



Public Notice

U.S. Army Corps Of Engineers Galveston District	Permit Application No: _____	SWG-2012-01007
	Date Issued: _____	29 April 2014
	Comments Due: _____	30 May 2014

**U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
AND
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

PURPOSE OF PUBLIC NOTICE: To inform you of a proposal for work in which you might be interested. It is also to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest. The U.S. Army Corps of Engineers (Corps) is not the entity proposing or performing the proposed work, nor has the Corps taken a position, in favor or against the proposed work.

AUTHORITY: This application will be reviewed pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA).

APPLICANT: Harris County Flood Control District (HCFCD)
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Houston, Texas 77092-8601
Telephone: 713-684-4050
POC: Denise Wade

LOCATION: The project is located on 6,600 linear feet (LF) of Buffalo Bayou (W100-00-00) and 800 LF of the Hogg Bird tributary of Buffalo Bayou, in the vicinity of the southeastern boundary of Memorial Park, in Houston, Harris County, Texas. The project can be located on the U.S.G.S. quadrangle map entitled: Houston Heights, Texas.

LATITUDE & LONGITUDE (NAD 83): Begin: 29.757625 N, -95.422011 W, End 29.757581 N, -95.435117 W

PROJECT DESCRIPTION: The HCFCD is proposing to restore approximately 6,600 linear feet Buffalo Bayou (W100-00-00) and 800 LF of the Hogg Bird Tributary of Buffalo Bayou, in Houston, Harris County, Texas. The proposed project area on Buffalo Bayou flows adjacent to Memorial Park (north side of the stream) and the River Oaks Country Club (ROCC) (south side of the stream), and will also include areas immediately adjacent to the stream and a proposed construction access area point south of the Memorial Park City of Houston maintenance facility, located within Memorial Park. The project area is in a non-tidal stream segment.

The upstream project limit is 1,450 LF east of the end of Pinehill Lane (2.36 river miles upstream of the Shepherd Drive crossing) and the downstream project limit is 350 LF south-southwest of the southern end of Westcott Street (1.15 river miles upstream of Shepherd Drive). The proposed stream restoration project will restore a portion of Buffalo Bayou by utilizing Natural Channel Design techniques to create a stable stream reach that will neither aggrade nor degrade and will minimize shear stresses on the banks that are causing extensive areas of active erosion within the proposed project area. Aquatic resource functions will be improved by establishing a riffle and pool system, installing in-stream structures to protect the banks from erosive flows and provide aquatic habitat, modifying the stream bed and banks to restore stream meanders, re-establishing native vegetation, and stabilizing banks that have eroded and are threatening the integrity of adjacent properties.

Several techniques will be used to enhance the stream condition within the project area:

- The stream bed and banks will be regraded to establish a pool and riffle system and to restore stream meanders.
- Eroding banks will be regraded to reduce erosion and sedimentation within the project area, thereby improving water quality.
- Toe wood (woody debris toe protection), will be installed as a bank stabilization structure and will create areas that will improve aquatic habitat and reduce erosion and sedimentation within the project area.
- The installation of a bankfull bench will restore connectivity to the in-stream floodplain, allowing discharges above the bankfull elevation to disperse and dissipate erosive stream flows, thereby reducing hydraulic head and in-stream velocity at bankfull flows. In areas where bank stabilization is proposed, the banks will be graded to a slope of 3:1 with a slope of 7:1 on point bars.
- Coir fiber matting, made from coconut fiber, will be placed on graded slopes along with temporary and permanent native vegetation, to provide for erosion control.
- A planting plan for the long term revegetation of the project area will be implemented to re-establish native vegetation and prevent erosion.
- Vegetated stabilized earthen walls will be installed on slopes that require grading steeper than 3:1 due to right-of-way constraints.
- Stream flow training will be used to re-direct erosive flow velocities within the stream, and a more efficient channel cross-section (narrower and deeper) will be constructed to increase the width/depth ratio and improve sediment transport efficiency.

The HCFCD's proposed stream restoration project will utilize these natural channel design techniques to improve aquatic resource functions within the proposed project area. The project purpose is to restore and stabilize approximately 6,600 LF of Buffalo Bayou and 800 LF of the Hogg Bird Tributary of Buffalo Bayou, with improvements to the dimension, pattern and profile allowing the stream to convey storm water and sediment loads more efficiently, while maintaining a stable dimension, pattern, and profile without aggrading or degrading, and providing diverse aquatic habitat. The project design is based upon the existing site characteristics and needed restoration.

Natural Channel Design techniques utilized to stabilize the stream through the project area will require temporary impacts to the stream and a decrease in stream length to 5,800 feet within Buffalo Bayou and to 600 LF within the Hogg Bird Tributary's project area. The reductions in stream length are needed because some curve radii are too tight, which causes, instability, shear stress, and severe bank erosion; however, the proposed project will result in an overall ecological lift with an average Reach Condition Index (RCI) score increase of 0.64. This will be accomplished through improvement of the stream conditions, riparian buffer, and channels alterations within the stream.

Due to the nature of the proposed project, 18 in-stream wetlands and six depressional wetlands, totaling 0.61 acre, will be impacted by the proposed project. The wetlands are located above and below the OHWM of Buffalo Bayou. The dominant type of wetlands present is in-stream wetlands, located at or below the OHWM. The in-stream wetlands are generally below any riparian buffer, bankfull bench, or floodplain areas that are present.

Except for Wetland 4, which will only be partially impacted; these wetlands are individually relatively small. The impacts to these wetlands will be due to regrading which is necessary to stabilize the stream bed and banks, with the exception of Wetland 26, which are anticipated due to the construction of a haul road that is required for construction access to the stream. Impacts to Wetland 26 could not be avoided or minimized because of the limited project accessibility, since the limitations to stream accessibility include, steep bank slopes for most of the project area, landowner restrictions, and the minimization of impacts to other wetlands within the study area. In addition to the overall ecological up-lift anticipated to result from the proposed project, several bench areas will be created that provide flat surfaces where new in-stream wetlands are anticipated to develop.

The material being discharged into waters of the U.S., including wetlands, will consists of regraded bed and bank material from the project area. Here is a stream impacts table:

Feature	Type	Length (LF)	Total Area (acre)	Total Cut (CY)	Total Fill (CY)	Difference (CY)
W100-00-00 (Buffalo Bayou)	Perennial	6,600	13.85	110,760	115,761	5,001 (Fill)
Unnamed Tributary (Hogg Bird Trib)	Intermittent	800	0.50	6,793	714	6,079 (Cut)
Total		7,400	14.35	117,553	116,475	1,078 (Cut)

BACKGROUND: In late 2010, bayou interest groups and local homeowners approached HCFCD regarding their concern about the increasing erosion within the project area and the opportunity for local partnerships to implement a more holistic approach for addressing erosion within Buffalo Bayou. HCFCD then partnered with the City of Houston (COH) and the ROCC to implement the Memorial Park Demonstration Project. Since interest in the project has been brought to the attention of HCFCD, 33 meetings have been held with 12 groups representing partners, stakeholders, elected officials, special interest groups, and private homeowners, and 2 open public meetings have occurred. The first open public meeting was held in July of 2013, where Dr. Dave Rosgen was the guest speaker and delivered a presentation on Natural Channel Design techniques, which are being proposed for this project. The second open public meeting took place on 17 December 2013, where the HCFCD informed the public about the project. Experts in Natural Channel Design, vegetation, and permitting were present and available to address any specific issues raised by meeting attendees. HCFCD accepted comments from the public during the December 17th meeting and also encouraged the public to submit comments through a designated website specifically designed for that purpose. Comments were reviewed and incorporated where feasible.

CURRENT SITE CONDITIONS: Aquatic resource functions within the project area are highly stressed due to increased flow rates caused by the urbanization of the watershed and the operational processes of the Barker and Addicks reservoirs. The reach is currently widening and degrading in some areas, while aggrading in other areas, causing slope and toe erosion throughout the reach. Per Galveston District's Stream Condition Assessment, Level 1 Visual Channel Condition Variable guidance, the project reach is currently slightly incised, is somewhat over-widened, and has some restricted access to an active floodplain (a floodplain that can be accessed at flows just above the channel-forming flow). Some high banks along the southern boundary of the project reach are being threatened by the eroding slopes. Bank armoring at a single point of erosion has been shown to be ineffective along Buffalo Bayou. The isolated bank armoring installed to deflect the erosive shear stress at the point of failure, in most cases, is attacked at one or both of its terminal ends, resulting in eventual failure. This type of armoring redirects stream energy to a new spot location downstream, creating a new point of stress.

In addition to the general instability of the banks, three major bank failures, caused by active erosion, have been identified within the project area. Two of the identified failures are located on the south bank of the stream, along the ROCC shoreline. These failures are severe in nature and are resulting in the loss of property and are a threat to the owner assets, land use, and safety. One of the identified failures is located on the north bank of the stream, along Memorial Park, where severe active erosion is occurring, within a meander, located just south of the COH maintenance facility. Since 1995, this meander has migrated downstream (east) over 350 LF from its original course, resulting in a loss of land greater than one acre. Another bank failure is occurring along the Hogg-Bird Sanctuary shoreline. This failure is also causing severe erosion and loss of property. Based on the stream assessment conducted through the proposed project reach, active erosion occurring within the project area as a whole adds approximately 359 tons per year of sediment to the stream, and reduces aquatic resource functions.

Due to public requests and concerns raised about the extent of impacts to the existing vegetation by the proposed project, HCFCD expedited the execution of a vegetation inventory of the project area. The vegetation inventory included the documentation of both the canopy and understory species of vegetation present within the project area. In particular, trees 8" in diameter and greater (measured at breast height – DBH) were inventoried and cataloged by species, height, DBH, crown spread, condition index (health), average canopy width, any notable features, and location (GPS x,y,z coordinates). In all 972 trees were inventoried ranging in condition from dead to excellent. A large majority of the trees inventoried will be out of the proposed work area, and/or preserved. The re-vegetation plan for the proposed work areas will include the planting of up to 4,600 new trees. A planting plan has been developed that will be used to re-establish native vegetation, stabilize the banks, and to improve the riparian buffer after construction is complete. The planting plan is incorporated into the project plan sheets.

AVOIDANCE AND MINIMIZATION: Total avoidance of waters of the U.S. is limited by the nature of the proposed project. The restoration of Buffalo Bayou through this project area makes avoidance unfeasible. The proposed project will enhance existing stream conditions by creating stable stream conditions and reducing erosion. Some impacts to Wetland 4, were avoided, 0.09 acre of 0.12 acre will remain in existing condition.

The proposed project has also been designed and will be constructed to minimize impacts to waters of the U.S. and wetlands. Only the minimum necessary modifications to the channel for long-term stability will be made. Where channel and bank stabilization was not necessary, wetland areas will not be impacted.

MITIGATION: This stream restoration project is aimed at reducing erosion, sedimentation and improving water quality, while providing for improved aquatic resource functions. The project will provide an overall aquatic benefit as demonstrated through the use of the Galveston District's Level 1 Stream Condition Assessment Methodology; therefore compensatory mitigation is not proposed.

The Galveston District Stream Condition Assessment describes the parameters under Level 1 streams to include: 1) Visual Channel Condition, 2) Riparian Buffer, 3) Aquatic Use, and 4) Channel Alteration. Existing and post-project conditions were assessed by transect. The proposed project is anticipated to increase the RCI by an average score of 0.76 across all transects including Buffalo Bayou and the Hogg Bird tributary. These proposed increases are based on the results of the Galveston District's Routine Stream Condition Assessment Data Forms for Level 1 Streams in each segment where natural stream design techniques are used to restore aquatic resources. Natural channel design techniques used to restore aquatic resources are expected to result in the following RCI improvements:

- Improve Channel Condition by an average RCI of 1.87;
- Improve Riparian Buffer conditions by an average RCI of 0.21; and
- Improve Channel Alterations by an average RCI of 0.94.

Stream conditions will be improved in restored areas to an Optimal (Score 5) condition as a result of restoring the stream dimension, pattern, and profile, regrading the banks, adding point bars, adding bankfull benches, installing woody debris toe wood protection, and restoring vegetative cover. A planting plan, live staking, and the restoration of stream meanders will provide an improvement to the riparian buffer. By restoring structures within the proposed project area, stream conditions (post construction) will be improved to at minimum marginal (Score 3.60) condition.

Several areas within the stream enhancement project are anticipated to form wetland areas. A bankfull bench typically ranging between 10 feet and 40 feet in width and a low flow bench typically ranging from 3 feet to 10 feet in width will provide flat surfaces where wetland plants may be established. The planting plan for this project includes seeding and/or planting these areas, and it is likely that wetlands will be permanently established there. There is potential for 2 to 8 acres of emergent in-stream wetlands to be established. Due to the improved hydrology and use of native plantings and seed mixes, these wetlands will likely be of higher quality than the existing wetlands present. In addition, approximately 0.8 acre of specific wetland plantings will be included within Transect 6, where the existing channel will be abandoned.

This public notice is being issued based on information furnished by the applicant. This information has not been verified by the Corps. Wetland delineations (SWG-2011-00628 and SWG-2012-01007) have been completed and verified by the Corps on 16 February 2012 and 25 January 2013. The applicant's plans are enclosed in 41 sheets.

A preliminary review of this application indicates that an Environmental Impact Statement (EIS) is not required. Since permit assessment is a continuing process, this preliminary determination of EIS requirement will be changed if data or information brought forth in the coordination process is of a significant nature.

Our evaluation will also follow the guidelines published by the U.S. Environmental Protection Agency pursuant to Section 404 (b)(1) of the CWA.

OTHER AGENCY AUTHORIZATIONS: Consistency with the State of Texas Coastal Management Plan is required. The applicant has stated that the proposed activity complies with Texas' approved Coastal Management Program goals and policies and will be conducted in a manner consistent with said program.

This project would result in a direct impact of greater than three acres of waters of the state or 1,500 linear feet of streams (or a combination of the two is above the threshold), and as such would not fulfill Tier I criteria for the project. Therefore, Texas Commission on Environmental Quality (TCEQ) certification is required. Concurrent with Corps processing of this application, the TCEQ is reviewing this application under Section 401 of the CWA and in accordance with Title 30, Texas Administrative Code Section 279.1-13 to determine if the work would comply with State water quality standards. By virtue of an agreement between the Corps and the TCEQ, this public notice is also issued for the purpose of advising all known interested persons that there is pending before the TCEQ a decision on water quality certification under such act. Any comments concerning this application may be submitted to the Texas Commission on Environmental Quality, 401 Coordinator, MSC-150, P.O. Box 13087, Austin, Texas 78711-3087. The public comment period extends 30 days from the date of publication of this notice. A copy of the public notice with a description of work is made available for review in the TCEQ's Austin office. The complete application may be reviewed in the Corps office listed in this public notice. The TCEQ may conduct a public meeting to consider all comments concerning water quality if requested in writing. A request for a public meeting must contain the following information: the name, mailing address, application number, or other recognizable reference to the application; a brief description of the interest of the requester, or of persons represented by the requester; and a brief description of how the application, if granted, would adversely affect such interest.

NATIONAL REGISTER OF HISTORIC PLACES: The staff archaeologist has not reviewed the latest published version of the National Register of Historic Places, lists of properties determined eligible, and other sources of information.

A cultural resources investigation was completed to determine if significant cultural resources are present within the project's Area of Potential Effect (APE) and to determine the potential the project has to adversely affect any such resources. The survey was conducted on property owned by the COH. Therefore, Texas Antiquities Permit Number 6459 was issued by the Texas Historic Commission (THC): Division of Archeology in February 2013 to David Bruner prior to field mobilization. All fieldwork and reporting activities were completed with reference to state (the Antiquities Code of Texas) and Federal (NHPA) guidelines. This project is subject to review under the Antiquities Code of Texas and Section 106 of the NHPA as required by Corps regulations.

Concurrence has been received on two antiquities permits and one additional antiquities permit is pending concurrence. One historic age resource, structures from a bridge possibly associated with Camp Logan were found within the project area. Investigations into the nature of the structures are continuing. Two locations are being investigated using 3D sonar scanning. The first location is the area of the known structure within the project area, and a second location where historic mapping suggests the actual location of a bridge associated with Camp Logan was located. The location within the project area appears to be part of a short-lived sewer system put in place during the last months of the existence of Camp Logan. Results of the investigation will be provided and concurrence will be forwarded once received from THC.

THREATENED AND ENDANGERED SPECIES: Preliminary indications are that no known threatened and/or endangered species or their critical habitat will be affected by the proposed work.

Activities that disturb bird habitat, such as clearing and grubbing, should take place between September 15 and March 1 to avoid nesting of migratory birds. If clearing is necessary outside of the recommended period, a migratory bird nest survey will be conducted to verify migratory bird nests are not active before clearing begins. The migratory bird nest survey will be performed no more than 10 days prior to clearing work by a professional with ornithological experience. If active nests are discovered during the survey, the nests will be avoided and a non-disturbance buffer will be implemented. If avoidance of the nests is not possible, a professional with ornithological experience will monitor the nests during construction and/or the relocation of the bird nests. Monitoring and/or relocation activities will be coordinated with the USFWS.

PUBLIC INTEREST REVIEW FACTORS: This application will be reviewed in accordance with 33 CFR 320-332, the Regulatory Programs of the Corps, and other pertinent laws, regulations and executive orders. The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the proposal, will be considered: among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and, in general, the needs and welfare of the people.

SOLICITATION OF COMMENTS: The Corps is soliciting comments from the public, Federal, State, and local agencies and officials, Indian tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Impact Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

This public notice is being distributed to all known interested persons in order to assist in developing facts upon which a decision by the Corps may be based. For accuracy and completeness of the record, all data in support of or in opposition to the proposed work should be submitted in writing setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition.

PUBLIC HEARING: The purpose of a public hearing is to solicit additional information to assist in the evaluation of the proposed project. Prior to the close of the comment period, any person may make a written request for a public hearing, setting forth the particular reasons for the request. The District Engineer will determine if the reasons identified for holding a public hearing are sufficient to warrant that a public hearing be held. If a public hearing is warranted, all known interested persons will be notified of the time, date, and location.

CLOSE OF COMMENT PERIOD: All comments pertaining to this public notice must reach this office on or before **30 May 2014**. Extensions of the comment period may be granted for valid reasons provided a written request is received by the limiting date. **If no comments are received by that date, it will be considered that there are no objections.** Comments and requests for additional information should reference our file number, **SWG-2012-01007**, and should be submitted to:

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