Public Notice

US Army Corps of Engineers
Fort Worth District

Applicant: Upper Trinity Water Regional Water District

Permit Application No.: 200300336

Date: October 10, 2008 (Public Notice for EIS Scoping Process)

The purpose of this public notice is 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. We hope you will participate in this process.

Regulatory Program

Since its early history, the U.S. Army Corps of Engineers has played an important role in the development of the nation's water resources. Originally, this involved construction of harbor fortifications and coastal defenses. Later duties included the improvement of waterways to provide avenues of commerce. An important part of our mission today is the protection of the nation's waterways through the administration of the U.S. Army Corps of Engineers Regulatory Program.

Section 10

The U.S. Army Corps of Engineers is directed by Congress under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) to regulate *all work or structures in or affecting the course, condition or capacity of navigable waters of the United States*. The intent of this law is to protect the navigable capacity of waters important to interstate commerce.

Section 404

The U.S. Army Corps of Engineers is directed by Congress under Section 404 of the Clean Water Act (33 USC 1344) to regulate the *discharge of dredged and fill material into all waters of the United States, including wetlands*. The intent of the law is to protect the nation's waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical and biological integrity.

Contact

Name: Ms. Mary Flores

Phone Number: (817) 886-1739

JOINT PUBLIC NOTICE

U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

AND

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUBJECT: Application by the Upper Trinity Regional Water District (UTRWD) for a Department of the Army Permit under Section 404 of the Clean Water Act (CWA) and for water quality certification under Section 401 of the CWA to discharge dredged and fill material into waters of the United States (U.S.) associated with the construction of the Lake Ralph Hall project in Fannin County, Texas.

NOTE: On March 14, 2008, the USACE published and distributed a Public Notice to inform interested parties about the proposed Lake Ralph Hall project, to solicit comments relevant to the Section 404 permit application, and to inform the public about an April 15, 2008, scoping meeting that was held at Fannindel High School in Ladonia, Texas. The purpose of this Public Notice is to provide information on the proposed project, summarize the information gathered at the public scoping meeting, and announce that the USACE has made the decision to prepare an Environmental Impact Statement (EIS) for the Department of Army permit decision on the proposed Lake Ralph Hall project.

APPLICANT: Upper Trinity Regional Water District
P.O. Drawer 305
Lewisville, Texas 75067

APPLICATION NUMBER: 200300336

DATE ISSUED: October 10, 2008

LOCATION: The project site consists of approximately 11,200 acres, which includes approximately 505 acres associated with the proposed dam, emergency spillway system, raw water intake structure and pump station, and approximately 7,605 acres associated with the proposed conservation pool. The proposed dam would be located on the North Sulphur River approximately 22.5 miles southeast of the City of Bonham and 4.8 miles northeast of the City of Ladonia, between State Highway (SH) 34 and Farm to Market Road (FM) 904. The dam site is situated approximately 1.5 miles upstream of FM 904 in Fannin County, Texas (Figure 1 of 5). The proposed project would be located approximately at UTM coordinates – 706112.62 North and 230383.414 East (Zone 15) on the Ladonia 7.5-minute USGS quadrangle map in the USGS Hydrologic Unit 11140301.

OTHER AGENCY AUTHORIZATIONS: State Water Quality Certification, Texas Commission on Environmental Quality (TCEQ) Water Right Permit, Texas Pollutant Discharge Elimination System (TPDES) Storm Water Permit, Texas Department of Transportation (TXDOT) Bridge Relocation Permit.

PROJECT DESCRIPTION: The applicant, the Upper Trinity Regional Water District (UTRWD) proposes to discharge approximately 289,188 cubic yards of dredged and fill material into approximately 14.3 acres (4,958 linear feet) of waters of the U.S. in conjunction with the construction of the Lake Ralph Hall water supply reservoir. (Figure 2-4 of 5). Overall, the proposed project would impact a total of approximately 339.3 acres (606,867 linear feet) of waters of the U.S. The proposed project would inundate approximately 325 acres (601,909) linear feet of ephemeral and intermittent streams associated with the establishment of an approximately 7,605-acre conservation pool. In addition to the filling and inundation of the North Sulphur River, the proposed project would inundate a portion of a number of its named and unnamed tributaries, including Allen Creek, Bear Creek, Pot Creek, Brushy Creek, Pickle Creek, Davis Creek, Legget Branch, Bralley Pool Creek, Merrill Creek, Hedrick Branch and Long Creek. Further, as part of this project two public roads would require modification, including the reconstruction and elevation of the State Highway 34 bridge and the relocation of Farm to Market Road 1550. No cemeteries, public buildings, or oil/gas wells would require relocation in conjunction with this proposed project.

The proposed project would provide water to approximately 33 towns, cities, and utility districts in portions of Collin, Cooke, Denton, Fannin, Grayson and Wise Counties. Based on information currently available, this region is one of the most rapidly developing areas in North Texas. The Texas Water Development Board Region C Planning Group developed water supply needs projections as part of the Region C Regional Water Plan incorporated into the 2007 State Water Plan. Based on these revised projections, UTRWD's water demands will likely exceed currently available supplies by the mid 2020's. Currently the UTRWD obtains water from Lewisville and Ray Roberts Lakes under contracts with the Dallas Water Utilities (DWU) and the City of Denton as well as from Jim Chapman Lake under a contract with the City of Commerce. Additionally, pursuant to water rights issued by the TCEQ to the UTRWD and its contract with the City of Commerce and other contracts, the UTRWD maintains water rights that allow it to reuse up to 60% of the water obtained from Chapman Lake. In an effort to offset the anticipated shortfall and to provide a reliable water supply for the future, the UTRWD has identified and considered a number of strategies to meet growing water supply demands. These primary strategies include: conservation, purchase of additional supplies from DWU, construction and operation of Lake Ralph Hall, indirect use of water flows associated with water supplied by Lake Ralph Hall, , acquisition of water imported from Oklahoma, use of groundwater from locations within the UTRWD's service area, development of other water supplies from the Sulphur River Basin, and imported water from Lake Texoma.

As part of the planning process for this project, the applicant prepared and submitted an Application for Water Use Permit No. 5821 to the Texas Commission on Environmental Quality (TCEQ). In this permit application, the UTRWD has requested the right to impound up to 180,000 acre-feet of water and to divert up to 45,000 acre-feet per year from the North Sulphur River. A portion of the water

from the lake will be used to meet water demands in an area of Fannin County that lies within the Sulphur River Basin. The remainder of the water from the lake will be transferred via interbasin transfer to the UTRWD's water treatment facilities in Denton County, Texas then distributed through the UTRWD service area in the Trinity River Basin. In addition to providing raw water, the applicant believes the proposed lake would provide economic benefits to the City of Ladonia and Fannin County. Anticipated economic benefits would include additional commerce from recreational usage of the lake and proposed natural areas, residential housing, and commercial development. Other economic benefits could be derived from substantial reductions in soil loss (approximately 174,000 tons annually) associated with the highly erosional characteristics of the North Sulphur River within the footprint of the proposed project.

Historically, this reach of the North Sulphur River has experienced watershed alterations that have substantially modified the landscape of this area. Beginning in the 1920's major portions of the North Sulphur River and its tributaries, including areas within the project site, were channelized to increase drainage of floodwaters from agricultural areas. At the time this work was performed, cotton was the primary agricultural crop produced along this reach of river. Based on a review of available information, it appears the channelization work resulted in a straight channel with an approximate width of 40 feet and an approximate depth of 10 feet. The change in channel configuration and gradient in combination with the highly erosive soils underlying this area and the agricultural practices utilized such as clearing riparian forest along the stream banks caused the river banks and channel bed to become highly unstable. This instability has led to many decades of severe erosion, causing major lateral and vertical channel incision, and has caused approximately 28 million tons of sediment to have been displaced from the project site to locations downstream since the late 1920's. Consequently, the reach of the North Sulphur River located within the project area currently exhibits a width varying from 200 to 300 feet and an approximate depth of 60 feet. As the river has continually deepened and increased in gradient over time, the geometry of the river's tributaries within the watershed has responded to this effect. This response has caused most tributaries to significantly widen, deepen and decrease their sinuosity. Overall, the watershed has sustained substantial reductions in important resources including: aquatic habitat, floodplain functions, and riparian vegetation. The floodplain effects are drastic, as the entire 100-year floodplain is currently contained within the river channel, resulting in abandonment of the historic floodplain.

The effects of channelization have been observed and evaluated in stream systems for many years. In many cases channelized streams will exhibit lateral and vertical channel incision, in addition to erosion for a period of time. However, depending on the characteristics of the waterway and watershed, streams will frequently adjust to the plan, profile and the new hydrologic and sediment dynamics to stabilize over time. Once the system adapts to the altered condition, waterways frequently begin to rebuild more natural channel geometry. Based on a review of available information on the North Sulphur River, there is no evidence this channel is in the process of becoming stabilized or recovering. Several factors contribute to this system's inability to recover and stabilize. These factors include: the highly erosive nature of the weathered Ozan shales underlying the river and streambeds, the high velocities and flash flow character of the watershed,

highly erosive soils, and lack of appropriate bank stabilization. Based on these factors, it is highly improbable the erosion and channel incision would cease any time in the foreseeable future.

Waters of the U.S. present within the boundaries of the project site include approximately 57,858-linear feet (135 acres) along intermittent reaches of the North Sulphur River, approximately 549,009 linear feet (131.8 acres) of named and unnamed ephemeral tributaries of the North Sulphur River, and approximately 72.5 acres of on-channel ponds. Wetlands that are waters of the U.S. are not present within the project site. However, approximately 19.48 acres of isolated waters and wetlands are present. It is likely that the historical hydrologic regime of the North Sulphur River ranged from ephemeral to intermittent with perennial pools and many of its tributaries were originally ephemeral or intermittent in nature. However, this regime has changed over time due to channel widening, streambed deepening, and loss of overhanging vegetation. Approximately 1,900 acres of young and mature forested areas are present within the approximately 11,200-acre project site. These areas provide good cover and wildlife habitat, particularly in those areas associated with associated with old meander scars. However, these areas are not waters of the U.S. and are no longer within the active floodplain. Wooded and scrub shrub plant communities are dominated by a number of woody species including: American elm (*Ulmus americana*), black willow (*Salix nigra*), Bois'darc (*Maclura pomifera*), box elder (*Acer negundo*), cedar elm (*Ulmus crassifolia*), green ash (*Fraxinus pennsylvanica*), honey locust (*Gleditsia tricanthos*), pecan (*Carya illenoensis*), sugar hackberry (*Celtis laevigata*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), and bur oak (*Quercus macrocarpon*). Approximately 1,720 acres of the project site are utilized as cropland and are in rotation for various annual crops. Approximately 3,267 acres of the site consists of open pasture land and grasslands. Depending on their level of management, some of these areas are dominated by improved grasses such as coastal bermudagrass and tall fescue, while others are dominated by Johnsongrass (*Sorghum halapense*) annual ragweed (*Ambrosia artemesifolia*), sumpweed (*Iva annua*), and greenbrier (*Smilax bona-nox*). The remaining project area consists of rural residential development, yards, and roads.

The Caddo-Lyndon B. Johnson (CLBJ) National Grasslands – Ladonia Unit is located within the vicinity of the project site. The Ladonia Unit is comprised of 12 individual noncontiguous tracts of land totaling approximately 2,780 acres. Of the 12 tracts, the proposed reservoir would encompass approximately 320 acres. The proposed conservation pool would inundate approximately 254 acres which represents approximately 9% of the federally-owned land within this unit. The CLBJ National Grasslands are administered by the U.S. Forest Service and managed under a cooperative agreement with the Texas Parks and Wildlife Department. Currently the applicant is discussing several options with the U.S. Forest Service to purchase tracts of land for the purpose of offsetting impacts to federal lands.

The applicant has proposed a mitigation plan designed to compensate for anticipated effects to waters of the U.S. This plan includes the following elements: establishment of contiguous riparian buffers along tributaries to filter runoff, enhancement of plant diversity for habitat improvement, restoration of hydrology to the floodplain located along tributary streams and the upper reaches of the original North Sulphur River, restoration of geomorphology and hydrology to an approximately 14,500-linear foot

reach of the North Sulphur River channel located downstream of the proposed dam, enhancement of this 14,500 linear foot reach with native vegetation, enhancement of stream bank stability and creation of riparian habitat as a result of proposed conservation pool establishment (Figure 5 of 5). This area would be preserved in perpetuity through execution of a conservation easement.

PUBLIC INTEREST REVIEW FACTORS: This application will be reviewed in accordance with 33 CFR 320-331, the Regulatory Program of the U. S. Army Corps of Engineers (USACE), and other pertinent laws, regulations, and executive orders. Our evaluation will also follow the guidelines published by the U. S. Environmental Protection Agency pursuant to Section 404(b)(1) of the CWA. The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impact, of the proposed activity on the public interest. That decision will reflect the national concerns 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, including its cumulative effects. Among the factors addressed 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, considerations of property ownership, and, in general, the needs and welfare of the people.

As part of the scoping process for the EIS, the USACE 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 USACE in determining whether to issue, issue with modifications, or conditions, 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 will be used in the preparation of an EIS pursuant to the National Environmental Policy Act.

PUBLIC SCOPING MEETING: On Tuesday April 15, 2008, the USACE held an informal public scoping meeting at Fannindel High School, located at 601 West Main Street, Ladonia, Fannin County, Texas. The purpose of this meeting was to disseminate information about the proposed project and its potential effects to the human environment. The USACE sought public comment on the applicant's proposal, in part to assist the agency in determining whether the proposed project would significantly affect the quality of the human environment. The following tables represent the comments that were received during the public scoping meeting:

WATER RESOURCES ISSUES	
Effects to stream receiving inter basin transfer	2
Concern regarding accuracy of Jurisdictional Determination	4
Need to increase riparian and shoreline buffers	3
Need for performance bonds (mitigation)	1

Concerns regarding mitigation design	13
Impacts to aquatic resources associated with water transmission lines	2
Need for additional mitigation	2
Effects to downstream areas losing water due to inter-basin transfer	1
Effects of altered flow regime (downstream)	3
Effects to downstream channel geomorphology	4
Effects to floodplain and need for map revisions	1
Need for review by Floodplain Administrator	1
Effects to water quality associated with receiving waters and source waters	5
Effects to water quality associated with lakeshore development-recreation	4
Effects to isolated wetlands and other isolated waters	2
Effects to overall water quality	6
Effects associated with increased flooding	2
Need to prohibit clearing/grazing within shoreline buffer	1
Effects associated with leakage of underground gas reserves into lake water	2
Total Number of Comments	**59**

LOSS OF SOILS: EROSION-SEDIMENTATION	
Loss of valuable farmland	3
Sedimentation within conservation pool	6
Effects to downstream sediment transport	4
Need to control erosion without construction of a lake	1
General concerns regarding erosion	4
Total Number of Comments	**18**

BIOLOGICAL RESOURCES: VEGETATION-WILDLIFE	
Loss of bottomland hardwood forests	2
Adverse effects to wildlife	3
Concern regarding aquatic life movement	1
Lack of data on effects (adverse) to fish and wildlife	1
Total Number of Comments	**7**

CULTURAL AND PALEONTOLOGICAL ISSUES	
Effects to paleontological resources	2
Effects to cultural resources subject to the National Historic Preservation Act	3
Effects to cemeteries	1
Total Number of Comments	**6**

AIR QUALITY ISSUES	
Effects to air quality (development, traffic, recreational boats)	2
Total Number of Comments	**2**

PROPERTY RIGHTS ISSUES	
Loss of mineral rights	3
Loss of private property	5
Need for more accurate mapping of affected properties	13
Affects to property/displacement of residents	24
Total Number of Comments	**45**

SOCIAL AND ECONOMIC RESOURCES	
Lack of an economic development plan	1
Lake not needed for water supply	3
Reallocation of rural water resources to urban areas	5
Concerns relating to anticipated future water shortages	3
Effects associated with increased land values	1
Effects associated with increases in property taxes	3
Need for zoning to regulate lakeshore development	3
Need for overall water conservation	3
Effects to local economy (beneficial)	2
Effects to local economy (adverse)	2
Effects (adverse) associated with loss of tax base (lake no longer on tax rolls)	3
Total Number of Comments	**29**

NOISE AND VISUAL RESOURCES	
Adverse aesthetics effects due to significant fluctuations of lake levels	5
Adverse effects to rural nature of Fannin County	2
Total Number of Comments	**7**

TRANSPORTATION ISSUES	
Effects associated with road closures	2
Total Number of Comments	**2**

RECREATION ISSUES	
Concerns about excessive public access	1
Need for adequate public access	2
Total Number of Comments	**3**

PROJECT DESIGN AND MANAGEMENT	
Overall project design concerns	1
Underestimated project costs	2
Water transmission method	2
High cost of water to be sold Lake Ralph Hall	2
Concerns regarding long-term capacity of reservoir	6
Accuracy of firm yield estimates	2
Responsibility for shoreline maintenance	1
Dam design, construction, and safety	2
Availability of water for local use	1
Need for additional project alternatives	10
Concerns regarding high cost of project	4
Purchase of water from Oklahoma as possible alternative	2
Concerns regarding lake size	3
Concerns regarding lake levels	8
Lake not needed for local water supply	4
Concerns regarding water allocation	1
Project timing	4
Total Number of Comments	**55**

REGULATORY PROCESS ISSUES	
Lack of agency coordination	1
Overall lack of data	4
Requests for an EIS	6
Requests for a formal Public Hearing	5
Total Number of Comments	**16**

Based on the comments received on the proposed project and other factors, the USACE has determined that this project constitutes a major Federal action that has the potential to significantly affect the quality of the human environment and requires the preparation of an EIS.

STATE WATER QUALITY CERTIFICATION: 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 USACE

processing of this Department of the Army application, the TCEQ is reviewing this application under Section 401 of the Clean Water Act, and 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 USACE 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 45 days from the date of publication of this notice. A copy of the public notice with a description of the work is made available for review in the TCEQ's Austin Office. The complete application may be reviewed in the USACE's office. The TCEQ may conduct a public hearing to consider all comments concerning water quality if requested in writing. A request for a public hearing 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 requestor, or of persons represented by the requestor; and a brief description of how the application, if granted, would adversely affect such interest.

ENDANGERED AND THREATENED SPECIES: The USACE has reviewed the U.S. Fish and Wildlife Service's latest published version of endangered and threatened species to determine if any may occur in the project area. There are two federally protected species that could occur in Fannin County; however, it is appears suitable habitat for these species is not present within the project site. The federally protected species include Least Tern (*Sterna antillarum*, Endangered), and Louisiana black bear (*Ursus americanus luteolus*). Our initial review indicates that the proposed work would have no effect on federally-listed endangered or threatened species.

NATIONAL REGISTER OF HISTORIC PLACES: The USACE has reviewed the latest complete published version of the National Register of Historic Places and found no listed properties to be in the project area. However, presently unknown scientific, archaeological, cultural or architectural data may be lost or destroyed by the proposed work under the requested permit.

A partial cultural resources survey of the proposed reservoir was undertaken in 2005. The survey covered approximated 15% of the area proposed to be inundated and included geoarcheological investigations, pedestrian survey, and examination of deep soil profiles exposed by the erosion of the North Sulphur River.

A total of 17 sites were identified during this work. Of these identified sites, seven were prehistoric sites, and 10 were historic sites. Based on work done to date, none of the seven prehistoric sites could be associated with historic or ethnographically identified Indian tribes. The historic sites included abandoned habitations, trash dumps, one cemetery, and the remains of two transportation bridges. The community of Bagby, once a service stop on brief-lived local railroad, was originally located in the vicinity of the proposed lake site as well.

Geoarcheology work provided evidence of the presence of very deeply buried prehistoric sites. Additional evidence from local informants supports this conclusion. Dated soils and artifacts from

the Pleistocene-Holocene transition, approximately 10,000 years ago, are known from surrounding areas, but are not located within the project area. Considerable effort to locate the deeply buried sites will be required to complete survey of the 85% of the lake that remains un-surveyed. These sites pose a challenge for future work as they are not easily located nor easily assessed for eligibility to the National Register of Historic Places (NRHP). It is anticipated, the construction work will expose currently unknown prehistoric sites that require recovery or treatment. Erosion associated with completion of reservoir construction could expose additional sites, as well.

Currently, none of the seventeen identified sites have been assessed for eligibility to the NRHP. Based on the small area surveyed to date, it is projected that over fifty prehistoric and historic sites would ultimately be identified by a full survey. All of these additional sites would require assessment for eligibility to the NRHP. Sites determined eligible for the NRHP would be treated by a variety of mitigation measures ranging from preservation, to avoidance, to full excavation. Final decisions on treatment of cultural resources would be documented in the execution of a Memorandum of Agreement (MOA) between the State Historic Preservation Officer, the USACE, and interested persons, including the applicant.

In addition to historic properties, the North Sulphur River is well known for paleontological resources. Over the years, a wide range of vertebrate and invertebrate remains have been identified along the North Sulphur drainage. The riverbed is a popular destination for local college geology classes and interested avocational collectors. The proposed reservoir would permanently inundate this portion of the river bed popular with collectors. It is also anticipated, the construction work would expose currently unknown fossils that could require recovery or treatment.

FLOODPLAIN MANAGEMENT: The USACE is sending a copy of this public notice to the local floodplain administrator. In accordance with 44 CFR Part 60 (Flood Plain Management Regulations Criteria for Land Management and Use), the floodplain administrators of participating communities are required to review all proposed development to determine if a floodplain development permit is required and maintain records of such review.

SOLICITATION OF COMMENTS: This public notice is being distributed to all known interested persons in order to assist in finalizing the scope of the EIS. 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.

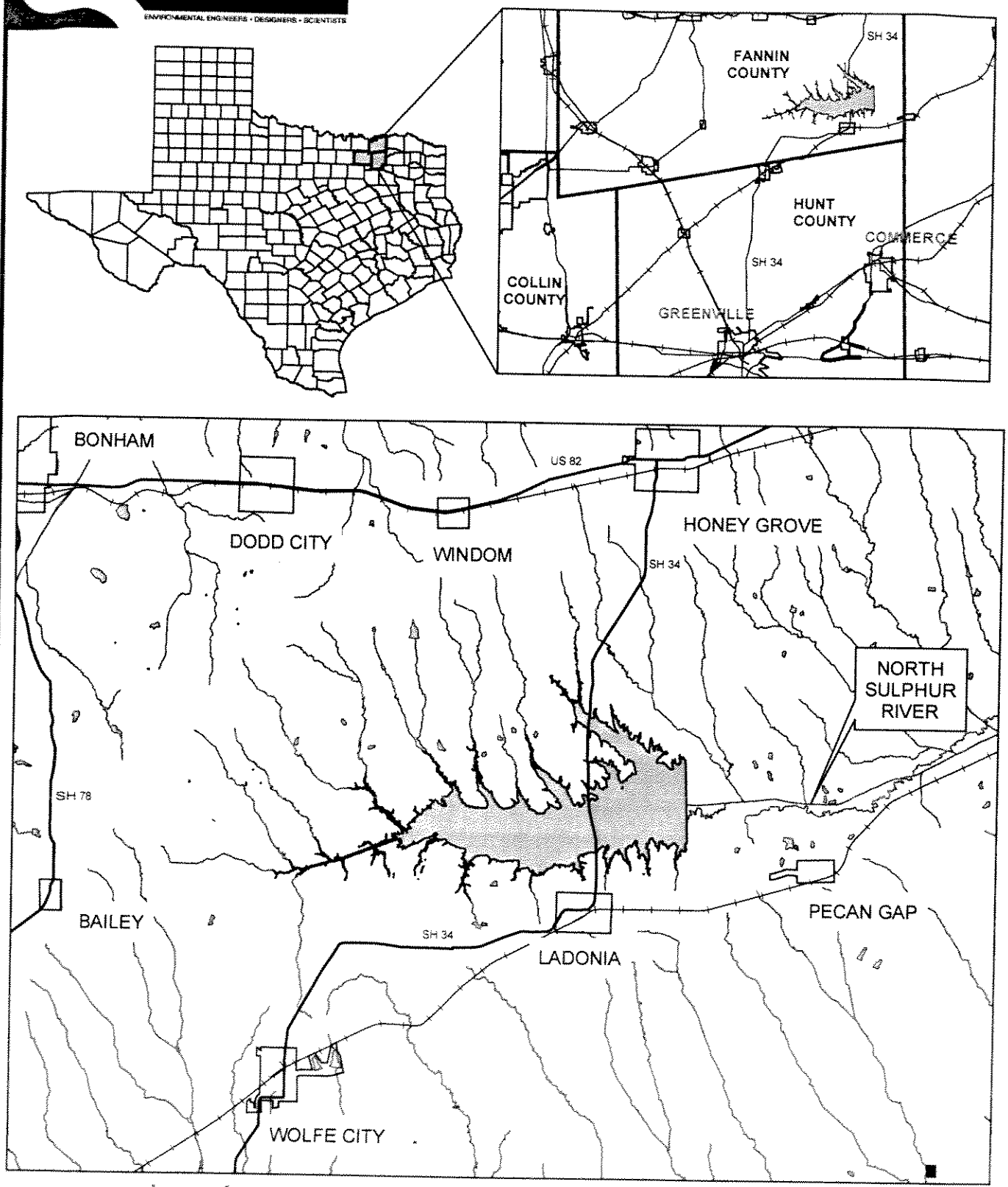
PUBLIC HEARING: Prior to the close of the comment period any person may make a written request for a public hearing setting forth the particular reasons for the request. The District Engineer will determine whether the issues raised are substantial and should be considered in his permit decision. If 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 November 10, 2008, which is the close of the comment period. 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 be submitted to ; Regulatory Branch, CESWF-PER-R; U. S. Army Corps of Engineers; Post Office Box 17300; Fort Worth, Texas 76102-0300. You may visit the Regulatory Branch in Room 3A37 of the Federal Building at 819 Taylor Street in Fort Worth between 8:00 A.M. and 3:30 P.M., Monday through Friday. Telephone inquiries should be directed to (817) 886-1739. Please note that names and addresses of those who submit comments in response to this public notice may be made publicly available.

DISTRICT ENGINEER
FORT WORTH DISTRICT
CORPS OF ENGINEERS

ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS • DESIGNERS • SCIENTISTS



Legend

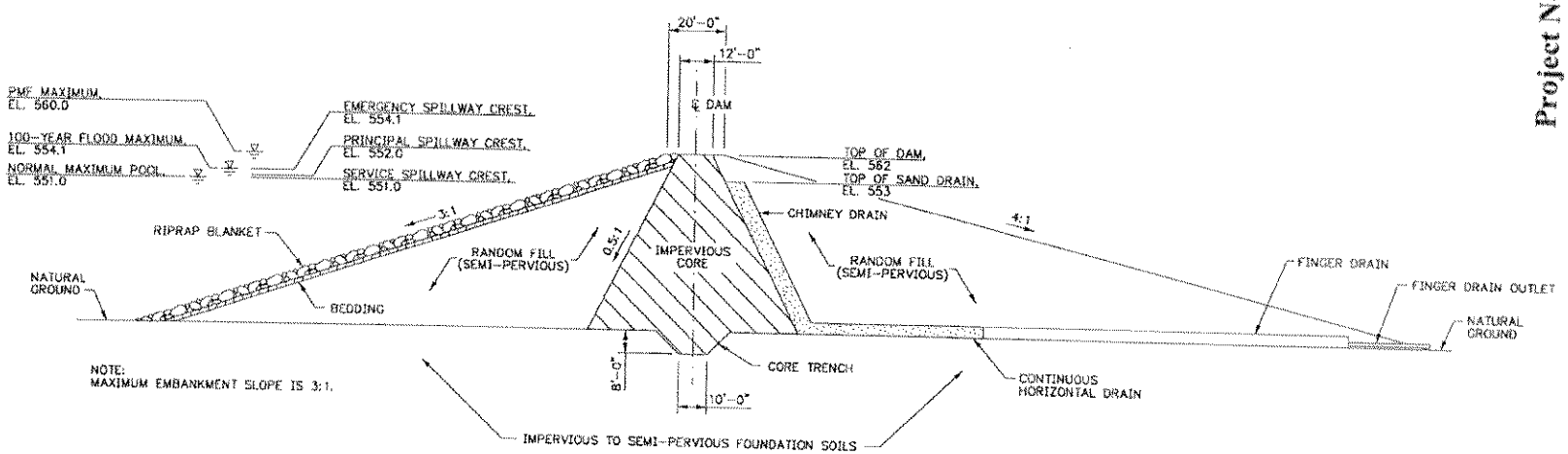
Proposed Lake Ralph Hall Reservoir

17,000 8,500 Feet

FIGURE 1
GENERAL LOCATION MAP

Project No. 200300336
Figure 1 of 5

f:/projects/346/0402/gis/permit_app/figure 18-1_general location map.mxd



NOTE:
MAXIMUM EMBANKMENT SLOPE IS 3:1.

TYPICAL DAM EMBANKMENT SECTION

0 20 40
SCALE IN FEET

Project No. 200300336
Figure 2 of 5

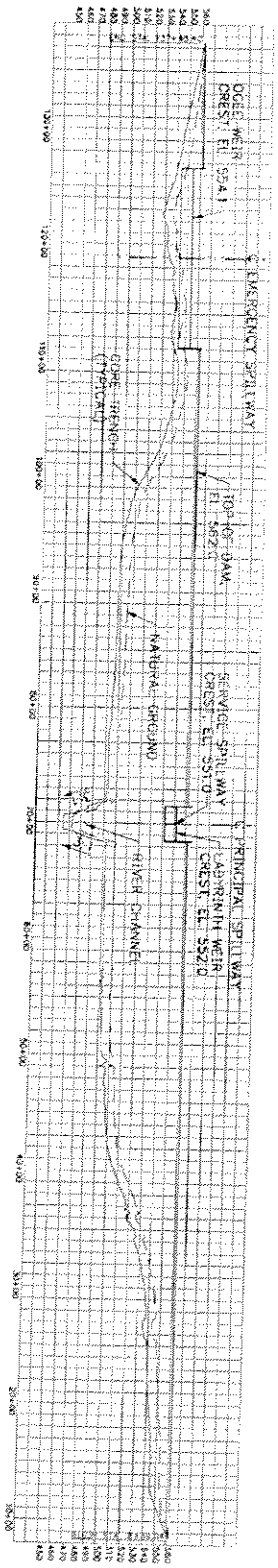
R. J. BRANDES COMPANY
CP&Y Chiang, Patel & Yerby, Inc.
APRIL 28 2004

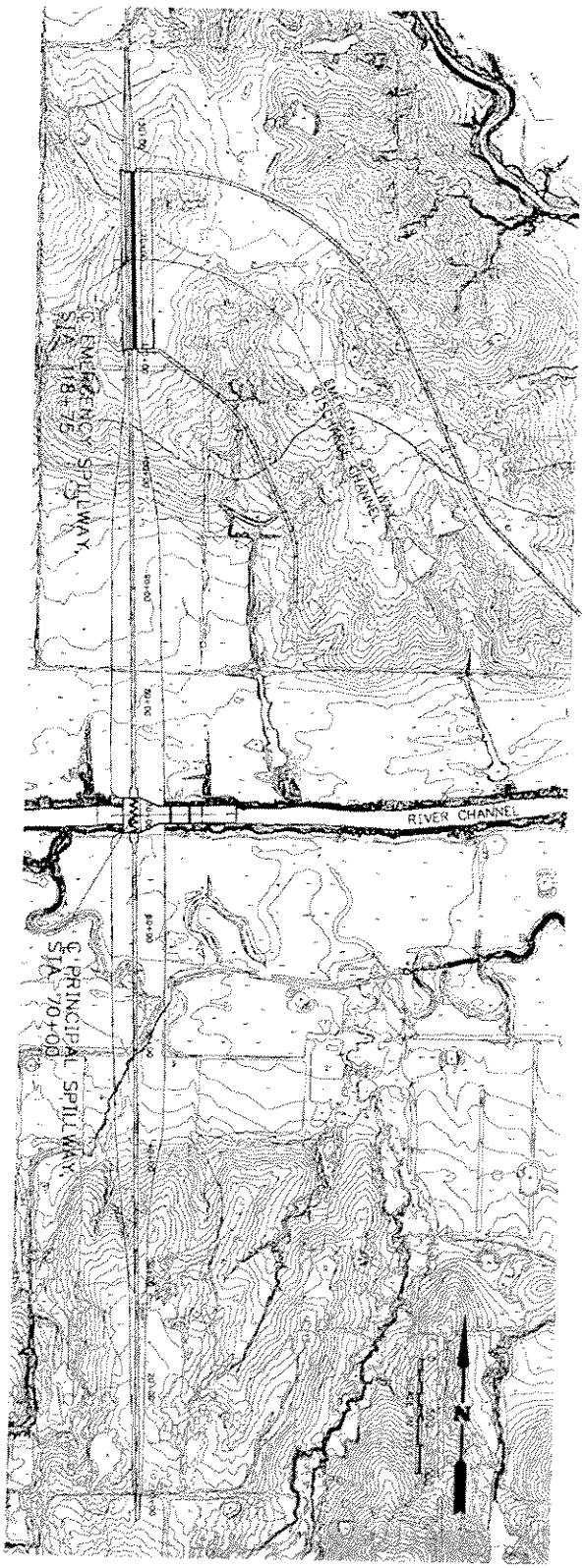
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: RICHARD DEE PURKEYPILE, P.E. 89527
R.J. BRANDES COMPANY.
IT IS NOT TO BE USED FOR BIDDING OR CONSTRUCTION PURPOSES.

APPLICANT: UPPER TRINITY REGIOANL WATER DISTRICT
WATER RIGHTS PERMIT APPLICATION

TYPICAL DAM EMBANKMENT - SECTION

FIGURE
2





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R.J. BRANDES COMPANY.
IT IS NOT TO BE USED FOR BIDDING OR CONSTRUCTION PURPOSES.

Project No. 200300336
Figure 3 of 5

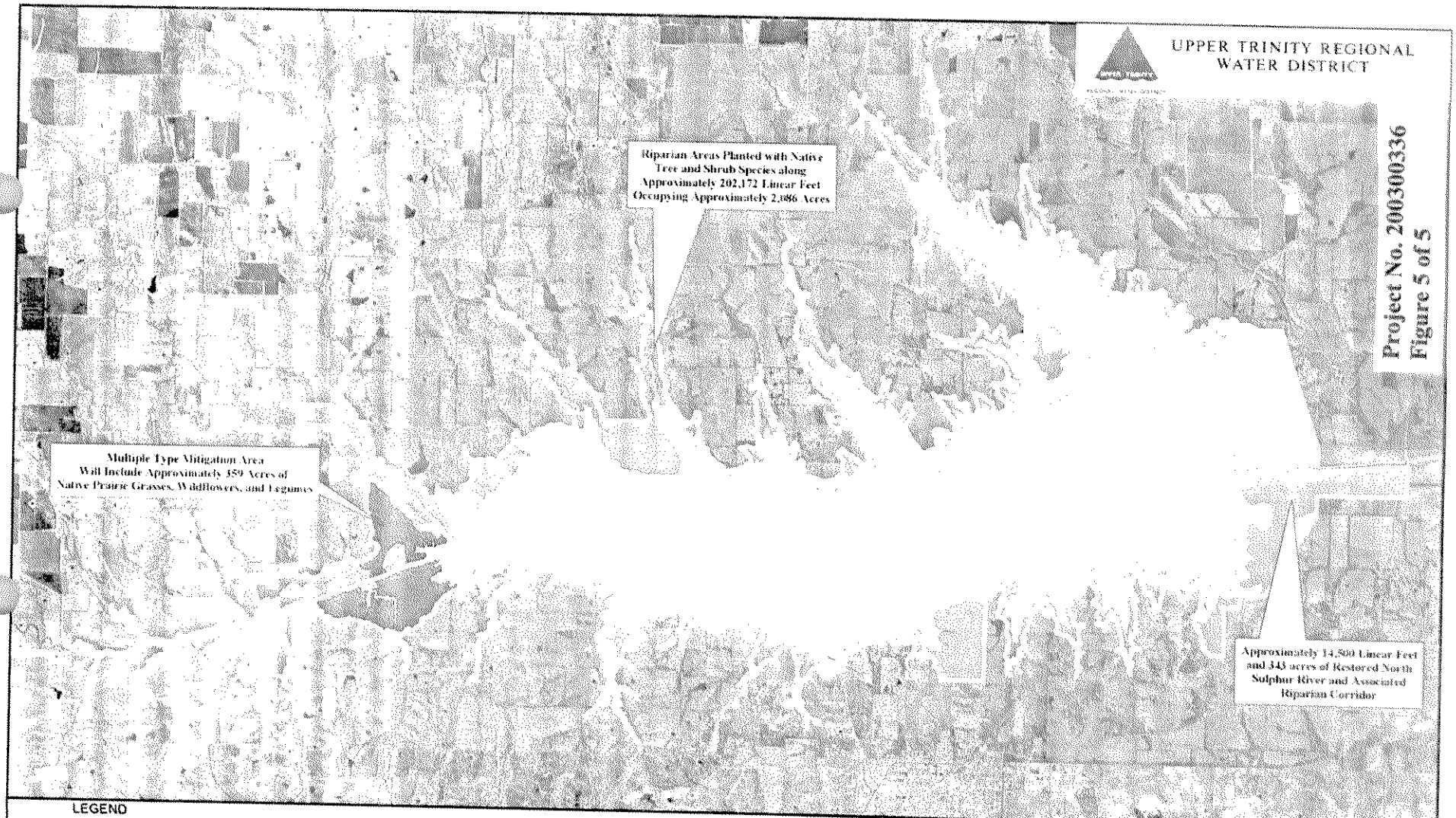
FIGURE 3

APPLICANT: UPPER TRINITY REGIOANL WATER DISTRICT
WATER RIGHTS PERMIT APPLICATION

EMBANKMENT PLAN AND PROFILE

R. J. BRANDES COMPANY
Chiang, Patel & Yerby, Inc.
REVISED SEPTEMBER 2006

Legend
PRELIMINARY JURISDICTIONAL DETERMINATION
OF WATERS OF THE U.S.
FIGURE
4



LEGEND

CONSERVATION POOL
PROJECT AREA
PROPOSED PUBLIC USE AREAS
PROPOSED MITIGATION AREAS (RIPARIAN CORRIDOR)
WATER QUALITY BUFFER AREAS (NATIVE PRAIRIE GRASSES)
MULTIPLE TYPE MITIGATION AREA

PROPOSED LAKE RALPH HALL MITIGATION COMPONENTS

FIGURE
5