

## Environmental Determination

### MEMORANDUM

**TO:** File

**FROM:** Jessica Zuba, Director, Regional Water Planning and Development

**DATE:** December 2, 2015

**SUBJECT:** West Harris County Regional Water Authority  
Harris and Fort Bend Counties  
Environmental Determination  
Second Source Project – North-South Second Source Line  
Water Infrastructure Fund: Project 21700 (L120010)

The attached memorandum contains the staff's views regarding the environmental soundness of the Second Source Project proposed by West Harris County Regional Water Authority (WHCRWA), Harris and Fort Bend Counties, Texas. This project will utilize planning and acquisition funds from loan L120010 from the Water Infrastructure Fund (WIF). The Texas Water Development Board (TWDB) committed this loan on December 15, 2011, in the amount of \$41,965,000. WHCRWA closed the loan on March 29, 2012.

The Second Source Project will construct a 40-mile water transmission pipeline across north Houston, to bring 150 Million Gallons of treated water per day to approximately 880,000 people in West Harris and Fort Bend Counties. As part of the Second Source Project, WHCRWA is proposing the North-South Second Source Line, which consists of approximately 9.8 miles of a 96-inch diameter waterline. The proposed pipeline would provide water transmission service to 104 active Municipal Utility Districts (MUDs) within the WHCRWA service area. This Environmental Determination pertains to the North-South Second Source Line.

Based on staff's environmental review, I have determined that no significant adverse environmental impacts should result from the proposed project discussed in the attached Environmental Determination. As required by 31 Texas Administrative Code §363.14, full consideration has been given to the views and comments of the requisite regulatory agencies and affected persons. Based on this review, the following conditions have been developed in order to ensure that this TWDB funded project is environmentally sound and will not have any adverse impacts on the quality of the human environment:

- As per agreement with the United States Army Corps of Engineers, the West Harris County Regional Water Authority agrees to comply with the terms and conditions of the U.S. Army Corps of Engineers Nationwide Permit 12 for

Environmental Determination

Second Source Project – North-South Second Source Line (WIF #21700)

Page 2

Utility Line Activities (USACE Project No. SWG-2013-00161);

- For any construction within a 100-year floodplain, a floodplain permit or documentation from the local floodplain administrator that no permit is required must be obtained prior to construction or clearing activities;
- As per agreement with the Texas Parks and Wildlife Department (TPWD Project No. ERCS-8975), and in order to ensure compliance with the Migratory Bird Treaty Act, clearing and construction activities will be avoided during the April 1 – July 15 migratory bird nesting season. If it is necessary to conduct these activities during this time period, a survey will be conducted by a qualified biologist prior to vegetation removal. All construction activities as identified above will be excluded from a minimum zone of 100 meters around any raptor nest during the period of February 1 – July 15;
- Standard emergency condition for the discovery of cultural resources; and,
- Standard emergency condition for the discovery of threatened and endangered species.

With the addition of these conditions, the specified project elements above are environmentally sound and design funds may be released once all other requirements are satisfied.

Enclosure

**TO:** Jessica Zuba, Director, Regional Water Planning and Development

**THROUGH:** Nancy Richards, Manager, Team 4 (Regions H and I)

**FROM:** Jean Devlin, Environmental Reviewer

**DATE:** December 2, 2015

**SUBJECT:** West Harris County Regional Water Authority  
Harris and Fort Bend Counties  
Environmental Determination  
Second Source Project – North-South Second Source Line  
Water Infrastructure Fund: Project 21700 (L120010)

Pursuant to the environmental assessment requirements of Section §363.14 of the Texas Water Development Board (TWDB) rules, I have conducted a review of the Second Source Project proposed by the West Harris County Regional Water Authority (WHCRWA), Harris and Fort Bend Counties. This project will utilize planning and acquisition funds from loan L120010 from the Water Infrastructure Fund (WIF). The Texas Water Development Board (TWDB) committed this loan on December 15, 2011, in the amount of \$41,965,000. WHCRWA closed on the loan on March 29, 2012.

The following project information can be found in the Environmental Assessment (EA) completed for the North-South Second Source Line<sup>1</sup>.

#### Purpose and Need

The purpose of the proposed project is to meet the requirements of the Harris-Galveston and Fort Bend Subsidence District's mandate to reduce subsidence through the reduction of ground water demands in the area. The proposed system will help WHCRWA meet their mandates by limiting ground water production throughout northwest Harris County.

#### Background

The WHCRWA Second Source Project includes the construction of 40 miles of transmission pipeline through the City of Houston and other parts of Harris County. Two pump stations will be built along the pipeline, which would convey potable water from the City of Houston's Northeast Water Purification Plant (NEWPP) to the distribution systems of the WHCRWA and North Fort Bend Water Authority (NFBWA). Projected capacity of the line is 150 million gallons per day (MGD). Initially, WHCRWA will purchase treated water from the City of Houston. Later, the Coastal Water Authority's Luce Bayou Interbasin Water Transfer Project (LBIWTP) will replace the water purchased from the City of Houston by providing surface water that would be treated in

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<sup>1</sup> West Harris County Regional Water Authority (September 2014). *Draft Environmental Assessment: Re-Evaluation WHCRWA North-South Second Source Water Line Project* (Prepared by Terracon Consultants, Inc. Consultants, Inc., for West Harris County Regional Water Authority). Received by TWDB on January 26, 2015.

the NEWPP. The LBIWTP is considered an essential related project integral to the long-term viability of WHCRWA's Second Source Project. The Second Source Project is divided into four project components: East Re-Pump Station, Second Source Central Pump Station, East-West Second Source Line, and North-South Second Source Line. This EA pertains to the North-South Second Source Line.

### Project Description

WHCRWA is proposing to construct an underground water transmission system consisting of approximately 9.8 miles of a 96-inch diameter waterline. The proposed pipeline would provide water transmission service to 104 active Municipal Utility Districts (MUDs) within the WHCRWA service area. The proposed pipeline would be installed via open trench excavation and tunneling excavation construction methods. Excavated trenches are anticipated to be approximately 20 feet. Trenchless construction methods will be utilized to install pipeline segments under streams, waterways, channels, and ditches to limit disturbance in those areas.

The proposed easement for the North-South Second Source Line generally consists of land beginning at the NEWPP adjacent to the Union Pacific Railroad easement. The proposed easement continues southwest approximately six miles to Little York Road. From there, the pipeline easement spurs west and continues approximately 3.5 miles bordering the north portion of the Little York Right-of-Way (ROW) to Willie Street. From there, the proposed easement continues approximately 0.25 mile to an existing WHCRWA easement. The section of land is an approximately 50-foot wide easement for a proposed pipeline extending approximately 9.8 miles and a total of approximately 59.6 acres.

### Reviews by Regulatory Agencies and Resulting Conditions

Terracon Consultants, Inc., on behalf of WHCRWA, coordinated with the following federal and state regulatory agencies and entities for the North-South Second Source Line: Texas Parks and Wildlife Department (TPWD); U.S. Army Corps of Engineers, Galveston District (USACE); Texas Historical Commission (THC); U.S. Fish and Wildlife – Clear Lake Ecological Services Field Office (USFWS); City of Houston, North Fort Bend Water Authority; Harris County; and the Harris-Galveston Subsidence District. A summary of the correspondence has been provided in this report.

### Texas Parks and Wildlife Department, Sand and Gravel Permitting Coordinator

Terracon Consultants, Inc. initiated contact with TPWD on March 18, 2014 and requested the review and submission of comments or recommendations for the North-South Second Source Line. TPWD was sent the request for review on June 19, 2012 via certified mail. No adverse comments or recommendations have been received as of the date of this report. WHCRWA will not install the North-South Second Source Line via open trench cut methods through navigable waters or otherwise public streams, therefore

a sand and gravel permit will not be required.

Texas Parks and Wildlife Department, Wildlife Division, Wildlife Habitat Assessment Program

Terracon Consultants, Inc. initiated contact with TPWD on March 18, 2014 and requested the review and submission of comments or recommendations for the North-South Second Source Line. Terracon Consultants, Inc. received a letter from TPWD on June 4, 2014 with the following recommendations for the North-South Second Source Line:

- TPWD recommends that clearing of mature, native trees be avoided. Loss of vegetation should be minimized by using site planning and construction techniques designed to avoid and preserve existing trees, shrubs, grasses, and forbs. For impacts that are unavoidable, TPWD recommends transplanting the existing trees or replacing them at a ratio of 3 saplings for every tree lost. Whether transplanted or replaced, a survival of 85% should be achieved. TPWD recommends that native plant and forage species that are beneficial to wildlife endemic to the area be used in mitigation and landscaped areas.
- Construction activities such as, but not limited to, tree felling as well as vegetation clearing, trampling, or maintenance should occur outside the April 1 – July 15 migratory bird nesting season of each year the project is authorized and lasting for the life of the project. To comply with the Migratory Bird Treaty Act, the proposed site should be surveyed for migratory bird nest sites prior to construction or future maintenance activities. Since raptors nest in late winter and early spring, all construction activities as identified above should be excluded from a minimum zone of 100 meters around any raptor nest during the period of February 1 – July 15.
- TPWD recommends using the county list of rare species, the portions of the proposed project with potential to support rare species should be field surveyed to determine the extent and quality of the suspect habitat and potential impacts.
- If rare species or their habitat would be impacted by the proposed project, TPWD recommends that the applicant should coordinate with TPWD and the USFWS, as appropriate, to determine avoidance, minimization, and mitigation strategies.
- TPWD recommends that construction crews should be informed of the rare species that have potential to occur in the project county and should avoid disturbance to sensitive species if encountered during construction. Only personnel with a TPWD scientific collection permit are allowed to handle and move state listed species.
- TPWD recommends that the WHCRWA reseed disturbed soils with a mixture of grasses and forbs native to Harris County. To enhance native grasses available to wildlife in the project area, TPWD recommends that Bermuda grass be avoided to the extent possible in reseeded efforts, though TPWD understands that slopes may require certain grasses to control erosion. As an introduced species that can

be extremely invasive, its use in federally funded projects may be inconsistent with Executive Order 13112 on Invasive Species.

U.S Army Corps of Engineers, Galveston District

The USACE provided a response letter dated March 13, 2014 (Project Number SWF-2013-00161) stating that the proposed project will involve activities subject to the requirements of Section 404 of the Clean Water Act and that the project appears to qualify for a NWP 12 for Utility Line Activities. The letter was provided in reference to a request from WHCRWA dated February 19, 2013, submitted by Terracon Consultants, Inc. Consultants, Inc. on behalf of WHCRWA, to install 10 miles of a 96-inch diameter water line starting at the intersection of Water Works Boulevard and Beltway 8 to the intersection of Langley Road and Interstate 69 in Houston, Harris County, Texas. Provided that the permittee complies with all the terms and conditions therein, the project may proceed. The Nationwide Permit is valid until March 19, 2017.

The pipeline will be installed via open-cut and will temporarily discharge fill into 1.94 acres of palustrine emergent wetlands and 28.32 acres of palustrine forested wetlands. Vegetation within the 50-foot easement for the pipeline will be mechanically cleared, converted to, or maintained as, herbaceous wetlands.

The following special conditions were applied to this authorization:

1. The permittee must notify the Corps of Engineers (CE), Galveston, Chief, Compliance Section, Regulatory Branch, in writing, at the start of construction within the jurisdictional areas.
2. The permittee must provide a copy of the executed and recorded conservation easement within 6 months of the start of construction within the jurisdictional areas to the CE, Galveston District, Chief, Compliance Section, Regulatory Branch.
3. Monitoring and maintenance will proceed according to the mitigation plan included as attachment A to submission. The mitigation success criteria must be achieved for the mitigation requirement to be considered complete.
4. Should mitigation be considered unsuccessful by CE, Galveston District personnel at the end of the monitoring period, the permittee will be required to take necessary corrective measures, as approved by the CE. Once the corrective measures are completed, the permittee will notify the CE and a determination will be made regarding success of the mitigation.

The WIF loan is conditioned to read that WHCRWA agrees to comply with the terms and conditions of the USACE Nationwide Permit 12 for Utility Line Activities (USACE Project No. SWG-2013-00161).

Texas Historical Commission

According to a file review of the Texas State Historical sites conducted by Terracon Consultants, Inc. Consulting, Inc., no National Register of Historic Places (NRHP) are mapped within the proposed project area. According to a review of state files, one known archaeological resource site (41HR875) is located within approximately 40 feet of the project alignment. As such, if cultural resources are encountered during construction, all construction action will cease and a professional archaeologist would be contacted to investigate the area to provide the appropriate recommendations. If the findings of the professional archaeologist are considered to be significant, a recovery plan will be prepared and implemented in accordance with all state, local, and federal law and in consultation with the State Historic Preservation Officer (SHPO).

A copy of the Cultural Resources review report prepared by Terracon Consultants, Inc., dated June 27, 2012, was forwarded to the THC for concurrence. On August 14, 2012, the THC responded and requested an archaeological survey. A survey was then conducted on November 2, 2012 by South Texas Archeological Research Services, LLC (STARS). Results of the cultural resources survey conducted by the Principal Investigator revealed that the project should not affect cultural resources eligible for land marking. The THC provided concurrence of this finding in November 2012.

When the Little York Alignment, which is currently considered the Preferred Alternative alignment for the North-South Second Source Line, was proposed, an additional cultural resources survey was conducted and the Cultural Resources Review report, dated June 27, 2012, was updated. The updated Cultural Resources Review report, dated November 2012, was submitted to the THC for concurrence. STARS performed a visual surface inspection of approximately 600 linear feet of the pipeline easement near archaeological resource site 41HR875 and the Greens Bayou crossing, and approximately 7,100 linear feet of the pipeline easement near Halls Bayou, which includes the TASA plot for archaeological resource site 41HR83. Seventeen shovel tests were excavated along the easement as well as 6 additional shovel tests at each of the two known archeological resource sites. On June 4, 2013, THC provided concurrence that the need to proceed with further investigation of cultural resources was not warranted. On April 7, 2014, Terracon Consultants, Inc. submitted a cultural resources survey report to the THC for review. The cultural resources survey report concluded that all remaining portions of archaeological resource site 41HR875 within the project area has apparently been destroyed by natural or artificial disturbance and that the installation of the proposed pipeline should not affect any cultural resources for land marking. On August 11, 2014, the THC provided concurrence of the cultural resources survey report, dated April 7, 2014, for the altered section of the WHCRWA North-South Second Source.

The WIF loan is conditioned to read that if archeological sites are discovered during construction, work will cease immediately in that area and WHCRWA will notify the THC and the TWDB of the discovery. The THC and the TWDB will then proceed in

accordance with the regulations of the Advisory Council on Historic Preservation (36 CFR Part 800) prior to taking any action which would affect the cultural resources.

U.S. Fish and Wildlife Service, Clear Lake Ecological Services Field Office

Terracon Consultants, Inc. conducted a review of the USFWS Endangered Species List for Harris County and the TPWD's Annotated County List of Rare Species for Harris County, as revised August 7, 2012. A review of the TPWD Texas Natural Diversity Dataset (TXNDD) was performed in February for known occurrences of listed species within the proposed project area. According to their review, one EO of the Texas prairie-dawn flower is located approximately one mile north of the north portion of the proposed project area. One Bald Eagle nesting site is mapped approximately one mile northwest of the north segment of the proposed project area. One bird rookery is mapped approximately one mile east of the central portion of the proposed project area. One occurrence of the Houston Daisy (*Rayjacksonia aurea*) is located approximately 110 feet east of the proposed project area.

A pedestrian survey of the proposed project area was conducted on December 21 and 29, 2011 and December 4, 2013 by Terracon Consultants, Inc. The pedestrian survey did not reveal the presence of any potential threatened or endangered species or habitat within the proposed project area.

Terracon Consultants, Inc. initiated contact with USFWS, Clear Lake Ecological Services Field Office on March 18, 2014 and requested the review and submission of comments or recommendations for the North-South Second Source Line. No adverse comments or recommendations have been received as of the date of this report.

The WIF loan has been conditioned to read that if threatened or endangered species are encountered during construction, the Contractor shall immediately cease work in the area of the encounter and notify the Owner, who will immediately implement actions in accordance with the Endangered Species Act and applicable State statutes. These actions shall include reporting the encounter to the TWDB, the USFWS, and the TPWD, obtaining any necessary approvals or permits to enable the work to continue, or implement mitigation actions. The Contractor shall not resume construction in the area of the encounter under authorized to do so by the Owner.

City of Houston

Terracon Consultants, Inc. initiated contact with the City of Houston on March 18, 2014 and requested the review and submission of comments or recommendations for the North-South Second Source Line. On April 11, 2012, the City of Houston had requested a copy of the environmental document for the proposed North-South Second Source Waterline. The City of Houston was sent the request to review the proposed project on June 19, 2012 via certified mail. No adverse comments or recommendations have been received as of the date of this report.

North Fort Bend Water Authority

Terracon Consultants, Inc. initiated contact with North Fort Bend Water Authority (NFBWA) on March 18, 2014 and requested the review and submission of comments or recommendations for the North-South Second Source Line. NFBWA was sent the request to review the proposed project on June 17, 2012. No adverse comments or recommendations have been received as of the date of this report.

Harris County

Terracon Consultants, Inc. initiated contact with Harris County on March 18, 2014 and requested the review and submission of comments or recommendations for the North-South Second Source Line. Harris County was sent the request to review the proposed project on June 19, 2012 via certified mail. No adverse comments or recommendations have been received as of the date of this report.

Harris-Galveston Subsidence District

Terracon Consultants, Inc. initiated contact with Harris-Galveston Subsidence District on March 18, 2014 and requested the review and submission of comments or recommendations for the North-South Second Source Line. Harris-Galveston Subsidence District was sent the request to review the proposed project on June 25, 2012 via certified mail. No adverse comments or recommendations have been received as of the date of this report.

Floodplain Administrator

According to the FEMA Floodplain map, the North-South Second Source Line intersects the 100-year floodplain. Terracon Consultants, Inc. initiated contact with the City of Houston Floodplain Administrator and the Harris County Floodplain Administrator on October 26, 2015. WHCRWA will submit final plans and specifications for review to the Floodplain Administrators. The WIF loan is conditioned to read that a floodplain permit or documentation from the local floodplain administrator that no permit is required must be obtained prior to construction or clearing activities within the 100-year or 500-year floodplain.

Conditions and Recommendation

Full consideration has been given to the views and comments of the requisite regulatory agencies and affected persons. Based on a detailed environmental review consistent with 31 TAC §363.14, the following conditions have been developed in order to ensure that this TWDB funded project is environmentally sound and will not have any adverse impacts on the quality of the human environment:

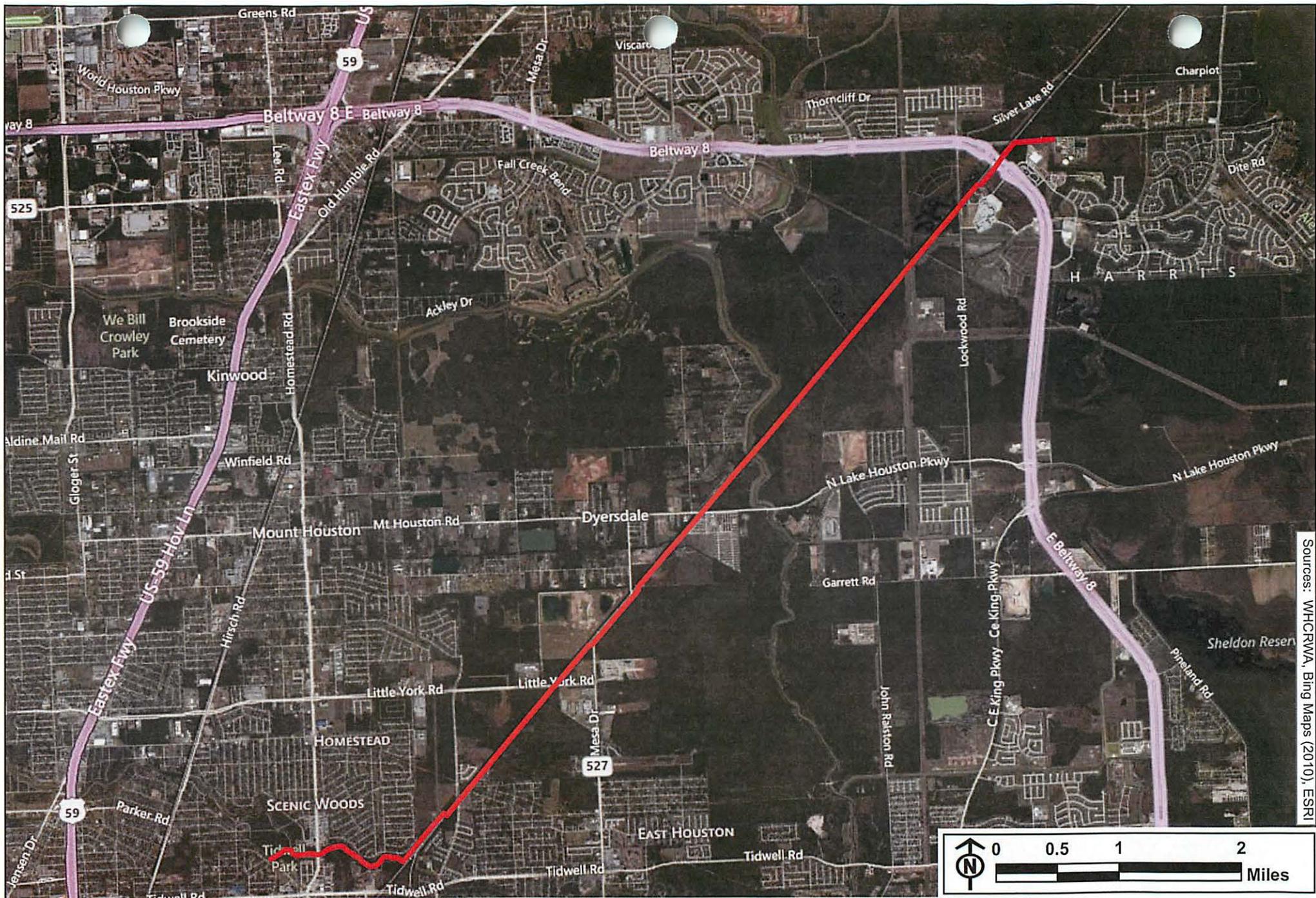
Environmental Determination

Second Source Project – North-South Second Source Line (WIF #21700)

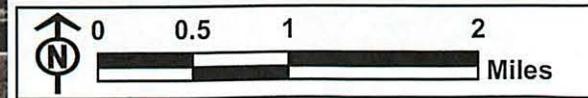
Page 8

- As per agreement with the United States Army Corps of Engineers, the West Harris County Regional Water Authority agrees to comply with the terms and conditions of the U.S. Army Corps of Engineers Nationwide Permit 12 for Utility Line Activities (USACE Project No. SWG-2013-00161);
- For any construction within a 100-year, a floodplain permit or documentation from the local floodplain administrator that no permit is required must be obtained prior to construction or clearing activities;
- As per agreement with the Texas Parks and Wildlife Department (TPWD Project No. ERCS-8975), and in order to ensure compliance with the Migratory Bird Treaty Act, clearing and construction activities will be avoided during the April 1 – July 15 migratory bird nesting season. If it is necessary to conduct these activities during this time period, a survey will be conducted by a qualified biologist prior to vegetation removal. All construction activities as identified above will be excluded from a minimum zone of 100 meters around any raptor nest during the period of February 1 – July 15;
- Standard emergency condition for the discovery of cultural resources; and,
- Standard emergency condition for the discovery of threatened and endangered species.

With the addition of these conditions, I recommend that the Executive Administrator find the specified project elements above to be environmentally sound and that design funds be released once other requirements are satisfied.



Sources: WHCRWA, Bing Maps (2010), ESRI



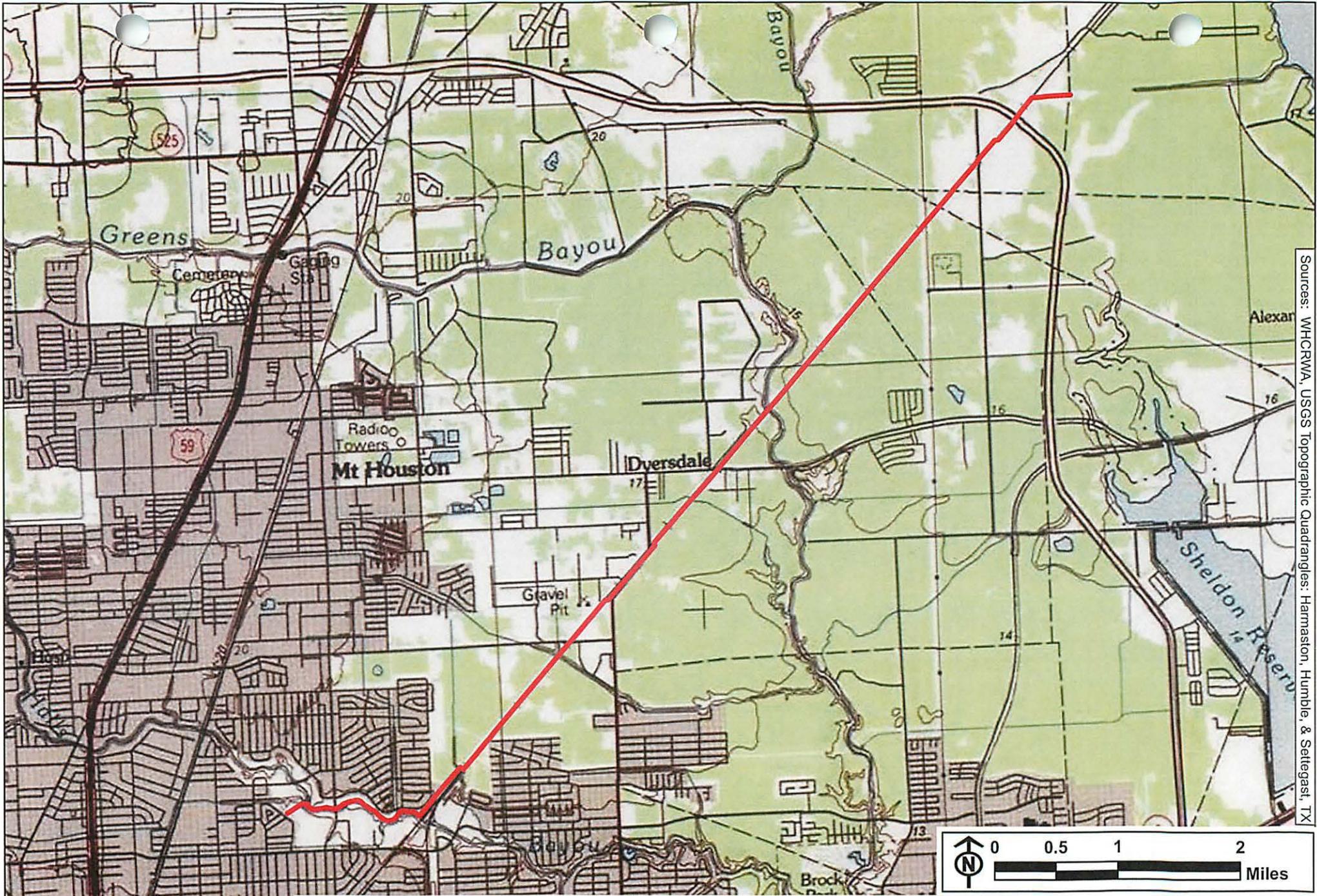
<b>Legend</b>
Pipeline Alignment

DRAWN BY	CH
CHECKED BY	GH
SCALE	1 in: 1 mile
DATE	06/11/2012

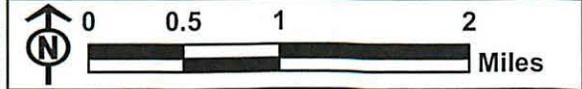
**Terracon**  
Consulting Engineers & Scientists  
Terracon Project No. 92127205

Location Map
WHCRWA NORTH - SOUTH SECOND SOURCE PROJECT HARRIS COUNTY, TEXAS

Map
1



Sources: WHCRWA, USGS Topographic Quadrangles: Hammaston, Humble, & Settegast, TX



**Legend**  
 Pipeline Alignment

DRAWN BY	CH
CHECKED BY	GH
SCALE	1 in: 1 mile
DATE	06/11/2012

**Terracon**  
 Consulting Engineers & Scientists  
 Terracon Project No. 92127205

Topographic Map  
 WHCRWA  
 NORTH - SOUTH SECOND SOURCE PROJECT  
 HARRIS COUNTY, TEXAS

Map  
 2