park Subdivision there shall be a minimum building site of 75 feet front on the setback line.

e. Any undeveloped lot or parcel of ground situated in the area generally surrounding Eola Street, Jordan Street and Elmer Street, which area is more particularly depicted on the attached aerial and described immediately below, to wit:

A certain piece or portion of ground situated in section 6, Township 8 south, Range 12 east, St. Tammany Parish, Louisiana, and more fully described as follows:

Parcel 1. From the Quarter Section Corner common to section 6, Township 8 south, Range 12 east and section 1, Township 8 south, Range 11 east, go south 89 degrees 51 minutes 30 seconds east a distance of 330.0 feet to a point; said point being the point of beginning.

the point of beginning proceed north 89 degrees, 18 minutes, 18 seconds east a distance of 1,357.15 feet to a point; thence proceed north 01 degrees, 51 minutes, 49 seconds west a distance of 947.44 feet to a point at the intersection of the western right-of-way of Soult Drive and the southern right-of-way of Highway 1088; thence proceed in a westerly direction along the southern right-of-way line of Highway 1088 a distance of 1,875 feet to a point; thence proceed south 00 degrees, 00 minutes, 00 seconds west a distance of 266.71 feet to a point; thence proceed north 89 degrees, 43 minutes, 43 seconds east a distance of 395.84 feet to a point, said point being the point of beginning.

Parcel 2. From the Quarter Section Corner common to section 6, Township 8 south, Range 12 east and section 1, Township 8 south, Range 11 east, proceed south 89 degrees 51 minutes 30 seconds East a distance of 330.0 feet to a point; thence proceed north 89 degrees, 18 minutes, 18 seconds east a distance of 1,357.15 feet to a point; thence proceed north 01 degrees, 51 minutes, 49 seconds west a distance of 1,011 feet to a point at the intersection of the western right-of-way of

Soult Drive and the northern right-of-way of Highway 1088; said point being the point of beginning.

From the point of beginning proceed north 01 degrees, 51 minutes, 49 seconds west a distance of 345.28 feet to a point; thence proceed south 89 degrees, 0 minutes, 48 seconds west a distance of 965 feet to a point; thence proceed south 00 degrees, 52 minutes, 25 seconds west a distance of 157.57 feet to a point; thence proceed south 88 degrees, 55 minutes, 22 seconds west a distance of 304.04 feet to a point located at the southwest corner of Lot of Lot 1, Square 26 of the Mandeville Annex Subdivision; Thence proceed north 62 degrees, 57 minutes, 19 seconds east a distance of 23.69 feet to a point located at the southeast corner of Lot 11 of the Grande Terre Subdivision; thence go north 73 degrees, 26 minutes, 16 seconds west a distance of 159.21 feet to a point; thence proceed in a southwesterly direction along the eastern right-of-way of Frenchman Drive to a point formed by the intersection of western right-of-way of Frenchman Drive and the northern right-of-way of Highway 1088; Thence proceed along the northern right-of-way line of Highway 1088 in a northwesterly direction distance of 1,875 feet to a point, said point being the point of beginning.

f. Any property having, or proposing to have, ingress and egress to and from Lakeview Drive and Carr Drive, Slidell, Louisiana, being more particularly described as follows:

Lakeview Drive: Situated in sections 31, 32 and 33, Township 9 south, Range 14 east, St. Tammany Parish, Louisiana.

Carr Drive: Situated partially in sections 25 and 26, Township 9 south, Range 13 east, and partially in sections 29, 30, 31 and 32, Township 9 south, Range 14 east, St. Tammany Parish, Louisiana.

1. On any lot situated within the area of special concern set forth in subsection (b)(8)f of this section, the amount of fill shall not exceed an elevation of 24 inches above the centerline of the subject road (i.e., Lakeview Drive or Carr Drive).

2. No fill shall be placed on any lot or parcel within the boundaries of the area of special concern set forth in subsection (b)(8)f of this section prior to the submission of a coastal use permit application and plan and the submission of a development plan to the department of engineering that details any proposed grade work. The plan shall provide the elevation at the four corners of the lot, at the center of the proposed primary structure, and any other elevations deemed necessary by the department of engineering for review of the development plan.

3. If any fill is placed on property within the boundaries of the area of special concern set forth in subsection (b)(8)f of this section following the adoption of the ordinance from which this chapter is derived and prior to the submission of a development plan, the owner may be required to remove the fill material back down to native soils and pre-fill elevations.

4. If any fill is placed on property within the boundaries of the area of special concern set forth in subsection (b)(8)f of this section that is not in compliance with an approved development plan, fill plan and/or the plan submitted under the coastal use regulations, the owner may be required to remove all fill material that is not in compliance with the approved plans.

(9) *Fill in areas of special concern.*

a. No fill shall be placed on any lot or parcel within the above described boundaries of an area of special concern prior to the submission of a development plan to the department of engineering detailing any proposed grade work. The development plan shall provide the elevation at the four corners of the lot, at the center of the proposed primary structure, and any other elevations deemed necessary by the department of engineering for review of the development plan.

b. If any fill is placed on property in any of the above areas of special concern following the adoption of the ordinance designating a particular area as one of special concern and prior to the submission of a development plan, it shall be deemed a violation of this Code and the owner shall be required to remove the fill material back down to native soils and pre-fill elevations. It shall be the burden of the violator to provide proof of the predevelopment elevations. Engineering shall direct the department of code enforcement to issue the appropriate cease and desist order. Engineering shall notify GDD5 if the violation occurs within the district boundaries. GDD5 may provide a third-party review and comment at the violator's expense.

c. No fill shall be permitted on parcels within this area that would raise or increase the surface elevation of any part of the parcel above its natural or pre-development elevation. Fill required for minor grading to level and drain the surface at the proposed site of the primary structure and driveway may be authorized.

d. The lowest finished floor of the primary structure shall be situated at least 24 inches above the crown of the road surface directly adjacent to and in front of the parcel.

e. Based on available data, the department of engineering may require a higher finished floor elevation on pier construction above the FEMA base flood elevation provided on the applicable FIRM map.

f. In those cases where fill mitigation is authorized, the standards outlined above in paragraphs (9)a through (9)e are otherwise met, and detention storage capacity is created within the same floodplain in order to comply with Section 125-197€(4), said storage capacity ~~may~~ shall not be utilized to meet the fill mitigation required in this Section. In those cases where the fill mitigation requirement exceeds the said storage capacity, the difference between the two volumes must be provided as additional storage capacity. EXCEPT in the event (i) the project engineer can demonstrate to the satisfaction of the Parish Engineer, based on sound and accepted engineering principles, that the use of such fill will not have a material effect in the applicable drainage basin or such pond storage volume above the static water elevation or portion of the proposed pond storage volume above the static water elevation will be unoccupied by stormwater at the time that the Base Flood Elevation/100 Year Flood Elevation occurs at the proposed project site in the applicable drainage basin and (ii) such finding is corroborated by an independent, third-party engineer approved by the Parish, the cost of which shall be the responsibility of the Developer.

(10) Subsurface drainage. It shall be unlawful for any owner, contractor, builder or subdivider to use, employ or apply fill in and/or on any lot situated within a subdivision located in the unincorporated limits of the parish wherein subsurface drainage is installed unless this material is contained within the perimeter of the lot in an adequate manner to prevent run-off of the sand, fill, clay or mixture thereof onto sidewalks, streets or into culverts or onto the property of abutting property owners.

(11) Relocation of open drainage ditches, drainage channels and similar drainage features.

a. For purposes of this subsection, the term "relocation" means changing the location of all or any part of an open drainage ditch, drainage channel or similar drainage feature that is partially located on, or which traverses, a lot or parcel of property.

b. The provisions of this subsection (11) shall be applicable to any lot or parcel of property, regardless of the size of the lot or parcel and

whether or not it is located in a critical drainage area or area of special concern.

c. Whenever the owner of any lot or parcel of property proposes to fill in an existing drainage ditch, drainage channel or similar drainage feature that is partially located on, or which traverses, the owner's property in order to relocate the ditch, drainage channel or similar drainage feature to another location on the property, in addition to complying with all other applicable provisions of this section, the owner shall provide a plan for the proposed relocation, supported by a complete hydrologic report taking into consideration impacts of upstream and downstream properties, that is prepared by a licensed civil engineer. The department of engineering shall conduct a site visit prior to approval of the proposed plan. Engineering shall notify GDD5 of the proposed plan for review and comment if the subject site is within the boundaries of the district. The proposed relocation plan may be included in the "Existing and Proposed Grade Elevation Form," provided it is prepared by a licensed civil engineer.

d. If the proposed relocation results in all or any part of the relocated drainage ditch, drainage channel or similar drainage feature being within 20 feet of the foundation of an existing or proposed structure, the relocation of the drainage ditch, drainage channel or similar drainage feature must be accomplished by subsurface installation. If no part of the drainage ditch, drainage channel or similar drainage feature is to be within 20 feet of the foundation of an existing or proposed structure, the department of engineering shall determine, considering best engineering practices and the issue of maintenance of drainage, whether subsurface installation is required for all or any part of the relocated drainage ditch, drainage channel or similar drainage feature.

e. The requirement of subsurface installation for a relocated drainage ditch, drainage channel or similar drainage feature may be waived by the department of engineering provided that:

    1. The property owner, and licensed civil engineer engaged by the owner, have independently determined that the relocated drainage ditch, drainage channel or similar drainage feature, if relocated without subsurface drainage, will not undermine the foundation or otherwise cause any damage to the property or structure; and

    2. The department of engineering determines that the relocation will not impede drainage or interfere with the proper maintenance thereof. It is expressly prohibited to grant a waiver under this subsection within the boundaries of Gravity Drainage District No. 5.

f. The hereinabove provisions of this subsection (11) shall not be construed as being applicable to any roadside ditch or to any property that is publicly owned and maintained by the parish or any political subdivision thereof.

(12) Administration. This chapter shall be administered by the parish department of engineering with the assistance of any other parish personnel or agency that are deemed necessary by the parish and/or its regulations.

(13) Exemptions.

a. Subdivisions which establish to the satisfaction of the parish engineer that, at the time of preliminary approval, such subdivision development and fill associated with lot development will not result in a reduction in the 100-year floodplain storage capacity, should be found to comply with these standards.

b. These standards shall not apply to lots in subdivisions or developments with an approved drainage plan and hydrological study. However, should the department of engineering determine, on the basis of current conditions, that the use of fill on any particular site within an otherwise exempt development would have an adverse impact on drainage, the parish shall have the authority to apply this chapter as needed to ensure the health, welfare, and safety of the public by restricting fill work.

c. Areas enclosed by levees under forced drainage shall be exempt from this section.

d. Coastal areas, which are those areas that are determined by the department of engineering to be subject to flooding only because of tidal inundation, not including the area of Lakeview Drive and Carr Drive being governed by the provisions of this section.

e. The office of the parish president in consultation with the department of engineering is granted authority to determine that certain properties designated as historical by the National Park Service, upon application, be exempt from the no net fill ordinances currently in effect in the parish and to take all steps necessary to carry out the terms of this section, subject to any reasonable restrictions or requirements imposed by the president and the department of engineering.

(c) Conflicts. If a lot or parcel of property may be governed by more than one provision or subsection of this section, or in the event of a conflict in the applicability of any provision, the more restrictive or specific provision shall apply.

~~d) Review of decisions. Any person or persons jointly or severally aggrieved by any decision of the department of engineering relative to the placement of fill on property governed~~

~~by the provisions of this section may appeal to the board of adjustment. Such appeal shall be taken within ten days of the decision of the department of engineering, by filing with the department and with the board of adjustment a notice of appeal specifying the grounds thereof. The department shall forthwith transmit to the board all papers constituting the record upon which the action appealed from was taken. GDD5 shall provide third-party recommendations to the board when the subject property falls within the boundaries of GDD5. All costs incurred shall be borne by the person appealing the decision~~.

(e) Penalties. A violation of this section shall constitute a misdemeanor punishable by a fine of not less than $100.00 nor more than $500.00, or by imprisonment for not more than 30 days, or both such fines and imprisonment. Each day that a violation continues shall constitute a separate offense. In lieu of, or in addition to, the issuance of a misdemeanor summons, violations of the provisions of this chapter may be enforced by imposition of civil penalties and injunctive relief in accordance with the following:

(1) Each day that the violation remains shall constitute a separate offense and a civil penalty of not less than $100.00 nor more than $500.00 per day shall be imposed.

(2) In addition to penalties provided by this section, any violation hereof shall also be subject to an action for abatement and removal of any offending fill work and/or ground surface alteration.

(3) Further, whenever the department of engineering has approved any application or drainage plan that contains materially false or erroneous information, the applicant shall be responsible for all costs and expenses associated with the correction of said application and plan, and the correction of any adverse consequences resulting therefrom, including the fees of an engineering consultant to review and revise said plan.

(f) This section is intended to supersede any ordinance or regulation that may govern the placement of fill on any property, including the provisions of sections 125-92 and 125-93. Furthermore, in any event, there must be an application and approved drainage plan.

(Code 1998, § 7-002.00; Ord. No. 80-21, 8-21-1980; Ord. No. 04-0862, 4-1-2004; Ord. No. 04-0886, 5-6-2004; Ord. No. 08-1791, 4-3-2008; Ord. No. 09-1996, 1-8-2009; Ord. No. 09-2071, 6-4-2009; Ord. No. 10-2221, 3-4-2010; Ord. No. 10-2326, 9-2-2010; Ord. No. 11-2533, 6-2-2011; Ord. No. 12-2669, 2-2-2012; Ord. No. 12-2736, 5-3-2012; Ord. No. 12-2847, 10-10-2012; Ord. No. 15-3391, 9-3-2015; Ord. No. 15-3423, 11-5-2015; Ord. No. 16-3579, exh. A(7-002.00), 9-1-2016)

Sec. 115-4. - Fill materials prohibited within 200 feet of drainage waterway.

(a) The parish council provides for the requirement that any development, including a residence located within 200 feet from the middle of a drainage waterway in Ward 8,

excluding Parish Council District 6, as further specified must utilize pilings, piers or other similar methods to elevate the structure to the appropriate base flood elevation height as determined by FEMA instead of the use of fill. No fill should be allowed within 200 feet which is not a part of the building envelope or driveway.

(b) Fill not to exceed an average of 18 inches may be allowed to level the building envelope.

(c) Piers or similar methods allowing the sheet flow of water under the structure should be utilized to meet the required flood zone elevation. The specified drainageways are as follows:

(1) W-15 Canal.

(2) Gum Bayou.

(3) W-14 Canal.

(4) Reine Canal.

(5) Eddines Canal.

(6) Poor Boy Canal.

(7) Exemptions areas or projects from the above specified drainageways.

a. Excluding 1,000 feet on the north side and 1,000 feet on the south side of Gause Boulevard - W-15 Canal.

b. Excluding the FEMA Hazard Mitigation Grant Program, Daney Street Project, W-14 Canal.

c. Any other authorized parish drainage project.

(d) Waiver provision. The department of engineering may waive the requirements of this chapter for a project of development, when the waiver is based on a drainage plan prepared by a licensed engineer, specific location of the project and the existing development patterns in the area or minor elevation differences between the natural ground and base flood elevation. This waiver should be based upon the report indicating that the fill will not produce a significant impact in comparison to meeting the intent of this chapter. The engineering department does have the authority not to issue a waiver regardless of the independent study which indicates that there may not be significant impact.

(Code 1998, § 7-002.01; Ord. No. 96-2494, 9-18-1996)

Sec. 115-5. – Review of decision/request for relief

No variance on the fill mitigation for flood water storage shall be granted for any Zoning Density of A-3(D) Suburban District (2 homes per acre) or greater. Any variance to the fill ordinance must be only for the proper foundation of the building and be limited to the area under the roof. Plus grading to achieve a three to one ratio for the transition to the natural ground level. No variance shall be granted for more than 1 acre of fill in any circumstance.

Variance for driveway fill may be permitted only up to 6 inches above natural ground level if it is demonstrated that driveway fill will not adversely impact neighboring properties

Review of decision for individual building sites – Any person jointly or severally aggrieved by any decision of the department of engineering relative to the placement of fill on individual building sites governed by the provisions of this section may appeal to the board of adjustment. Such appeal shall be taken within ten days of the decision of the department of engineering, by filing with the department and with the board of adjustments a notice of appeal specifying the grounds thereof. The department shall forward to the board all supporting documents relative to the decision. GDD5 shall provide third-party recommendations to the board when the subject property falls within the boundaries of GDD5. All costs incurred shall be borne by the person appealing the decision.

Request for relief for individual building sites – Any person or persons requesting relief relative to the placement of fill on individual building sites governed by the provisions of this section may make such appeal to the board of adjustment. The department shall forward to the board all supporting documents relative to the decision. GDD5 shall provide third party recommendations to the board when the subject property falls within the boundaries of GDD5. All costs incurred shall be borne by the person appealing the decision The granting of requested relief shall be based upon one of the following:

- ~~An unreasonable manifest hardship is created by full compliance with the requirement~~
- ~~The proposal is consistent with the surrounding properties and will not create an adverse impact upon the surrounding properties~~
- ~~The aggrieved party provides an acceptable alternative solution or mitigation~~ **strike thru Dr. Martin**

Review of decision for Major Subdivision – Any person or persons jointly or severally aggrieved by any decision of the department of engineering relative to the placement of fill on property governed by the provisions of this section may appeal to the Planning Commission at the time of Preliminary Plat Review. GDD5 shall provide third party recommendations to the board when the subject property falls within the boundaries of GDD5. All costs incurred shall be borne by the person appealing the decision. In a review of decision, the Planning Commission shall review for misinterpretation of the ordinances.

Request for relief for Major Subdivision – Any person or persons requesting relief relative to the placement of fill on property governed by the provisions of this section may make such appeal to the Planning Commission at the Time of Preliminary Plat Review. GDD% shall provide third party recommendations to the board when the subject property falls within the boundaries of GDD5. All costs

incurred shall be borne by the person appealing the decision. The granting of requested relief shall be based upon one of the following:

- ~~An unreasonable manifest hardship is created by full compliance with the requirement~~
- ~~The proposal is consistent with the surrounding properties and will not create an adverse impact upon the surrounding properties.~~
- ~~The aggrieved party provides an acceptable alternative solution or mitigation.~~ **Strike thru Dr. Martin**

LEGEND

Sidney Fontenot original amendment

Paul Mayronne amendment

Sidney Fontenot additional amendment

Mike Lorino amendment

Matthew Allen amendment