

FINAL ENVIRONMENTAL
ASSESSMENT

DUNLAP CANAL EMERGENCY
SPILLWAY

GUADALUPE-BLANCO RIVER
AUTHORITY, GUADALUPE
COUNTY, TEXAS



Prepared for
FEMA Region VI
Federal Regional Center
800 North Loop 288
Denton, TX 76209

July 14, 2003



URS Group, Inc.
200 Orchard Ridge Drive, Suite 101
Gaithersburg, Maryland 20878
89-FEMA4065.00

Federal Emergency Management Agency
PUBLIC NOTICE
Notice of Availability of the Final Environmental Assessment (EA) and
Finding of No Significant Impact (FONSI)
for the Dunlap Canal Emergency Spillway, Guadalupe-Blanco River Authority, Guadalupe
County, Texas
FEMA-1257-DR-TX

Interested persons are hereby notified that the Federal Emergency Management Agency (FEMA) is proposing to assist in the funding of the construction of the Dunlap Canal emergency spillway, Guadalupe County, Texas. In accordance with the National Environmental Policy Act (NEPA) of 1969, National Historic Preservation Act (NHPA), Executive Order 11988, Executive Order 11990, and the implementing regulations of FEMA, an Environmental Assessment (EA) was prepared to assess the potential impacts of the Proposed Action on the human and natural environment. The EA was released for public comment on May 14, 2003. No public comments were received during the 30-day comment period. Therefore, the Environmental Assessment has been finalized and a Finding of No Significant Impact (FONSI) has been made. This also provides public notice for work within the regulated floodplain, in accordance with Executive Order 11988 and 44 CFR Part 9.12.

The reasons for the decision not to prepare an Environmental Impact Statement (EIS) are as follows:

1. No significant adverse environmental impacts have been identified to existing land use, water resources (surface water, groundwater, waters of the United States, wetlands, and floodplains), air quality, noise, biological resources (vegetation, fish and wildlife, state and Federally listed threatened or endangered species and critical habitats), safety, hazardous materials and waste, cultural resources, or result in disproportionately high or adverse effects on minority or low-income populations, and;
2. The project is necessary to meet the needs of the citizens of the existing local community.

No further environmental review of this project is proposed to be conducted prior to the release of FEMA funds.

Copies of the final EA and FONSI can be obtained by contacting:

Larry Moltz
Guadalupe-Blanco River Authority
933 East Court Street
Seguin, TX 78155

The final EA and FONSI are also available on the World Wide Web on the FEMA website <http://www.fema.gov/ehp/docs.shtm>. Copies will be available for viewing at the Seguin-Guadalupe County Public Library, 707 E. College St, Seguin, Texas 78155.

**FINDING OF NO SIGNIFICANT IMPACT
FOR
DUNLAP CANAL EMERGENCY SPILLWAY
GUADALUPE-BLANCO RIVER AUTHORITY
IN
GUADALUPE COUNTY, TEXAS**

FEMA-1257-DR-TX

BACKGROUND

In accordance with 44 Code of Federal Regulations (CFR) for the Federal Emergency Management Agency (FEMA), Subpart B – Agency Implementing Procedures, Part 10.9, an Environmental Assessment (EA) was prepared pursuant to Section 102 of the National Environmental Policy Act of 1969, as implemented by the regulations promulgated by the President’s Council on Environmental Quality (40 CFR Parts 1500-1508). The purpose of the EA was to analyze the potential environmental impacts for the construction of an emergency spillway for the Dunlap Canal in Guadalupe County, Texas, and to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

The Dunlap Canal is located in northern Guadalupe County, Texas, approximately 8 miles northwest of the City of Seguin, and approximately 4 miles southeast of the City of New Braunfels. The region is at repetitive risk from severe flooding. As a result of severe storms and flooding that struck the region in 1998 and 1999, the President signed a declaration of major disaster aid for the State of Texas, FEMA-1257-DR-TX. Pursuant to Public Law 106-31 (P.L. 106-31), the Emergency Supplemental Appropriations Act for fiscal year 1999, FEMA received additional funding to address disaster-related needs not met by Federal disaster relief programs for communities that experienced declared major disasters in fiscal years 1998 and 1999. The proposed construction of the emergency spillway would be funded in part by federal assistance through this unmet needs program.

In the EA process, FEMA considered three alternatives: (1) No Action, where the Guadalupe-Blanco River Authority (GBRA) would not construct the emergency spillway; (2) the Proposed Action, where an earthen, grass-lined emergency spillway would be constructed; and (3) where a combination earthen, grass-lined/concrete emergency spillway would be constructed.

In response to the high risk to human health and safety associated with the occurrence of flooding in Guadalupe County and at the Dunlap Canal, Alternative 2, the Proposed Action, has been selected based on the needs of the population within Guadalupe County and the needs of GBRA. An earthen, grass-lined emergency spillway is to be constructed between the eastern bank of the Guadalupe River and the Dunlap Canal. The emergency spillway will safely and effectively return excess floodwater from the Dunlap Canal to the Guadalupe River.

FINDINGS

FEMA has made the following determinations from the information contained in the EA:

The proposed project, as described in the EA, will not result in any significant adverse impacts to existing land use, water resources (surface water, groundwater, wetlands, waters of the United States, and floodplains), air quality, noise, biological resources (vegetation, fish and wildlife, state- and federally listed threatened or endangered species and critical habitats), safety issues, hazardous materials and waste, and cultural resources, or result in disproportionately high or adverse effects on minority or low-income populations. The proposed action is also in compliance with all relevant federal, state and local laws.

CONDITIONS

The following conditions must be met as part of this project. Failure to comply with these conditions may jeopardize federal funds:

1. If project activities include the stockpiling of soil or fill on-site, the Applicant will cover these soils to help prevent fugitive dust and soil erosion.
2. Trees along the east bank of Guadalupe River will be preserved.
3. In the emergency spillway, mesquite and hackberry trees shall be removed and velocity dissipaters shall be installed.
4. The emergency spillway will be revegetated with native grasses once construction is complete.
5. The Applicant shall schedule the project with the growing season for grasses.
6. Silt fencing and hay bales will be used during construction to reduce the potential for site sediments and associated pollutants to enter stormwater runoff.
7. Riprap shall be used in the bluff area to reduce discharge velocity and erosion. Riprap will not be placed below the ordinary high water mark of the Guadalupe River.
8. The Applicant will conduct maintenance and replant grasses as needed.
9. The Applicant will obtain a TPDES General Permit from TCEQ.
10. The Applicant will coordinate with the local floodplain coordinator for possible local permits or approvals prior to construction.
11. To reduce temporary impacts to air quality, the Applicant will be required to water down construction areas when necessary.
12. Running time of fuel-burning equipment will be minimized and engines would be maintained to reduce the emission of criteria pollutants.
13. To minimize impacts to trees, the Applicant will place temporary fences around the tree driplines to prevent damage from the encroachment of personnel and equipment on root systems.
14. Any hazardous materials discovered, generated, or used during implementation of the proposed project will be disposed of and handled by GBRA in accordance with applicable local, state, and federal regulations.
15. Construction activities will occur during normal business hours.

16. All construction activities will be conducted by trained personnel in compliance with the standards and regulations of OSHA to protect worker safety.
17. Appropriate signage and fencing will be placed to alert pedestrians, motorists, and school students and staff of project activities, as well as any changes in traffic patterns.
18. Should any potentially historic or archeological significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and the Applicant shall consult with FEMA, DEM, and the SHPO or other appropriate agencies for further guidance.
19. The Applicant shall obtain and comply with all local, state, and federal permits, laws and Executive Orders.

CONCLUSIONS

Based on the findings of the attached EA, coordination with the appropriate agencies, and adherence to the project conditions set forth in this FONSI, FEMA has determined that the proposed project qualifies as a major federal action that will not significantly affect the quality of the natural and human environment. As a result of this FONSI, an EIS will not be prepared (44 CFR Part 10.8) and the proposed project as described in the attached EA may proceed.

APPROVAL




Brent Paul
FEMA Environmental Officer

Date: June 30, 2003



Amy Weinhouse
Office of General Counsel

Date: July 1, 2003



Gary Jones
Acting Regional Director
FEMA, Region VI

Date: July 10/03

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List of Acronyms

| | |
|------------------|---|
| APE | Area of Potential Effect |
| CAA | Clean Air Act |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| cfs | cubic feet per second |
| CO | carbon monoxide |
| CWA | Clean Water Act |
| dB | decibels |
| DEM | Texas Division of Emergency Management |
| DNL | Day-Night Average Sound Level |
| EA | Environmental Assessment |
| EFH | Essential Fish Habitat |
| EO | Executive Order |
| EPA | Environmental Protection Agency |
| ESA | Endangered Species Act |
| FEMA | Federal Emergency Management Agency |
| FHBM | Flood Hazard Boundary Map |
| FIRM | Flood Insurance Rate Map |
| FPPA | Farmland Protection Policy Act |
| GBRA | Guadalupe-Blanco River Authority |
| H&H | hydrologic and hydraulic |
| MBTA | Migratory Bird Treaty Act |
| NAAQS | National Ambient Air Quality Standards |
| NCA | Noise Control Act |
| NCDC | National Climatic Data Center |
| NEPA | National Environmental Policy Act |
| NFIP | National Flood Insurance Program |
| NGVD | National Geodetic Vertical Datum |
| NHPA | National Historic Preservation Act |
| NO ₂ | nitrogen dioxide |
| NPDES | National Pollution Discharge Elimination System |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| OSHA | Occupational Safety and Health Act |
| O ₃ | ozone |
| Pb | lead |
| P.L. | Public Law |
| PM ₁₀ | particulate matter less than or equal to 10 microns |
| SARA | San Antonio River Authority |
| SHPO | State Historic Preservation Officer |
| SO ₂ | sulfur dioxide |

List of Acronyms

| | |
|--------|--|
| TCEQ | Texas Commission on Environmental Quality |
| THC | Texas Historical Commission |
| TPDES | Texas Pollution Discharge Elimination System |
| TPWD | Texas Parks and Wildlife Department |
| URS | URS Group, Inc. |
| USACE | U.S. Army Corps of Engineers |
| U.S.C. | U.S. Code |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VOCs | volatile organic compound |

1.1 PROJECT AUTHORITY

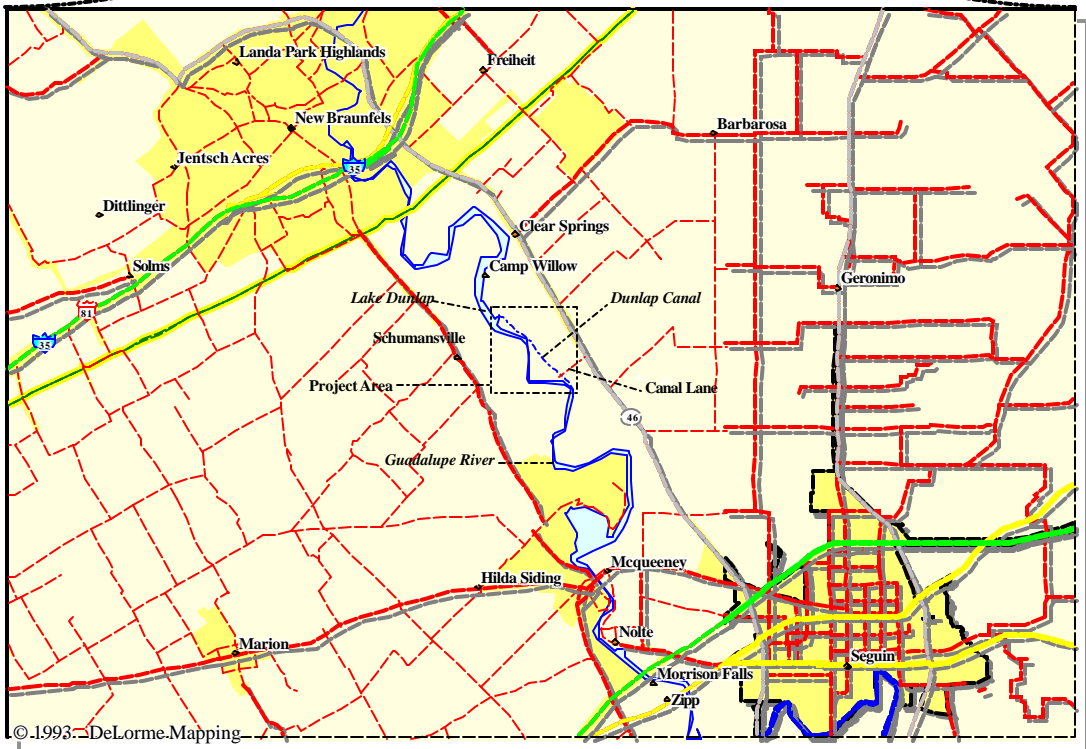
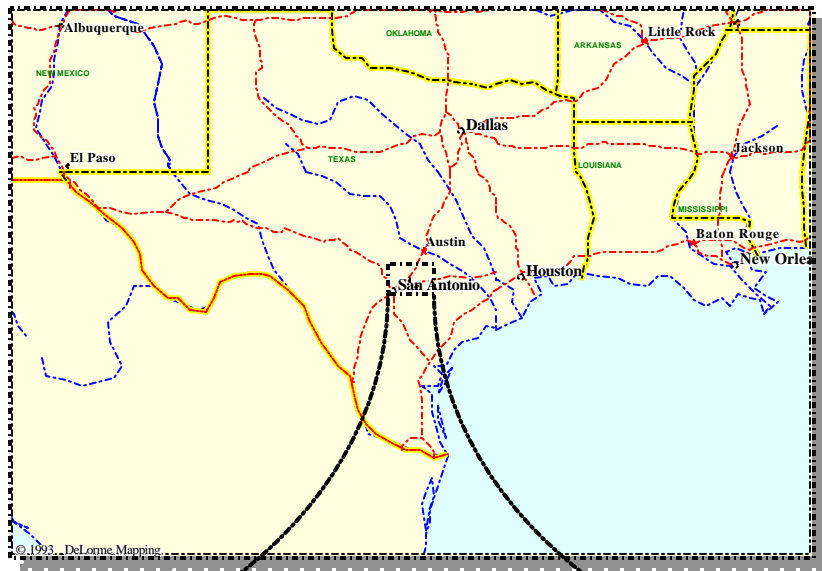
Pursuant to Public Law 106-31 (P.L. 106-31), the Emergency Supplemental Appropriations Act for Fiscal Year 1999, additional funding was provided to the Federal Emergency Management Agency (FEMA) to address disaster-related needs not met by federal disaster relief programs for communities that experienced declared major disasters in fiscal years 1998 and 1999. The State of Texas was awarded \$42,108,000 for this purpose, which was specifically designated for project needs resulting from heavy rains and flooding associated with the disaster FEMA-1257-DR-TX. As enabled by P.L. 106-31, the Guadalupe-Blanco River Authority (GBRA or Applicant), a water conservation and reclamation district, has applied for funding from FEMA through the Texas Division of Emergency Management (DEM) to implement specific measures to mitigate potential damages and losses to human health and property that could result from future flooding of the Dunlap Canal.

The National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and FEMA regulations for NEPA compliance (44 CFR Part 10) direct FEMA and other federal agencies to fully understand and take into consideration during decision-making, the environmental consequences of proposed federal actions (projects). In compliance with NEPA and its implementing regulations, FEMA has prepared this Environmental Assessment (EA) to analyze potential environmental impacts associated with several alternatives to meet the stated purpose and need.

1.2 PROJECT LOCATION

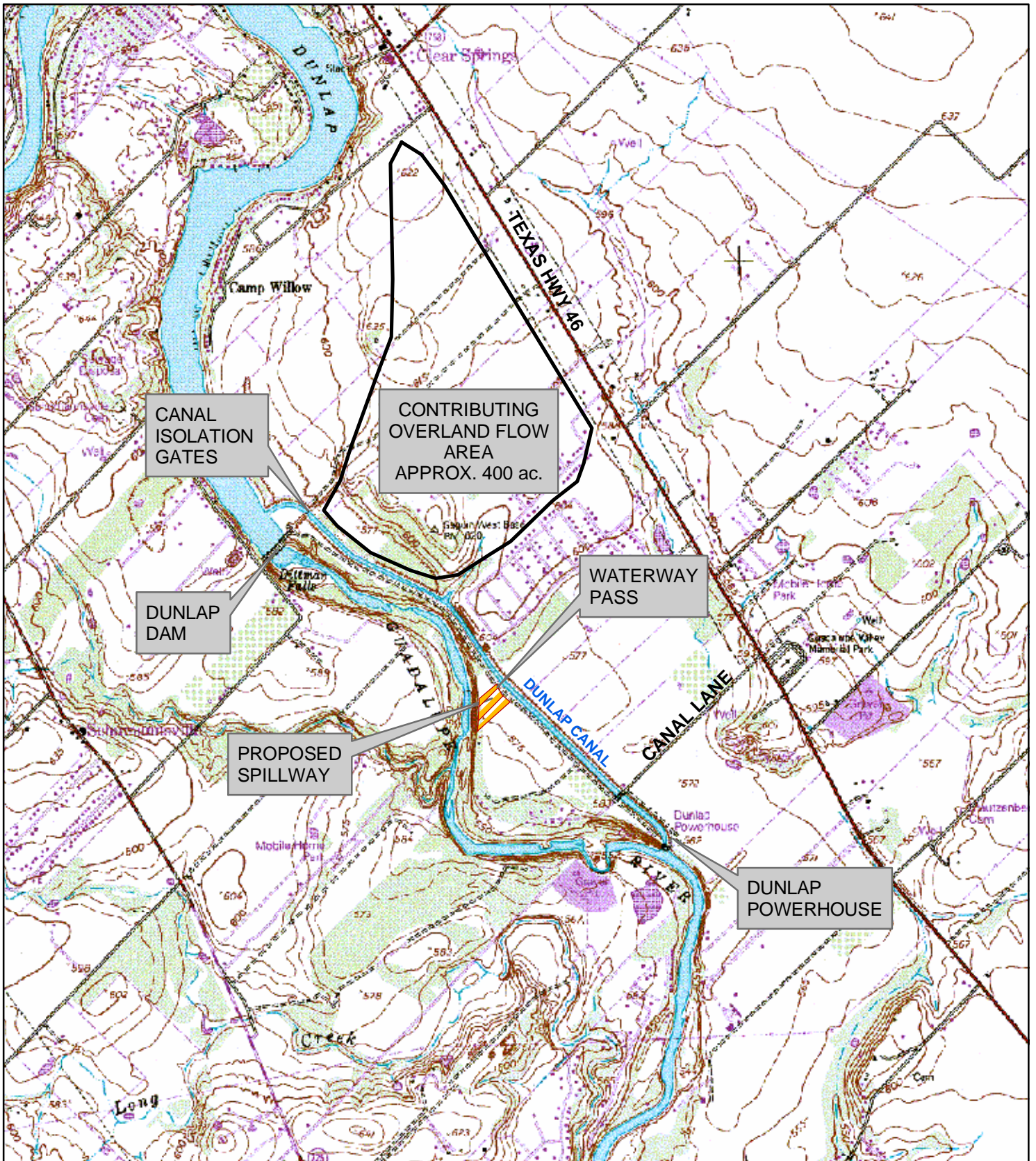
The proposed project is located in northern Guadalupe County, Texas, approximately 8 miles northwest of the City of Seguin, and approximately 4 miles southeast of the City of New Braunfels (Figure 1). Guadalupe County (population 89,023) is 90 miles inland from the Gulf of Mexico in south central Texas and is bounded by Comal, Hays, Caldwell, Gonzales, Wilson, and Bexar Counties. Cibolo Creek forms the border between Guadalupe and Bexar Counties, and the San Marcos River separates Guadalupe and Caldwell Counties. The City of Seguin (population 22,011), the county seat and largest town, is located 51 miles southwest of Austin and 18 miles northeast of San Antonio (Handbook, 2000).

The northern (upstream) portion of the Dunlap Canal is connected to the Guadalupe River via Lake Dunlap, while the southern (downstream) portion of the canal flows directly into the Guadalupe River (Figure 2). Texas Highway 46 is located east of and roughly parallel to the Dunlap Canal. The GBRA operates the Dunlap Canal as part of a hydroelectric plant and dam and owns the project area. The Dunlap Dam, hydroelectric plant, Lake Dunlap, and Dunlap Canal were built in the 1920s. The Dunlap Canal and Dunlap Canal Isolation Gates permit water from the Guadalupe River to reach the powerhouse, where electricity is generated. Lake Dunlap, situated just north of and adjacent to the dam, is used to impound the water necessary for power generation and has a storage capacity of 5,900 acre-feet (GBRA, 2001). The lake is also used for recreational activities such as fishing and water sports. The project area is located on the west bank of the Dunlap Canal, approximately 3,000 feet downstream of the Dunlap Canal Isolation Gates.



| | | | | |
|---|--------|----|--|---------|
| CLIENT FEMA | | | | |
| PROJ Dunlap Canal EA, Guadalupe County, Texas | | | | |
| REVISION NO | DES BY | | | |
| SCALE NOT TO SCALE | DR BY | DK | | 8-29-01 |
| FILE Reports\Draft\Dunlap Canal EA Regional Map.PPT | CHK BY | IO | | 8-29-01 |

| | | | | |
|------------|--|---------------------|-------------|--|
| TITLE | | REGIONAL MAP | | |
| URS | | PROJ NO | 89-FEMA4065 | |
| | | FIGURE | 1 | |



7.5 Minute USGS Quadrangle
 Source: New Braunfels East, TX



| | | | |
|--|--------|--------------------------------|---------|
| CLIENT: FEMA | | TITLE: PROJECT AREA MAP | |
| PROJ: Dunlap Canal EA, Guadalupe County, Texas | | | |
| SCALE: 1 inch equals 678 feet | DES BY | NG | FIGURE: |
| FILE: G:\15292275\project\dunlap_canal.mxd | CHK BY | RT | 2 |



1.3 PURPOSE AND NEED

According to the National Climatic Data Center (NCDC), 16 flood events (flash floods and floods) occurred in Guadalupe County, Texas, between January 1, 1950, and June 30, 2001. Especially devastating were the October 1998 floods. On October 17 and 18, 1998, heavy rains fell in areas of south central and eastern Texas (NCDC, 2001), with the largest rainfall occurring in the Guadalupe River Basin. Most of the basin received 8 or more inches of rainfall (USGS, 2000). According to the Texas Department of Public Safety, total property damage was estimated to be \$750 million (USGS, 2000). Water-surface elevations and stream flow discharges at 18 stream flow gauging stations located in the Guadalupe River Basin peaked at record or near record levels. Observed/estimated peak gauge height at Guadalupe River gauging station number 08169500 at the City of New Braunfels was 38.54 feet, with estimated peak discharge of 222,000 cubic feet per second (cfs) on October 17, 1998. This peak represented greater than 100-year peak discharge. Moreover, this event represented the highest peak stage and peak discharge for the periods of record (1915 to 1927 and 1974 to 2000) or about 10.2 feet higher than the second highest peak stage on September 10, 1921 (USGS, 2000).

During the October 1998 floods, rainwater combined with local runoff reached Dunlap Canal, the canal was breached, causing floodwater to flow to areas outside of the canal's normal path. These floodwaters contributed to the inundation of Texas Highway 46, making it impassable to traffic and emergency vehicles, and its subsequent closure for several hours. In response to the October 1998 flood, the GBRA has applied to FEMA for funding to construct a project that would prevent flooding on the east side of the Dunlap Canal and minimize disruption of emergency services and traffic on Texas Highway 46 during flood events.

2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, no measures would be taken to mitigate future flooding of the Dunlap Canal. Flooding on the east side of Dunlap Canal would continue as it has historically.

2.2 ALTERNATIVE 2 – EARTHEN, GRASS-LINED EMERGENCY SPILLWAY (PROPOSED ACTION)

Under Alternative 2, the GBRA would construct an earthen grass-lined spillway with earthen berms. The spillway and berms are intended to contain and return excess flood waters from the canal directly to the Guadalupe River.

The proposed spillway would be located on the west bank of Dunlap Canal, approximately 3,000 feet downstream from the Dunlap Canal Isolation Gates (Figure 2). The proposed spillway is hydraulically designed for one isolation gate to remain fully open with a water surface elevation of 583 feet National Geodetic Vertical Datum (NGVD) on the upstream side of the gate. To accommodate the design discharge of approximately 3,200 cfs, the proposed spillway would be approximately 400 feet wide at the mouth (Dunlap Canal portion) and gradually widen to about 500 feet at the point of discharge (Guadalupe River portion). The spillway crest elevation is proposed to be 576.75 feet NGVD, which is 1 foot above the canal's normal pool elevation. Based on the preliminary design, approximately 18,300 cubic yards of soil would be excavated. The proposed spillway would cut across Waterway Pass Road, a one-lane unpaved road maintained by the GBRA that is located on the west side of Dunlap Canal. This road would be excavated to accommodate the spillway; however, GBRA equipment would be able to drive over the berms and continue to utilize it as an access road. The soil removed for construction of the spillway, in addition to the existing spoil materials removed during the construction of Dunlap Canal in the 1920s and past dredging, would be used to construct the earthen berms along the spillway. Currently the existing spoil material is located on the opposite side of the canal from the proposed spillway and would be brought over as needed by dump truck. The earthen berms would be approximately 2.5 feet in height and approximately 6 feet wide at the base, gradually decreasing in width closer to the river (Figure 3).

Based on the reconnaissance survey of the project area performed by URS Group, Inc. (URS) on August 7, 2001, the west bank of Dunlap Canal gently slopes down toward the Guadalupe River. The excavation would begin at the west bank of Dunlap Canal, cut across Waterway Pass, and stop at the barbed wire fence, approximately 275 feet away from the Guadalupe River. The barbed wire fence is located at the tree line and is perpendicular to the canal; it acts as a buffer between the woods and the operational area of the canal (Figure 3). The fence is owned and maintained by GBRA. From the fence, the excess water would naturally flow toward the Guadalupe River due to the topography of the area and because it would be guided on both sides by the berms. The barbed wire fence would be temporarily removed to accommodate the construction. To preserve trees in the spillway area, only limited excavation (approximately 6 feet for each berm) sufficient to accommodate the earthen berms would continue past the barbed wire fence. The earthen berms would extend approximately 300 feet, beginning at the west bank of Dunlap Canal, past the fence, and ending approximately 50 feet away from the east bank of the Guadalupe River. The GBRA intends to thin out the vegetation in the project area and remove all trees in the path of the 6-foot berms by manual means (chainsaws). Inside the

spillway area, underbrush, mesquite, and hackberry trees would also be removed manually. The Applicant intends to use reinforced concrete positive standing velocity dissipaters to decrease water velocity and minimize soil erosion. The velocity dissipaters would be buried approximately 3 to 5 feet in depth and randomly dispersed throughout the emergency spillway. To further minimize erosion, large trees inside the spillway would be preserved, including cypress trees near the bank of the Guadalupe River. The project area would be revegetated with native grasses following construction. Riprap would be used as needed to stabilize the riverbank at the small bluff where the emergency spillway terminates. Riprap would not be placed below the ordinary high water mark or in the Guadalupe River. Figure 3 shows the conceptual design for the emergency spillway and berms. Several telephone poles are located in the project area. These telephone poles are no longer in use and would be removed as a separate action by GBRA before the proposed project begins.

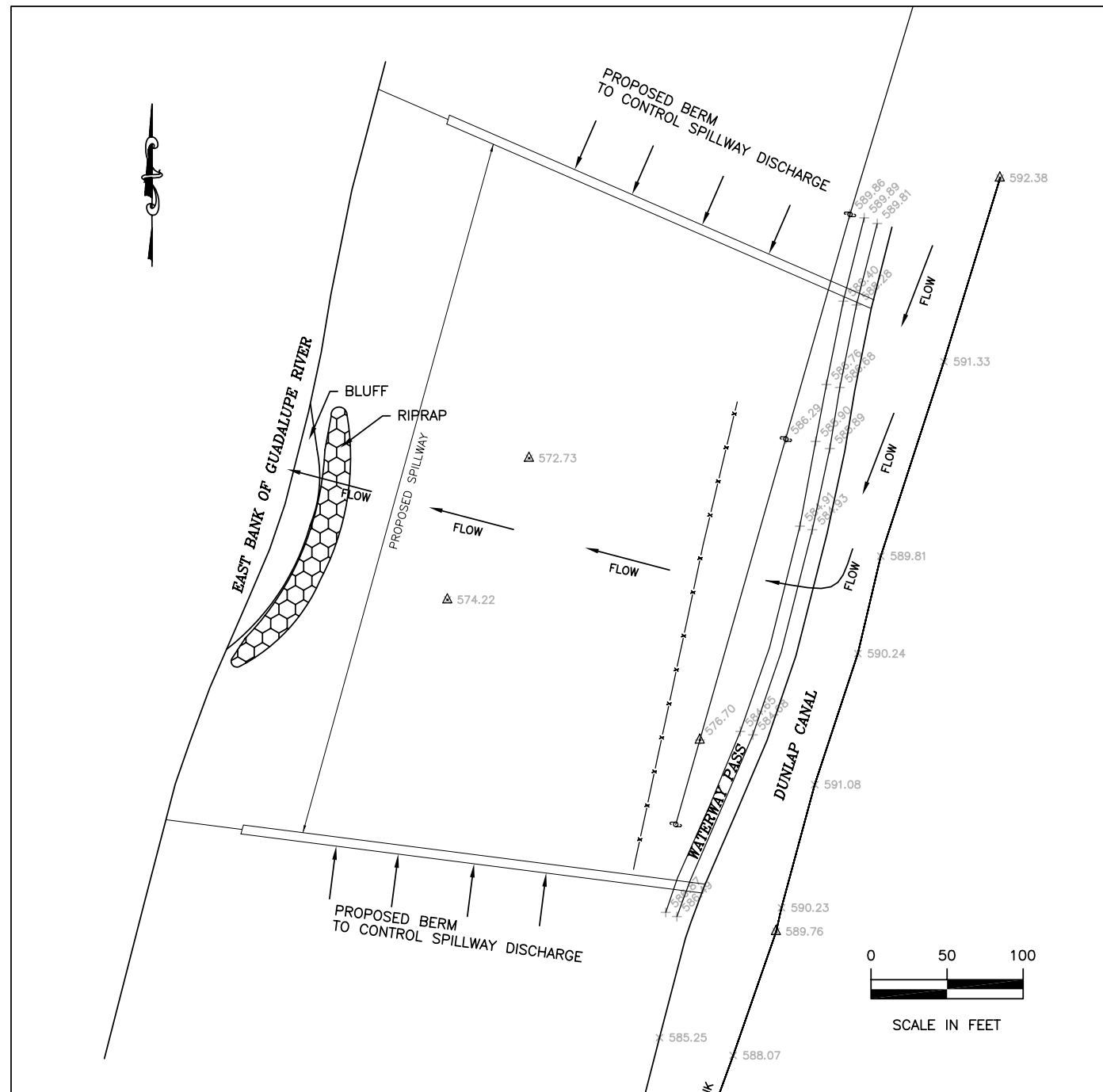
Standard construction equipment would be used for project activities and may include a grader, bulldozer, excavator, and dump truck. Canal Lane, a one-lane gravel road connecting the project area with Texas Highway 46 and maintained by the GBRA, would be used as an access road. Waterway Pass Road would be used as a staging area. It is estimated that construction would take approximately 2 months.

2.3 ALTERNATIVE 3 – COMBINATION EARTHEN, GRASS-LINED/CONCRETE EMERGENCY SPILLWAY

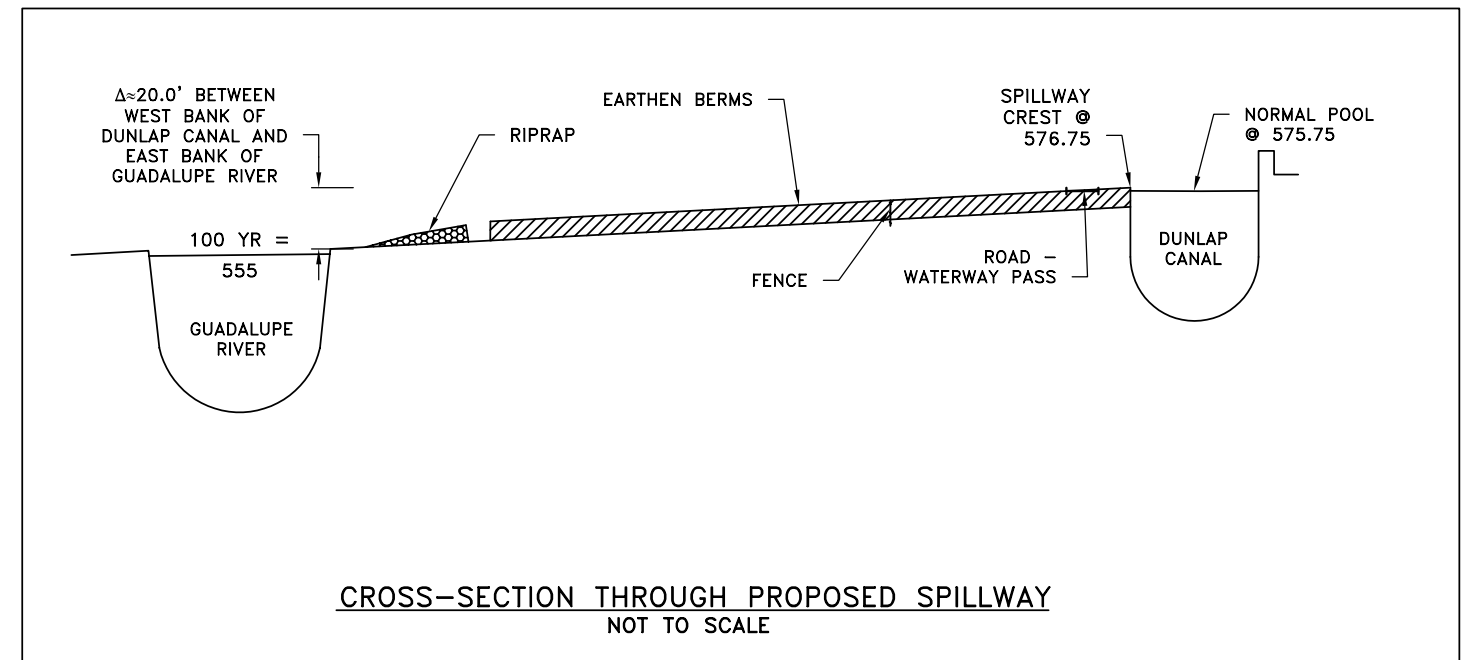
Under Alternative 3, the GBRA would construct a combination earthen, grass-lined/concrete emergency spillway and berms of the same overall dimensions and in the same location as described for Alternative 2. The spillway and berms are intended to contain and return excess flood waters from the canal directly to the Guadalupe River. The emergency spillway would be earthen and grass-lined until it reaches the barbed wire fence. At that point, the spillway would be lined with concrete to increase the stability of the river bank. The berms would be earthen before the barbed wire fence and lined with concrete after the barbed wire fence. Under this alternative, all vegetation, including all trees, would be removed from the spillway area with the exception of the cypress trees near the bank of the Guadalupe River. The cypress trees would be left in place to help stabilize the bluff and the river bank.

2.4 ALTERNATIVES CONSIDERED AND DISMISSED


The only other alternative thought to be a feasible way to return flood water back to the Guadalupe River consisted of concrete or pipe culverts placed under the canal to divert local runoff water before it could enter the canal. However, under flood conditions, the culverts or pipes would become clogged by debris, prohibiting an efficient water flow and potentially causing continued flooding and damage. Consequently, this alternative was eliminated from further consideration because it does not meet the need for flood control at Dunlap Canal.



PLAN VIEW



CROSS-SECTION THROUGH PROPOSED SPILLWAY
NOT TO SCALE

| | | | | | | | | |
|-------------|--|--------|---------|---|-------------------|--|-------------|---|
| CLIENT | FEMA | | | TITLE | CONCEPTUAL DESIGN | | | |
| PROJ | Dunlap Canal EA, Guadalupe County, Texas | | |  | | | | |
| REVISION NO | DES BY | DK | PROJ NO | | | | 89-FEMA4065 | |
| SCALE | AS SHOWN | DR BY | RT | | | | FIGURE | 3 |
| FILE | PLAN VIEW.dwg | CHK BY | 11-9-01 | | | | | |

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology, Seismicity and Soils

Geology: Guadalupe County is located in the south central region of Texas. The majority of this region is underlain by Cretaceous age limestone, which forms the Edwards Plateau. East and south of the Plateau are upper Cretaceous chalk, limestone, dolomite, and clay, with the extensive Balcones Fault Zone system marking the boundary between the Edwards Plateau and the Gulf Coastal Region (South Central Texas Regional Planning Group, 2001).

Guadalupe County covers 713 square miles of flat to rolling terrain with local depressions and escarpments, and its elevation ranges from 450 to 800 feet NGVD (Handbook, 2000). The northwestern portion of Guadalupe County, near the border with Comal and Hays Counties, is part of the Blackland Prairie. The rest of the county lies in the Upper Coastal Plains (Handbook, 2000). Elevations in the Blackland Prairie range between 450 and 1,000 feet NGVD with beds tilted south and east. Low, rolling terrain is characteristic of the topography in the Blackland Prairie. Elevations in the Upper Coastal Plain range between 300 and 800 feet NGVD with beds tilting toward the Gulf of Mexico. Parallel ridges (questas) and valleys are characteristic of the topography of the Upper Coastal Plains (University of Texas, 1996).

The elevation of the project area is approximately 570 feet NGVD. The Dunlap Canal is between 12 and 14 feet deep with a normal pool elevation of 575.75 feet NGVD. There is a gradual drop in elevation of about 20 feet between the west bank of Dunlap Canal and the east bank of the Guadalupe River. The 100-year water surface elevation in the Guadalupe River near the proposed spillway is approximately 555 feet NGVD.

Seismicity: Historical activity is the prominent factor associated with predicting earthquake hazard potential. That is, regions where earthquakes have occurred in the past will likely experience them again in the future. According to the National Seismic Hazard Mapping Project, there is currently a low probability of seismic activity within the project area (USGS, 2002). Since the proposed project is located in an area of low earthquake hazard potential and does not involve constructing any buildings, Executive Order (EO) 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction, does not apply.

Soils: The project area is located in the Guadalupe River Basin. Soils in this area are clay loams with 0 to 1 percent slopes (USDA, 1977). Runoff in these soils is slow with only a minimal chance of water erosion and moderate permeability. Clay loams are suitable for crops, pastures, and irrigation. Soil types in the areas immediately next to the Guadalupe River are frequently flooded Bosque and Seguin soils. The Bosque and Seguin soils are characteristic of the lowest parts of floodplains. They are nearly level and subject to flooding for less than two days at least one time in spring or in fall each year. The Bosque and Seguin soils range widely in color and texture due to continuous deposition and scouring. These soils are silty clay loam not suited to crops or as building sites because of frequent overflows from the Guadalupe River (USDA, 1977). Sunev soils occupy the upper portion of the project area. The Sunev series consist of very deep, well drained moderately permeable soils that formed in loamy soil materials. These soils are on nearly level to moderately steep terraces.

SECTION THREE Affected Environment and Environmental Consequences

Prime and Unique Farmland: The Farmland Protection Policy Act (FPPA) (P.L. 97-98, Sec. 1539-1549; 7 U. S. Code (U.S.C.) 4201, et seq.) was enacted in 1981 to minimize the unnecessary conversion of farmland to non-agricultural uses as a result of federal actions. Programs administered by federal agencies must be compatible with state and local farmland protection policies and programs. The Natural Resources Conservation Service (NRCS) is responsible for protecting significant agricultural lands from irreversible conversions that result in the loss of an essential food or environmental resource. Prime farmland is characterized as land with the best physical and chemical characteristics for the production of food, feed, forage, fiber, and oilseed crops. This land is either used for food or fiber crops or is available for those crops, but is not urban, built-up land, or water areas. The soil qualities, growing season, and moisture supply are those necessary for a well-managed soil to economically produce a sustained high yield of crops. The Sunev soil series in the project area is classified as a prime farmland soil; therefore, the FPPA is considered in this EA. On April 28, 2003, the NRCS was contacted to determine the potential impacts to prime farmlands as a result of the proposed project. URS staff completed an AD-1006 form, which assists NRCS in determining these impacts (Appendix B). In a letter dated May 1, 2003, NRCS stated that the proposed project need not be given further consideration for protection, and no additional sites need to be evaluated (Appendix B). Therefore, both the Proposed Action and Alternative 3 are exempt from this Act.

Alternative 1 – No Action Alternative

Under Alternative 1, the geology, seismicity, and soils in the project area would not be affected because no construction would occur. Flooding would continue as it has in the past, with floodwater runoff potentially causing additional soil erosion.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

The Proposed Action is not anticipated to adversely impact the geology or seismic characteristics of the project area. Approximately 18,300 cubic yards of soil would be excavated under this alternative. The berms would be constructed from excavated soil from the proposed construction as well as the existing spoil material currently stockpiled on the east side of the canal (removed during the construction of Dunlap Canal in the 1920s). If project activities include the stockpiling of soil or fill on-site, the Applicant would cover these soils to help prevent fugitive dust and soil erosion. There is a potential for erosion during and after construction of the earthen spillway on the east bank of the Guadalupe River as a result of surface water runoff. The majority of the erosion would likely occur along the bluff on the east bank of the Guadalupe River between elevations of 570 and 555 feet NGVD. To mitigate the impacts to soils, the Applicant proposes to preserve the majority of the trees along the east bank of the Guadalupe River and in the spillway, install velocity dissipaters where needed, and revegetate the earthen spillway with native grasses. In addition, silt fencing and hay bales would be used during construction. To reduce long-term soil erosion, riprap would be used on the east bank of the Guadalupe River to reduce the discharge velocity at the bluff where the spillway water would enter the river. No fill material would be placed in the Guadalupe River.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

It is not anticipated that Alternative 3 would adversely impact the geology or seismic characteristics of the project area. However, there is a potential for erosion of the spillway and the east bank of the Guadalupe River as a result of the removal of all the vegetation in this area and surface water runoff. The majority of the erosion would likely occur along the bluff on the east bank of the Guadalupe River between elevations of 570 and 555 feet NGVD. Water would travel through the concrete-lined spillway with high velocity and hit the east bank of the Guadalupe River with increased force. To slow erosion at the bluff, the Applicant proposes to preserve the cypress trees on the eastern bank of the Guadalupe River. In addition, the water level at the Guadalupe River fluctuates and the spillway could become inundated when the amount of water in the river increases. As a result, the river bank could potentially erode under the concrete spillway. To reduce long-term soil erosion, riprap would be used on the east bank of the Guadalupe River to reduce discharge velocity at the bluff where the spillway water would enter the river. No fill material would be placed in the Guadalupe River.

3.1.2 Water Resources and Water Quality

The project area is part of the Guadalupe River basin. The Guadalupe River rises in two forks in western Kerr County, Texas, and crosses Kerr, Kendall, Comal, Guadalupe, Gonzales, DeWitt, and Victoria Counties (Handbook, 2000). The Guadalupe River's major tributaries are the Comal and the San Marcos Rivers, fed by springs from the Edwards Aquifer. The Edwards Aquifer is a unique, world-renowned karst aquifer consisting of porous, permeable limestone, and a source of drinking water for about 1.5 million people in the San Antonio area and neighboring cities (EARDC, 2001). The Guadalupe River is about 250 miles long and its drainage area is about 6,070 square miles (Handbook, 2000). There are two major reservoirs associated with the Guadalupe River - the 8,240-acre Canyon Reservoir and the 3,100-acre Coletto Creek Reservoir. During the 1920s and 1930s, six dams were constructed along the Guadalupe River. Six lakes adjacent to these dams are used to impound the water necessary for the generation of electricity. These lakes are also used for recreation. Lake Dunlap, which is located in the project area and is directly connected to the Dunlap Canal, was constructed in 1928. Lake Dunlap comprises an area of 400 acres with a water storage capacity of 5,900 acre-feet (GBRA, 2001). The Dunlap Power House is located in the southern portion of Lake Dunlap at the end of Dunlap Canal.

The project area is located in the Middle Guadalupe River watershed. According to the Environmental Protection Agency (EPA) watershed homepage, this portion of the Guadalupe watershed has a rating of "better water quality" with "few problems." EPA also characterizes this portion of the watershed as one that is tolerant of pollutants, indicating a lower potential for future declines in water quality (EPA, 2000).

An initial hydrologic and hydraulic (H&H) analysis was conducted in 2000 by the San Antonio River Authority (SARA) for the proposed project. SARA concluded in its report that water velocities for an emergency spillway on the east bank of the Guadalupe River could potentially cause erosion between elevations 570 and 555 feet NGVD. SARA determined that hydraulically the proposed project would have minimal impacts on the 100-year flood conveyance of the Guadalupe River. The flood flows that would be introduced into the Guadalupe River from the emergency spillway would have otherwise been introduced into the Guadalupe River at various points along this stretch of the river due to overland flooding (SARA, 2000). A copy of the H&H

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analysis can be obtained for review by contacting Ryan Thompson, URS Group, Inc., 200 Orchard Ridge Drive, Suite 101, Gaithersburg, Maryland 20878, or by telephoning (301) 670-3387.

Wild and Scenic Rivers: The Wild and Scenic Rivers Act (16 U.S.C. § 1274-1276), was established to preserve the free-flowing state of listed rivers or those under consideration for inclusion due to numerous values, such as scenic, recreational, geologic, or historic. According to the National Park Service (NPS), the project area is not located near a federally designated wild and scenic waterway (NPS, 2003).

Alternative 1 – No Action Alternative

Under Alternative 1, no construction would occur. Implementation of the No Action Alternative would not impact surface or ground water resources. Flooding would continue, potentially causing additional soil erosion or damage to the canal and related structures.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Implementation of Alternative 2 is not anticipated to result in adverse impacts to water resources and water quality. Sedimentation and associated pollutants may enter the stormwater discharge pathway as soils are disturbed during the construction process. However, implementation of soil erosion mitigation measures would reduce the potential for sediments and pollutants associated with construction to enter stormwater flow. During the implementation of the Proposed Action, water velocities could become high enough to erode portions of the spillway. GBRA has identified specific bio-engineering mitigation measures to minimize the potential erosion, such as leaving the strongest trees below the fence line in place. GBRA would remove all mesquite and hackberry trees within this area and would plant native grasses. The Applicant would need to schedule project with growing season for grasses. In addition, at the termination of the project, riprap would be used to minimize erosion at the bluff and velocity dissipaters have been proposed. GBRA would conduct maintenance and replant grass as needed. These mitigation measures would minimize erosion of soils and sedimentation of the Guadalupe River downstream.

In accordance with the Clean Water Act (CWA) (33 U.S.C. 1251 et seq.) and the Texas Clean Water Code, a Texas Pollution Discharge Elimination System (TPDES) permit is required for construction activities disturbing more than 1 acre. Historically, a National Pollution Discharge Elimination System (NPDES) permit has been required from the Environmental Protection Agency (EPA) for construction activities disturbing more than 5 acres, but on March 5, 2003, the Texas Commission on Environmental Quality (TCEQ) became the permitting authority for construction stormwater discharges. Hence, the TCEQ administers TPDES permits for both construction activities disturbing between 1 and 5 acres and those disturbing more than 5 acres. Because the Proposed Action would disturb approximately 4 acres of land, the Applicant would be required to obtain a TPDES permit from TCEQ prior to construction. As part of the permit requirements, the Applicant would also have to develop and implement a stormwater pollution prevention plan.

Coordination with the U.S. Army Corps of Engineers (USACE) was initiated on August 21, 2001, in accordance with Section 404 of the CWA and Section 10 of the Rivers and Harbors Act.

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In a letter dated November 17, 2001, the USACE stated that construction of an emergency spillway would not require a USACE permit or authorization (Appendix B).

In addition, the Edwards Aquifer would not experience any adverse effects as the result of the Proposed Action and no permits would be required (Mauser, pers. comm.).

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Implementation of Alternative 3 is not anticipated to result in adverse impacts to water resources and water quality. Sedimentation and associated pollutants may enter the stormwater discharge pathway as soils are disturbed during the construction process. However, implementation of soil erosion mitigation measures would reduce the potential for sediments and pollutants associated with construction to enter stormwater flow. During implementation of Alternative 3, water velocities entering the Guadalupe would be very high. Erosion could potentially occur at the toe edge of the spillway. Riprap and velocity dissipaters would most likely be installed to minimize this erosion. However, future floods could compromise the structure by eroding the toe edge completely. GBRA would conduct maintenance as needed.

Because the Proposed Action would disturb approximately 4 acres of land, the Applicant would be required to obtain a TPDES permit from TCEQ prior to construction. As part of the permit requirements, the Applicant would also have to develop and implement a stormwater pollution prevention plan.

Coordination with the USACE was initiated on August 21, 2001, with respect to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. In a letter dated November 17, 2001, the USACE stated that construction of an emergency spillway would not require a USACE permit or authorization (Appendix B). However, if Alternative 3 involves placing fill material closer to the Guadalupe River than currently planned, coordination would be reinitiated with USACE and a permit would most likely be required prior to construction.

In addition, the Edwards Aquifer would not experience any adverse effects as a result of Alternative 3 and no permits would be required (Mauser, pers. comm.).

3.1.3 Floodplain Management (Executive Order 11988)

Floodplains generally refer to 100-year floodplains as set by FEMA and are shown on Flood Insurance Rate Maps (FIRM) or Flood Hazard Boundary Maps (FHBM) for all communities that are members of the National Flood Insurance Program (NFIP).

The 100-year floodplain designates the area inundated during a storm having a 1 percent chance of occurrence in any given year. FEMA also identifies the 500-year floodplain. The 500-year floodplain designates the area inundated during a storm having a 0.2 percent chance of occurrence in any given year. Generally, rivers and major waterways are classified as floodways. The Guadalupe River is designated as a floodway.

EO 11988 (Floodplain Management) requires federal agencies to minimize occupancy of and modification to the floodplain. Specifically, EO 11988 prohibits federal agencies from funding construction in the 100-year floodplain unless there are no practicable alternatives. FEMA's regulations for complying with EO 11988 are promulgated in 44 CFR Part 9. FEMA applies the Eight-Step Planning Process as required by regulation to meet the requirements of EO 11988. A

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step-by-step analysis of the Eight-Step Planning Process, as applied to this EA, is included in Appendix A of this document.

According to the FIRM (Community Panel Number 480266 0050 B), the lower portion of the spillway is located within the regulated 100-year floodplain (FEMA, 1979). An initial H&H analysis was conducted in 2000 by SARA for the proposed project to determine impacts to the floodplain. A copy of the H&H analysis can be obtained for review by contacting Ryan Thompson, URS Group, Inc., 200 Orchard Ridge Drive, Suite 101, Gaithersburg, Maryland 20878, or by telephoning (301) 670-3387.

Alternative 1 – No Action Alternative

Under Alternative 1, no construction would occur. Implementation of the No Action Alternative would not impact the floodplain.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Implementation of Alternative 2 is not anticipated to impact the 100-year floodplain. SARA determined that hydraulically the proposed project would have minimal impacts on the 100-year flood conveyance of the Guadalupe River. The flood flows that would be introduced into the Guadalupe River from the emergency spillway would have otherwise been introduced into the Guadalupe River at various points along this stretch of the river due to overland flooding (SARA, 2000). The Applicant would coordinate with the local floodplain coordinator for possible local permits or approvals prior to construction.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Although an H&H analysis was not conducted for Alternative 3, implementation of Alternative 3 is not anticipated to impact the 100-year floodplain because it functions in the same manner as Alternative 2, which would have minimal impacts on the 100-year flood conveyance of the Guadalupe River. If Alternative 3 is selected, the Applicant would be required to conduct an H&H analysis to prove that no impacts would occur. The Applicant would coordinate with the local floodplain coordinator for possible local permits or approvals prior to construction.

3.1.4 Air Quality

The Clean Air Act (CAA), as amended, requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The CAA established two types of national air quality standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA Office of Air Quality Planning and Standards has set NAAQS for six principal pollutants, which are called “criteria” pollutants. They include: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), lead (Pb), particulate matter less than or equal to 10 microns (PM₁₀), and sulfur dioxide (SO₂).

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Air quality in Texas is distinguished by those areas that meet or exceed the NAAQS. The EPA has designated specific areas throughout Texas as NAAQS attainment or non-attainment areas. Non-attainment areas are any areas that do not meet (or that contribute to ambient air quality in a nearby area that does not meet) the national primary or secondary air quality standard for a pollutant. Attainment areas are any areas that meet the primary or secondary ambient air quality standard for the pollutant. Guadalupe County is in attainment for all six criteria pollutants monitored by the EPA (EPA, 2001).

Alternative 1 – No Action Alternative

Alternative 1 would not impact air quality because no construction activities would occur under this alternative.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Construction activities, as would occur under Alternative 2, are a potential source of fugitive dust emissions that may have temporary impacts on local air quality. Emissions during construction would be associated with ground excavation and earth moving activities. Dust emissions can vary greatly from day to day depending on the level of activity. To reduce temporary impacts to air quality, the Applicant would be required to water down construction areas when necessary. Emissions from fuel-burning internal combustion engines (e.g., heavy equipment and earthmoving machinery) could temporarily increase the levels of some of the criteria pollutants, including CO, NO₂, O₃, and PM₁₀, and non-criteria pollutants such as volatile organic compounds (VOCs). To reduce the emission of criteria pollutants, fuel-burning equipment operation would be kept to a minimum, and equipment and engines would be maintained properly. No long-term impacts to air quality are anticipated as a result of the Proposed Action.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Construction activities, as would occur under Alternative 3, are a potential source of fugitive dust emissions that may have temporary impacts on local air quality. Emissions during construction would be associated with ground excavation and earth moving activities. Dust emissions can vary greatly from day to day depending on the level of activity. To reduce temporary impacts to air quality, the Applicant would be required to water down construction areas when necessary. Emissions from fuel-burning internal combustion engines (e.g., heavy equipment and earthmoving machinery) could temporarily increase the levels of some of the criteria pollutants, including CO, NO₂, O₃, and PM₁₀, and non-criteria pollutants such as VOCs. To reduce the emission of criteria pollutants, fuel-burning equipment operation would be kept to a minimum, and equipment and engines would be maintained properly. No long-term impacts to air quality are anticipated as a result of the Alternative 3.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Terrestrial and Aquatic Environment

Vegetation in Guadalupe County consists primarily of mesquite, scrub brush, and grasses in drier areas, while water-tolerant hardwoods and conifers flourish near creeks (Handbook, 2000). The field reconnaissance survey of the project area on August 7, 2001, revealed the presence of Johnson grass (*Sorghum halepense*), giant ragweed (*Ambrosia trifida*), and Bermuda grass (*Cynodon dactylon*). The dominant trees observed at the project area included mesquite (*Prosopis pubescens*), hackberry (*Celtis occidentalis*), white oak (*Quercus alba*), pecan (*Carya illinoensis*), cottonwood (*Populus deltoides*), American elm (*Ulmus americana*), and cypress (*Cupressus sempervirens*).

Typical wildlife likely to utilize the project area include mammals and birds, such as white-tailed deer, raccoons, opossum, skunks, great blue heron, and wild turkeys.

Migratory Bird Treaty Act: The Migratory Bird Treaty Act (MBTA) prohibits the taking of migratory birds, nests, and eggs, except as permitted by the U.S. Fish and Wildlife Service (USFWS). A migratory bird is defined as “any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle.” There are currently 836 species of migratory birds protected under the MBTA (USFWS, 2002). Agency coordination was initiated with the USFWS and the Texas Parks and Wildlife Department (TPWD) regarding any potential impacts to terrestrial or aquatic habitats and migratory birds associated with the Proposed Action and Alternative 3. In consultation letters, neither agency expressed concern with these alternatives regarding migratory birds. All of the alternatives are anticipated to be in compliance with the MBTA.

The Guadalupe River is home to several species of bass, catfish, crappie, sunfish, carp, minnows, and sucker fish. The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), P.L. 94-265, as amended, provides for the conservation and management of fishery resources in the U.S. Exclusive Economic Zone. The Magnuson-Stevens Act focuses on habitat that is essential for oceanic species of fish and anadromous species (species which migrate into freshwater to spawn) to live. These areas are designated as Essential Fish Habitat (EFH) and federal agencies must assess any impacts and mitigate those impacts to designated EFH. The project area does not contain any areas of EFH; therefore, the Magnuson-Stevens Act is not applicable.

Alternative 1 - No Action Alternative

Under Alternative 1, no construction would occur. Therefore, this alternative would not impact terrestrial or aquatic resources.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Under Alternative 2, the vegetation in the project area would be thinned. Underbrush and mesquite and hackberry trees would be removed. However, according to the Applicant, cypress, white oak and American elm trees would be preserved, where possible. To minimize impacts to trees, the Applicant would employ temporary fences around the tree driplines to prevent the

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encroachment of personnel and equipment on root systems. Trees outside of the project area would not be removed. Grasses located in the project area would be temporarily impacted by the construction. However, the project area would be revegetated with native grasses.

The aquatic environment could potentially be impacted temporarily during construction due to soil disturbance and erosion. Sediments and pollutants could enter the Guadalupe River, increasing the river's turbidity and stressing the aquatic environment; however, mitigation measures, such as the use of silt fencing and hay bales during construction, would minimize these impacts. Once implemented, the Proposed Action is not anticipated to impact the aquatic environment.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Under Alternative 3, all of the vegetation in the spillway area would be removed and replaced with concrete. Wildlife in the area would be displaced. The cypress trees at the Guadalupe River bank would be preserved. The aquatic environment could potentially be impacted temporarily during construction due to soil disturbance and erosion. Sediments and pollutants could enter the waterway increasing the river's turbidity and stress the aquatic environment; however, mitigation measures, such as the use of silt fencing and hay bales during construction, would minimize these impacts. Once implemented, Alternative 3 is not anticipated to impact the aquatic environment.

3.2.2 Wetlands (Executive Order 11990)

EO 11990, Protection of Wetlands, requires federal agencies to take action to minimize the loss of wetlands. The NEPA compliance process requires federal agencies to consider direct and indirect impacts to wetlands, which may result from federally funded actions. No wetland areas were observed during a reconnaissance site visit of the project area on August 7, 2001; nor were any wetlands identified by a review of the available water resource maps of the area. Therefore, it is anticipated that the No Action Alternative, Proposed Action Alternative, or Alternative 3 would not impact wetlands.

3.2.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 requires federal agencies to determine the effects of their actions on threatened and endangered species of fish, wildlife, and plants, and their habitats, and take steps to conserve and protect these species. On August 21, 2001, the Texas Ecological Services Field Office of the USFWS was contacted to obtain a list of species that are endangered or threatened, proposed for listing as threatened or endangered, or considered to be candidates for listing by the ESA. The species with the potential to occur in Guadalupe County include the bald eagle (*Haliaeetus leucocephalus*), listed as threatened, and the Cagle's map turtle (*Graptemys caglei*), listed as a candidate species.

The project area is contained within the GBRA property and surrounded by the Guadalupe River and Dunlap Canal. A private golf course and some residential buildings are located on the west bank of the Guadalupe River. Both species have the potential to occur in Guadalupe County and the project area may contain suitable foraging, nesting, or resting habitat. In accordance with the

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ESA and the Fish and Wildlife Coordination Act, the USFWS and the TPWD were consulted in a letter dated August 21, 2001 (Appendix B).

Alternative 1 - No Action Alternative

Alternative 1 would not disturb natural areas at the project area and, therefore, would not adversely affect threatened or endangered species.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

In a letter dated October 1, 2001, the USFWS stated that Alternative 2, the Proposed Action, is not likely to adversely affect any federally listed threatened or endangered species. However, the USFWS noted that the project area may contain suitable habitat for Cagle's map turtle, a candidate species (Appendix B). The Applicant should take steps to minimize impacts to this species and its habitat. The Cagle's map turtle, an aquatic species, prefers habitat with fallen trees, limbs, snags, and rock outcrops. The vicinity where the Proposed Action terminates contains potential habitat for the Cagle's map turtle. The USFWS recommends that GBRA leave this area undisturbed or create additional habitat for the turtle (Appendix B). GBRA has no plans to disturb this area; however, if GBRA does disturb areas immediately adjacent to the Guadalupe River, they would be required to create Cagle's map turtle habitat in the project area by providing fallen trees or rock outcroppings. Riprap would be placed above the Cagle's map turtle habitat.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Alternative 3 would occur in the same area as Alternative 2. Therefore, as stated in the USFWS in their October 1, 2001 letter, adverse effects to federally listed threatened or endangered species are not likely (Appendix B). Because the project area may contain suitable habitat for Cagle's map turtle, the Applicant should take steps to minimize impacts to this species and its habitat. The vicinity where Alternative 3 terminates contains potential habitat for the Cagle's map turtle. The USFWS recommends that GBRA leave this area undisturbed or create additional habitat for the turtle (Appendix B). GBRA has no plans to disturb this area; however, if GBRA does disturb areas immediately adjacent to the Guadalupe River, they would be required to create Cagle's map turtle habitat in the project area by providing fallen trees or rock outcroppings. The concrete spillway would terminate above the Cagle's map turtle habitat.

3.3 HAZARDOUS MATERIALS

URS staff conducted preliminary reconnaissance for recognized environmental conditions at the project area and in the project vicinity on August 7, 2001. The visit revealed that no hazardous materials exist in the project area. No subsurface hazardous materials testing was conducted as a part of this EA. However, based on the historical use of the site for farming and as part of the Lake Dunlap hydroelectric facility, no subsurface hazardous materials are anticipated to be present.

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Alternative 1 - No Action Alternative

No construction would occur under Alternative 1; hence, no impacts resulting from hazardous materials are anticipated.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Under Alternative 2, no impacts to hazardous materials or wastes are anticipated. Although subsurface hazardous materials are not anticipated to be present, excavation activities could potentially expose or otherwise affect subsurface hazardous wastes or materials. Any hazardous materials discovered, generated, or used during implementation of the Proposed Action would be disposed of and handled by GBRA in accordance with applicable local, state, and federal regulations.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Under Alternative 3, no impacts to hazardous materials or wastes are anticipated. Although subsurface hazardous materials are not anticipated to be present, excavation activities could potentially expose or otherwise affect subsurface hazardous wastes or materials. Any hazardous materials discovered, generated, or used during implementation of Alternative 3 would be disposed of and handled by GBRA in accordance with applicable local, state, and federal regulations.

3.4 SOCIOECONOMICS

3.4.1 Zoning and Land Use

The project area consists of property purchased and owned by the GBRA since the 1920s and used as part of the Lake Dunlap hydroelectric power plant to generate electricity. Prior to that, this land was used for farming. Less than 1 mile north of the project area are single-family homes along Dunlap Lake. Less than 1 mile south of the project area is a country club on the west side of the Guadalupe River, while on the east bank of the river are several homes. Directly west of the project area is the Guadalupe River. East of the project area are several acres of farmland between the canal and Texas Highway 46 (Figure 2). The Dunlap Canal is located in Guadalupe County and is not zoned.

Alternative 1 – No Action Alternative

Under Alternative 1, no construction would occur. Repeated flooding may cause zoning or land use patterns outside of the project area to change over time.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

It is not anticipated that Alternative 2 would result in any permanent alterations to zoning or land use in the project area. Since the property on which the spillway would be constructed belongs to GBRA and is currently being used for electricity generation, the proposed project would not require changes to any local zoning ordinances.

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Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Implementation of Alternative 3 is not anticipated to result in any permanent alterations to zoning or land use in the project area. Since the property on which the spillway would be constructed belongs to GBRA and is currently being used for electricity generation, the proposed project would not require changes to any local zoning ordinances.

3.4.2 Visual Resources

Visual resources refer to the landscape character (what is seen), visual sensitivity (human preferences and values regarding what is seen), scenic integrity (degree of intactness and wholeness in landscape character), and landscape visibility (relative distances of seen areas) of a geographically defined viewshed.

The project area is not visible from Texas Highway 46, but it can be seen from the west bank of the Guadalupe River, where a number of residential structures and a golf course are located. Overall, the visual resources in the project area consist of Dunlap Canal, Lake Dunlap, Guadalupe River, a bridge, vegetation such as brush, grass, and trees, separation gates, the power station, and a number of auxiliary buildings.

Alternative 1 – No Action Alternative

Under Alternative 1, no construction would occur. Alternative 1 would not affect visual resources in the project area.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Alternative 2 is not anticipated to cause adverse impacts to visual resources. Although some vegetation in the project area would be removed, large trees would remain, concealing the spillway from the golf course and residential homes, and preserving the overall integrity of the viewshed.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Under Alternative 3, beginning at the barbed wire fence, the spillway would be lined with concrete and the berms would be earthen with concrete lining. Under Alternative 3, the viewshed in the project area would be negatively impacted. The vegetation in the project area, including such hardwood trees as oak, elm, and pecan, would be removed, exposing the concrete-lined spillway to the golf course and residential homes on the west bank of the Guadalupe River.

3.4.3 Noise

Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

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Noise, defined herein as undesirable sound, is federally regulated by the Noise Control Act of 1972 (NCA). Although the NCA gives the EPA authority to prepare guidelines for acceptable ambient noise levels, it only charges those federal agencies that operate noise-producing facilities or equipment to implement noise standards. The EPA's guidelines, and those of many federal agencies, state that outdoor sound levels in excess of 55 dB DNL are "normally unacceptable" for noise-sensitive land uses such as residences, schools, and hospitals.

The State of Texas regulates noise under section 42.01(a)(5) and (c)(2) of its penal code. Guadalupe County has no additional noise regulations. There are no sensitive receptors within the immediate vicinity of the proposed project.

Alternative 1 – No Action Alternative

Under Alternative 1, no construction would occur. Alternative 1 would not affect ambient noise levels in the project area.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Under Alternative 2, noise would be emitted from mechanical equipment used in the construction of the spillway. Noise levels would be consistent with common construction practices. Construction would take place during normal business hours and noise impacts would be temporary. There would be no long-term noise impacts associated with this alternative.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Under Alternative 3, noise would be emitted from mechanical equipment used in the construction of the spillway. Noise levels would be consistent with common construction practices. Concrete pouring operations would generate additional noise. Construction would take place during normal business hours and noise impacts would be temporary. There would be no long-term noise impacts associated with this alternative.

3.4.4 Public Services and Utilities

There are no operational above- or below-ground utilities in the immediate project area. The GBRA property includes a building which houses an individual responsible for the emergency operation of the canal isolation gates. Electricity for this building is provided by the Guadalupe Valley Hydroelectric Company, while water is provided by the Springhill Water Supply Corporation. Police services are provided by the Guadalupe County Sheriff's Department. Fire services are provided by the Geronimo Volunteer Fire Department, while Seguin Emergency Medical Services provides rescue services in the project area. Telephone poles once used by the GBRA for internal communications are located in the immediate project area. These poles are no longer in use.

Alternative 1 – No Action Alternative

No immediate impacts to public services and utilities are anticipated under this alternative. However, another flood similar to the October 1998 flood could render Texas Highway 46

SECTION THREE Affected Environment and Environmental Consequences

impassable, impairing the county's ability to provide public services and timely emergency response, thereby negatively affecting public health and safety.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Adverse impacts to public services and utilities are not anticipated as a result of Alternative 2. Alternative 2 would improve the access of emergency vehicles to county residents during floods by directing floodwaters back to the Guadalupe River and allowing Texas Highway 46 to remain open. The telephone poles located in the area of the proposed spillway are no longer in use and would be removed.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Adverse impacts to public services and utilities are not anticipated as a result of Alternative 3. This alternative would improve the access of emergency vehicles to county residents during floods by directing floodwaters back to the Guadalupe River and allowing Texas Highway 46 to remain open. The telephone poles located in the area of the proposed spillway are no longer in use and would be removed.

3.4.5 Traffic and Circulation

A limited number of roads are present in the project area. Texas Highway 46 is maintained by the State of Texas and is a two-lane paved road. Texas Highway 46 is the only main road connecting Seguin and New Braunfels. Canal Lane, a road connecting Texas Highway 46 and the project area, is a one-lane gravel road owned and maintained by GBRA. Waterway Pass, a one-lane unpaved road, is located on GBRA property adjacent to the canal. While Highway 46 is a high-traffic road, Canal Lane and Waterway Pass are used infrequently. Currently, there is no public transportation within the project area.

Alternative 1 – No Action Alternative

No immediate impacts to traffic or public transportation are anticipated under this alternative. However, the likelihood of traffic disruption on Texas Highway 46 from future flood events is high.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Under Alternative 2, access to the proposed spillway construction site would be gained from Canal Lane. The effect to traffic would be limited to a temporary slow-down of traffic movement on Texas Highway 46 due to relatively slow-moving large equipment during the deployment stage of the project. The spillway would cut through Waterway Pass, which is limited to GBRA personnel traffic. Use of Waterway Pass would continue. Therefore, no major traffic circulation disruptions are anticipated. The Proposed Action would reduce possible traffic circulation disruptions associated with future flood events.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Under Alternative 3, access to the proposed spillway construction site would be gained from Canal Lane. The effect to traffic would be limited to a temporary slow-down of traffic movement on Texas Highway 46 due to relatively slow-moving large equipment during the deployment stage of the project. The spillway would cut through Waterway Pass, which is limited to GBRA personnel traffic. Use of Waterway Pass would continue. Therefore, no major traffic circulation disruptions are anticipated. Alternative 3 would reduce possible traffic circulation disruptions associated with future flood events.

3.4.6 Environmental Justice (Executive Order 12898)

EO 12898 requires federal agencies to make achieving environmental justice part of their mission. Agencies are required to identify and correct programs, policies, and activities that have disproportionately high and adverse human health or environmental effects on minority and low-income populations. EO 12898 also tasks federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible.

Socioeconomic and demographic data were studied to determine if a disproportionate number (greater than 50 percent) of minority or low-income persons have the potential to be adversely affected by the proposed project.

Most of Guadalupe County's residents are white (77.6 percent); of these, 59.4 percent were white persons not of Hispanic/Latino origin. Residents of Hispanic/Latino origin comprised 33.2 percent of the county's population. African Americans, American Indian, Alaska Native persons, and Asian persons comprised 6.4 percent of the total population in this county. Median household income was slightly above the state's average—\$34,874 vs. \$34,478—while the percentage of persons below the poverty line and the percentage of children below the poverty line were lower than those of the State of Texas in general (U.S. Census Bureau, 2000). The census tract within which the project is located has a population of 5,053. Of these individuals, 86.9 percent are white, while African Americans, American Indians, Alaskan Native persons, Asians, Native Hawaiians, and persons of some other race comprised 10.7 percent of the total population. Residents of Hispanic/Latino origin comprised 32.8 percent of the census tract's population. Average household income for this census tract was \$49,399, higher than both the state and county's average. Of the census tract population, 5.8 percent live below the poverty level.

Based upon a review of U.S. Census information, the No Action, Proposed Action, and Alternative 3 would not have a disproportionately high and adverse effect on minority or low-income populations. Construction of the emergency spillway under the Proposed Action or Alternative 3 would benefit all of the people residing near the project area. Therefore, the project is in compliance with EO 12898.

3.4.7 Safety and Security

Safety and security issues that have been considered in this EA include the health and safety of the area residents and the public at-large, and protection of personnel involved in activities related to the implementation of the proposed construction of the spillway. EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, requires federal agencies to

SECTION THREE Affected Environment and Environmental Consequences

identify and assess environmental health and safety risks that may disproportionately affect children.

Alternative 1 – No Action Alternative

Alternative 1 would not immediately adversely affect the population of the study area. Since Alternative 1 does not involve the employment of personnel to construct the spillway, there would be no potential risks to the personal safety of those who would otherwise be performing the construction activities. Because no construction would occur, EO 13045 is not applicable. However, under Alternative 1, potential threat to human safety from future flooding would remain. Should a large flood occur in the future, Texas Highway 46 is likely to be inundated and human safety may be jeopardized as a result of disruption in traffic flow and emergency response services.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Alternative 2 would decrease the potential threat to residents from future flooding of Texas Highway 46. Under the Proposed Action, construction activities could present safety risks to those performing the activities. To minimize risks to human safety and health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment and appropriate safety precautions. Additionally, all activities would be conducted in a safe manner in accordance with the standards specified in Occupational Safety and Health Administration (OSHA) regulations. Appropriate signage and fencing would be placed to alert pedestrians, motorists, and school students and staff of project activities, as well as any changes in traffic patterns on Highway 46. Based on the proposed project's relatively remote location away from playgrounds, schools, and residential homes where children are likely to be present, EO 13045 is not applicable.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Alternative 3 would decrease the potential threat to residents from future flooding of Texas Highway 46. Construction activities associated with this alternative could present safety risks to those performing the activities. To minimize risks to human safety and health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment and appropriate safety precautions. Additionally, all activities would be conducted in a safe manner in accordance with the standards specified in OSHA regulations. Appropriate signage and fencing would be placed to alert pedestrians, motorists, and school students and staff of project activities, as well as any changes in traffic patterns. Based on the proposed project's relatively remote location away from playgrounds, schools, and residential homes where children are likely to be present, EO 13045 is not applicable.

3.5 CULTURAL RESOURCES

In addition to review under NEPA, consideration of impacts to cultural resources is mandated under Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800. Requirements include identification of significant historic properties that may be affected by the proposed project. Historic properties are defined as

SECTION THREE Affected Environment and Environmental Consequences

archaeological sites, standing structures, or other historic resources listed in or eligible for listing in the National Register of Historic Places (NRHP).

As defined in 36 CFR Part 800.16(d), the Area of Potential Effect (APE) “is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist.”

In addition to identifying historic properties that may exist in the proposed project’s APE, the federal agency must also determine, in consultation with the appropriate State Historic Preservation Officer (SHPO), what effect, if any, the action would have on historic properties. Moreover, if the project would have an adverse effect to these properties, the federal agency must consult with the SHPO on ways to avoid, minimize, or mitigate the adverse effect.

The Texas Historical Commission (THC), which serves as the SHPO, was notified of the preparation of this EA in a letter dated August 21, 2001 (Appendix B). A September 4, 2001, letter from the THC stated that additional cultural resources work in the project area would be required to identify any eligible or potentially eligible resources that may be impacted by the proposed project. Both a Phase I archaeological survey and a determination of eligibility for the Dunlap Canal were prepared.

Archaeology

The Phase I archaeological survey was conducted on October 12, 2001, and consisted of a 100-percent pedestrian survey, two shovel test pits, and two backhoe trenches placed throughout the APE. A geomorphological evaluation of the backhoe trenches was conducted to determine the potential for deeply buried archaeological resources. The results of this work indicate that there are no archaeological resources within the APE. The Phase I archaeological report recommended that no further archaeological work be conducted and was submitted to the THC. The THC concurred with the report on February 22, 2002 (Appendix B). A copy of the Phase I archaeological survey report can be obtained for review by contacting Ryan Thompson, URS Group, Inc., 200 Orchard Ridge Drive, Suite 101, Gaithersburg, Maryland 20878, or by telephoning (301) 670-3387.

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no effects to any archaeological resources, as no construction would occur.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

Alternative 2 would have no effect to any archaeological resources, because none were identified within the APE.

Should any potentially historic or archeologically significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and the city shall consult with FEMA, DEM, and the SHPO or other appropriate agencies for further guidance.

SECTION THREE Affected Environment and Environmental Consequences

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Alternative 3 is to be implemented in the same area as Alternative 2. As with Alternative 2, Alternative 3 would have no effect to any archaeological resources, because none were identified within the APE.

Should any potentially historic or archeologically significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and the city shall consult with FEMA, DEM, and the SHPO or other appropriate agencies for further guidance.

Historic Structures

The Dunlap Canal site is present within the project area. Identified by THC as TP No. 1, the Dunlap Canal has one of six hydroelectric power plants built between 1928 and 1931 that comprise a larger system in the area. In a letter dated October 7, 2002, FEMA determined that the Dunlap Canal site was eligible for listing in the NRHP under Criterion B, for the influence that the complex had on the development of the region, and Criterion C, because it represents a significant and distinguishable entity with distinctive characteristics of a type and method of construction. FEMA also determined that the proposed project would have no adverse effect on the historic Dunlap Canal (Appendix B). In a letter dated November 4, 2002, the THC concurred with FEMA's determination (Appendix B).

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no effects to any cultural resources, as construction activities would not occur. Continued unabated flooding could jeopardize the integrity of the historic Dunlap Canal, potentially having an adverse effect to the historic structures.

Alternative 2 – Earthen, Grass-lined Emergency Spillway (Proposed Action)

The Proposed Action would have no adverse effect on the historic Dunlap Canal property. Construction of the emergency spillway could potentially protect the NRHP eligible Dunlap Canal site from future damage.

Alternative 3 – Combination Earthen, Grass-lined/Concrete Emergency Spillway

Alternative 3 would have no adverse effect on the historic Dunlap Canal property. Construction of the emergency spillway could potentially protect the NRHP eligible Dunlap Canal site from future damage.

Cumulative impacts are those effects on the environment that result from the incremental effect of the action when added to past, present and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

There are no other known projects upstream or downstream that, when added to the proposed project, have a cumulative impact on the human environment.

FEMA is the lead federal agency for conducting the NEPA compliance process for the Dunlap Canal Emergency Spillway Project in Guadalupe County, Texas. The lead agency's goal is to expedite the preparation and review of NEPA documents to be responsive to the needs of the community and the applicant, while meeting the intent of NEPA and complying with all NEPA provisions including NHPA, EO 11988, and EO 11990.

A draft Environmental Assessment of the Dunlap Canal Emergency Spillway Project in Guadalupe County, Texas was made available for public review in the Seguin-Guadalupe County Public Library from May 14, 2003 to June 12, 2003. A Public Notice advertising the availability of the Draft EA was placed in the Seguin Gazette-Enterprise on May 14, 2003.

The following mitigation measures would be required for the implementation of the Proposed Action, construction of an earthen, grass-lined emergency spillway:

1. If project activities include the stockpiling of soil or fill on-site, the Applicant would cover these soils to help prevent fugitive dust and soil erosion.
2. Trees along the east bank of Guadalupe River would be preserved.
3. In the emergency spillway, mesquite and hackberry trees would be removed and velocity dissipaters would be installed.
4. The emergency spillway would be revegetated with native grasses once construction is complete.
5. The Applicant would schedule the project with the growing season for grasses.
6. Silt fencing and hay bales would be used during construction to reduce the potential for site sediments and associated pollutants to enter stormwater runoff.
7. Riprap would be used in the bluff area to reduce discharge velocity and erosion. Riprap would not be placed below the ordinary high water mark of the Guadalupe River.
8. The Applicant would conduct maintenance and replant grasses as needed.
9. The Applicant must obtain a TPDES General Permit from TCEQ.
10. The Applicant would coordinate with the local floodplain coordinator for possible local permits or approvals prior to construction
11. To reduce temporary impacts to air quality, the Applicant would be required to water down construction areas when necessary.
12. Running time of fuel-burning equipment would be minimized and engines would be maintained to reduce the emission of criteria pollutants.
13. To minimize impacts to trees, the Applicant would place temporary fences around the tree driplines to prevent damage from the encroachment of personnel and equipment on root systems.
14. Any hazardous materials discovered, generated, or used during implementation of the proposed project would be disposed of and handled by GBRA in accordance with applicable local, state, and federal regulations.
15. Construction activities would occur during normal business hours.
16. All construction activities would be conducted by trained personnel in compliance with the standards and regulations of OSHA to protect worker safety.
17. Appropriate signage and fencing would be placed to alert pedestrians, motorists, and school students and staff of project activities, as well as any changes in traffic patterns.
18. Should any potentially historic or archeological significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and the Applicant shall consult with FEMA, DEM, and the SHPO or other appropriate agencies for further guidance.

19. The Applicant shall obtain and comply with all local, state, and federal permits, laws and Executive Orders.

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- U.S. Fish and Wildlife Service (USFWS). 2002. Division of Migratory Bird Management. <http://migratorybirds.fws.gov>. Site visited on June 14, 2002.
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USGS. 2002. Earthquake Hazards Program. National Hazards Seismic Maps.

<http://geohazards.cr.usgs.gov/eq/graphics/usmap.gif>. Site visited on June 14, 2002.

Consultations

Larry Moltz

Technical Consultant

Guadalupe-Blanco River Authority

Randall L. Waters, P.E.

Engineering Administrative Manager

San Antonio River Authority

Personal Communications:

Mauser, Jon. 2001. Texas Natural Resources Conservation Commission, Edwards Aquifer Protection Program, August 27.

URS LIST OF PREPARERS

Irina Obenauer, Environmental Planner – Lead technical researcher and document author

Ryan Thompson, Senior Environmental Planner – Co-author and Task Order Coordinator

Justin Patton, Archeologist – Cultural Resource lead and author

Stephen Carruth, Senior Environmental Scientist – URS/FEMA Region VI NEPA Coordinator

Angela Chaisson, URS NEPA Group Leader – Technical/Peer Reviewer and Quality Assurance Coordinator

Appendix A
EO 11988 and EO 11990
Eight-Step Planning Process

**Executive Order 11988 Floodplain Management
Executive Order 11990 Wetland Protection
Eight-Step Planning Process Summary**

Dunlap Canal Emergency Spillway Project

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| <p>Step 1: Determine whether the Proposed Action is located in a wetland and/or the 100-year floodplain, or whether it has the potential to affect or be affected by a floodplain or wetland.</p> | <p>Project Analysis: According to the FHBM for Guadalupe County, a portion of the project area is within the regulated floodplain.</p> <p>No wetlands were observed during the field reconnaissance survey on August 7, 2001.</p> |
| <p>Step 2: Notify public at earliest possible time of the intent to carry out an action in a floodplain or wetland, and involve the affected and interested public in the decision-making process.</p> | <p>Project Analysis: An initial public notice was posted in the community's newspaper in October 1998, indicating that actions would potentially occur in the 100-year floodplain and/or wetlands. The Applicant would be required to notify the public again prior to construction.</p> |
| <p>Step 3: Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain or wetland.</p> | <p>Project Analysis: The following alternatives were evaluated:</p> <p><u>Alternative 1: No Action</u></p> <p><u>Alternative 2: Earthen, Grass-lined Emergency Spillway (Proposed Action).</u> The Proposed Action consists of a 275-foot long emergency spillway with berms on both sides to direct water into the Guadalupe River. The Proposed Action would begin at the Dunlap Canal and end approximately 50 feet from the Guadalupe River gradually expanding from 400 feet wide to 500 feet wide.</p> <p><u>Alternative 3: Combination Earthen, Grass-lined/Concrete Emergency Spillway.</u> Alternative 3 would have the same dimensions as the Proposed Action; however, beginning at the barbed wire fence, the emergency spillway would be lined with concrete.</p> |

Step 4: Identify the full range of potential direct or indirect impacts associated with the occupancy or modification of floodplains and wetlands and the potential direct and indirect support of floodplain and wetland development that could result from the Proposed Action.

Project Analysis:

Alternative 1

The No Action Alternative would not affect the 100-year floodplain. No construction would occur, therefore, there would not be any direct or indirect impacts to jurisdictional waters in the project area or the 100-year floodplain. No further coordination with the USACE in compliance with Section 404 of CWA would be required under this alternative.

Alternative 2

No long-term or direct impacts to the Guadalupe River are anticipated as a result of this alternative. Thinning of vegetation has the potential to free erodible soils to enter the Guadalupe River, which would result in minor soil discharges. Mitigation measures described in Section 3.1.1, Geology, Seismicity, and Soils, would minimize the potential adverse indirect impacts to the Guadalupe River. According to the H&H analysis done by SARA, it is not anticipated that the 100-year floodplain would be impacted.

Alternative 3

No long-term impacts to wetlands are anticipated as a result of Alternative 3. This Alternative could potentially increase the sediment load of the Guadalupe River. Removal of vegetation has the potential to free erodible soils to enter the Guadalupe River, which would result in minor soil discharges. Mitigation measures described in Section 3.1.1, Geology, Seismicity, and Soils, would reduce potential adverse effects to the Guadalupe River. Since Alternative 3 is similar in design and function as the Proposed Action it is not anticipated that it would impact the floodplain.

EO 11988 and EO 11990 Eight-Step Planning Process

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| <p>Step 5: Minimize the potential adverse impacts to work within floodplains and wetlands to be identified under Step 4, restore and preserve the natural and beneficial values served by wetlands.</p> | <p>Project Analysis: Mitigation measures described in Section 3.1.1, Geology, Seismicity, and Soils, would reduce potential adverse indirect effects to jurisdictional waters downstream of the project area. None of the Alternatives is anticipated to impact the 100-year floodplain based on H&H analysis conducted by SARA.</p> <p>There are no wetlands in the project area.</p> |
| <p>Step 6: Re-evaluate the Proposed Action to determine 1) if it is still practicable in light of its exposure to flood hazards; 2) the extent to which it will aggravate the hazards to others; and 3) its potential to disrupt floodplain and wetland values.</p> | <p>Project Analysis: The Proposed Action remains practicable based on the Emergency Spillway Construction objective. It will lessen hazards to others and will not disrupt floodplain and wetland values.</p> |
| <p>Step 7: If the agency decides to take an action in a floodplain or wetland, prepare and provide the public with a finding and explanation of any final decision that the floodplain or wetland is the only practicable alternative. The explanation should include any relevant factors considered in the decision-making process.</p> | <p>Project Analysis: A public notice will be made based on the decision to proceed with the Proposed Action. At a minimum, this notice shall state a reason for locating the Proposed Action in the floodplain; a description of all significant facts considered in making determination; a list of the alternatives considered; a statement indicating whether the action conforms to state and local floodplain protection standards; and a statement indicating how mitigation is achieved.</p> |
| <p>Step 8: Review the implementation and post-implementation phases of the Proposed Action to ensure that the requirements of the EOs are fully implemented. Oversight responsibility shall be integrated into existing processes.</p> | <p>Project Analysis: This step is integrated into the NEPA process and FEMA project management and oversight functions.</p> |

Appendix B
Agency Correspondence

URS corresponded with the following agencies:

Paul M. Hathorn
United States Department of the Army
Fort Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

David C. Frederick
U.S. Fish and Wildlife Service
10711 Burnet Road, Suite 200
Austin, Texas 78758

James Greenwade
U.S. Department of Agriculture/ Natural
Resource Conservation Service
101 South Main Street
Temple, Texas 76501

John Burt
U.S. Department of Agriculture
101 South Main Street
Temple, Texas 76501

Melissa Parker
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744-3291

Lawerence Oaks
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

James Mirabal
State Reclamation Engineer
Texas Natural Resource Conservation
Commission
P.O. Box 13087
Austin, Texas 78711

Jon Mauser
Texas Commission on Environmental
Quality
P.O. Box 13087
Austin, Texas 78711

To obtain copies of agency correspondence, please contact:

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200 Orchard Ridge Drive, Suite 101
Gaithersburg, MD 20878
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Appendix C
Public Notice

PUBLIC NOTICE

**Draft Environmental Assessment for the Dunlap Canal Emergency Spillway
Guadalupe-Blanco River Authority (GBRA), Guadalupe County, Texas
FEMA-1257-DR-TX**

Interested persons are hereby notified that the Federal Emergency Management Agency (FEMA) is proposing to assist in the funding of the Dunlap Canal Emergency Spillway construction project to reduce flood damages such as those caused by the October of 1998 floods. In accordance with the National Environmental Policy Act of 1969, CEQ Regulations implementing NEPA (40 CFR Parts 1500-1508), the National Historic Preservation Act, and the implementing regulations of FEMA (44 CFR Part 9 and Part 10), an Environmental Assessment (EA) is being prepared to assess the potential impacts of the proposed action on the human and natural environment. This also provides public notice to invite public comments on the proposed project in accordance with Executive Order 11988, Floodplain Management.

The EA evaluates alternatives that provide for compliance with applicable environmental laws. The alternatives to be evaluated include (1) No Action; (2) the construction of an earthen, grass-lined emergency spillway; and (3) the construction of a combination earthen, grass-lined/concrete emergency spillway.

The draft EA is available for review between May 14 and June 12, 2003, on the FEMA website (<http://www.fema.gov/ehp/docs.shtm>) and at the Seguin-Guadalupe County Public Library, 707 E. College Street, Seguin, Texas 78155, between the hours of 9:00 a.m. and 5:00 p.m.

Written comments regarding this action should be directed no later than 5:00 p.m. June 12, 2003, to Mr. Ryan Thompson, URS Group, Inc., 200 Orchard Ridge Drive, Suite 101, Gaithersburg, MD 20878.

The public may request a copy of the final environmental documents after the close of the public review period from Mr. Larry Moltz, GBRA General Office, 933 East Court Street, Seguin, TX 78155.

Appendix D
Public Comments

No public comments were received.