PROPOSED

FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT
WESTERN WATERSHED SEWER RELIEF LINE-UPPER SEGMENT PROJECT

JOINT BASE SAN ANTONIO – LACKLAND, TEXAS

AGENCY: Department of the Air Force, Air Education and Training Command (AETC), 802nd Civil Engineering Squadron (CES), Joint Base San Antonio-Lackland (JBSA-Lackland) Air Force Base (AFB), Texas

BACKGROUND: The existing 54-inch diameter Western Watershed sanitary sewer interceptor is approximately 20,000 LF located on JBSA-Lackland. SAWS maintains a 50-foot easement on JBSA-Lackland for the sanitary sewer interceptor pipeline. Portions of the existing wastewater pipeline have been rehabilitated as a result of pipeline deterioration and failure. Additionally, the pipeline has had occurrences of overflow, indicating that the capacity of the pipeline requires expansion. Hydraulic modeling of the collection system indicated that the wet weather peak flow rate for the sewer line at U.S. Highway 90 and Leon Creek would be 174.7 million gallons per day (MGD) by the year 2050. The Proposed Action, the Western Watershed Sewer Relief Line (WWRL)-Upper Segment Project is needed to meet future SAWS flow demands (174.7 MGD by 2050) and to correct recent failures and overflows with the existing Western Watershed sanitary sewer interceptor pipeline.

Pursuant to National Environmental Policy Act (NEPA), 32 Code of Federal Regulations 989, *Air Force Environmental Impact Analysis Process*, and other applicable regulations, JBSA completed an environmental assessment of the potential environmental consequences from establishing a new easement, constructing the WWRL-Upper Segment Project, and abandoning the existing Western Watershed sanitary sewer interceptor on JBSA-Lackland. The attached Environmental Assessment (EA) evaluated the effects of the Proposed Action and No-action Alternative, and supports this Finding of No Significant Impact.

PROPOSED ACTION: JBSA is proposing to grant SAWS an easement, so that SAWS may construct the WWRL-Upper Segment Project. The purpose of the proposed WWRL-Upper Segment Project is to construct a new sewer relief line that provides additional capacity to SAWS. The Proposed Action for the WWRL-Upper Segment consists of constructing approximately 14,436 LF of new 84- and 90-inch gravity sewer line through JBSA-Lackland between U.S. Highway 90 and SW Military Drive, with approximately 3,051 LF of new lateral sewer lines to existing systems. As part of the Proposed Action, the existing 50-foot easement would be renewed, while the 54-inch wastewater pipeline would be abandoned in place. The new easement for the proposed sewer line through JBSA-Lackland would include a 75-foot wide permanent utility easement and a 25-foot wide temporary construction easement. Additionally, a 50-foot permanent easement, and 25-foot temporary easement would be issued for the associated lateral lines.

NO-ACTION ALTERNATIVE: Under the No-action Alternative, JBSA would not issue a new easement to SAWS, nor would the new WWRL-Upper Segment be constructed. The existing Western Watershed sanitary sewer interceptor pipeline would continue to be used.

SUMMARY OF FINDINGS FOR THE PROPOSED ACTION:

Air Quality - The Proposed Action would result in short-term emissions during construction activities. There would be minimal ambient air impacts from these localized short-term emissions that would quickly dissipate away from the activity source. No long-term emissions are anticipated with the Proposed Action. The increase in short-term emissions would not be considered regionally significant; therefore, impacts to air quality from the Proposed Action would not be considered significant.

Noise - There would be a short-term increase in noise levels from construction activities. The increased noise levels would be at or below baseline noise levels at potential noise-sensitive receptors. There would be no long-term increase in noise levels. Impacts from construction noise would be negligible.

Land Use - The Proposed Action would have no change in Land Use.

Earth Resources - Construction activities would result in short-term impacts to the surface soils and to the upper portion of the underlying alluvial sediments from surface disturbance. Additionally, excavation may have minor increases in windblown and sheet flow erosion, No topographic or geologic impacts are anticipated to occur in association with construction activities. No significant impacts to earth resources are expected as a result of the Proposed Action.

Water Resources - The Proposed Action would have no discernable effects on water resources. Short-term increases to sedimentation would be minimized as described below. Under the Proposed Action, there would be no withdrawal of groundwater and the Proposed Action would not affect water availability, endanger public health or safety, or violate laws or regulations adopted to protect or manage water resources. No long-term impacts to surface water resources are anticipated as a result of the Proposed Action.

Biological Resources - As a result of the Proposed Action there would be minor short-term disturbances to wildlife from noise and construction. Long-term impacts to wildlife include the modification of habitat due to minor tree removal. The Proposed Action would have negligible effects on vegetation, wildlife habitat, wetlands, or Federally-listed threatened or endangered species.

Cultural Resources - No archaeological or historic properties are present within the construction area; therefore, there would be no effect on historic properties or cultural resources.

Hazardous Materials and Wastes - The Proposed Action would result in minor to moderate short-term impacts to active Environmental Restoration Program (ERP) sites from trenching activities, with possible long-term affects depending on the materials encountered (Class 3 modification to the TCEQ Kelly AFB Permit and Compliance Plan No. 50310 would be required if existing remedy is modified). No impacts to hazardous materials or wastes

anticipated. All actions would be in compliance with the existing TCEQ Kelly AFB Permit and Compliance Plan No. 50310; therefore impacts would be less than significant.

Utilities and Infrastructure - Implementation of the Proposed Action would result in upgrades to the sanitary sewer system, as overall it is anticipated that repairs would decrease on the sanitary sewer infrastructure and the sanitary sewer capacity would be increased by over 90-percent in the Upper WWRL. The Proposed Action would not result in a break in service for any utilities during construction. The short-term increase in solid waste generated as a result of construction and demolition would not exceed the capacity of the landfill. Construction would result in minor short-term increases in traffic counts at construction site entry and exit points and along the U.S. Highway 90 access road near the north end of the new sewer line. The Proposed Action would have no impacts to potable water, electricity, or natural gas infrastructure and there would be no long-term changes to drainage patterns. Impacts to utility systems would be less than significant.

Ground Safety - During construction activities associated with the Proposed Action, additional measures would be implemented (e.g., signage, personal protective equipment [PPE], etc.) to protect the construction workers and the residents of the installation; therefore, the anticipated change in safety mishaps as a result of the Proposed Action would be less than significant.

Socioeconomic Resources - The expenditures and income associated with the Proposed Action would result in a short-term, beneficial impact to the local economy during the construction of the replacement sewer line. There would be no change in local population, housing, employment, or local school enrollment.

Environmental Justice - There would be no disproportionate and adverse impacts to children, minority, or low-income populations.

SUMMARY OF MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES: Unless otherwise stated below, mitigation and Best Management Practices BMPs are not recommended.

Air Quality - BMPs to prevent short-term particulate matter in the air would include watering the disturbed area of construction; covering dirt and aggregate trucks and/or piles; preventing dirt carryover to paved roads; using erosion barriers and wind breaks; and using bio-diesel fuel in construction and transport vehicles.

Noise - BMPs recommended for construction noise include equipping heavy equipment with manufacturer's standard noise control devices; conducting construction activities between 0700 and 1900; and requiring workers to wear appropriate hearing protection.

Earth Resources - BMPs to prevent soil loss and minimize the exposure of surface soils during construction and demolition could include implementation of site-specific erosion control plans, thereby reducing the total amount of soil lost to the proposed activities. Fugitive dust from construction and demolition activities could be minimized by watering the soil. The proposed action from Military Drive to Alcoser property is within Kelly AFB Zones 1 and 5 which are regulated under the active Kelly AFB RCRA Permit (No. HW-50310) and Compliance Plan. Excavation in these zones would be subject to the RCRA Permit and

Compliance plan and contingencies would be developed for soil and groundwater management.

Water Resources - A construction-specific SWPPP would be implemented as required by the TPDES General Construction Permit (TXR150000) and a FEMA Floodplain Development Permit. The construction SWPPP would be compliant with applicable requirements of Federal, State, and local erosion and sedimentation control plans and regulations. Temporary control measures and BMPs would be implemented and maintained during construction activities to assure erosion and sedimentation of surface water and groundwater is minimized. For construction within Kelly AFB Zones 1 and 5, which are subject to the RCRA Permit and Compliance Plan, contingencies would be developed for construction for management of groundwater waste generated, if encountered, and to protect construction workers from COCs encountered during construction.

Biological Resources - To minimize potential impacts to biological resources, the relief line was located to minimize vegetation clearing. Additionally, impacts to the water-based biological resources would be reduced by tunneling under Leon Creek and nearby wetlands.

Hazardous Materials and Wastes - An air monitoring program would be established in the areas being trenched in and around the ERP sites in order to be protective of human health. An unexploded ordnance (UXO) sweep of the area bordering sites AL240 and AL722 would occur prior to the initiation of Proposed Action activities. Radiation monitoring would be conducted in and around the area of Lateral Line C (near site RW026). Contingencies would be developed prior to construction to protect construction workers from COCs and to properly manage wastes, and any contaminated soil and groundwater will be properly managed and disposed.

Utilities and Infrastructure - To minimize the potential for increased sediment loading of drainage areas and downstream surface water bodies, a Stormwater Pollution Prevention Plan (SWPPP) would be implemented that would include appropriate BMPs, such as use of silt fencing and rock-filter dams during construction activities. Solid wastes generated during construction and operation phases would be disposed of properly. Prior to construction, underground and overhead utilities would be located and marked and construction crews would use caution in digging and operating machinery under and around utilities to prevent and damage to existing infrastructure. A pre-approved Traffic Control Plan would be developed to minimize traffic and ensure appropriate control devices would be in place during construction.

Ground Safety - Construction contractors would be required to develop and implement site specific Health and Safety Plans. Potential hazards would be minimized through the use of engineering controls, administrative controls, and through use of PPE.

Environmental Justice - BMPs to reduce noise impacts would include utilization of standard noise control devices on equipment and limitation of hours of construction.

SUMMARY OF FINDINGS FOR NO-ACTION ALTERNATIVE: Under the No-action Alternative, there would be no new impacts to any resource areas and no change from baseline conditions. As the new WWRL-Upper Segment would not be constructed, the existing Western Watershed sanitary sewer interceptor pipeline would continue to be used and

additional structural failures, cave-ins, and sanitary sewer overflows would continue. Furthermore, future anticipated flow rates could not be supported. Disruption of wastewater service to JBSA-Lackland could interfere with critical military Base operations.

SUMMARY OF CUMULATIVE EFFECTS: The cumulative impact of implementing these actions along with other past, present, and reasonably foreseeable future projects at and around JBSA-Lackland were assessed in the attached EA, and no significant cumulative impacts were identified.

SUMMARY OF PUBLIC REVIEW AND INTERAGENCY COORDINATION: Federal, state, and local agencies, including Native American Tribes with jurisdiction that could be affected by the Proposed Action or No-action Alternative have been notified and consulted regarding the analysis of this Proposed Action. A complete listing of the agencies consulted may be found in Chapter 6. An initial project scoping was conducted with these groups on 20 June 2011. The Draft EA will be released for a 30-Day Public Comment period and a summary of comments received will be included in the Final FONSI. Correspondences from these reviews and all interagency coordination are included in Appendix A.

FINDING OF NO SIGNIFICANT IMPACT: Based upon my review of the attached EA, I conclude that the Proposed Action will not have a significant direct, indirect, or cumulative impact upon the environment. Accordingly, the requirements of the NEPA, regulations promulgated by the President's Council on Environmental Quality, and 32 CFR Part 989 are fulfilled and an Environmental Impact Statement is not required at this time.

_____ _____

ROBERT D. LABRUTTA Date
Brigadier General, USAF
Commander

Cover Sheet

Responsible Agency: Department of the Air Force, Air Education and Training Command (AETC), 802nd Civil Engineering Squadron (CES), Joint Base San Antonio-Lackland (JBSA-Lackland) Air Force Base (AFB), Texas

Proposed Action: JBSA-Lackland would issue an easement to San Antonio Water System (SAWS), so that SAWS may construct approximately 17,487 linear feet (LF) of sanitary sewer pipelines (includes laterals) for the Western Watershed Sewer Relief Line (WWRL)-Upper Segment Project on JBSA-Lackland.

Points of Contact:

Joint Base San Antonio, Attn: Andrew Riley, P.E., 502 CES/CENPL, 1555 Gott Street, JBSA Lackland TX 78236-5645; (210) 671-5339.

SAWS: Attn: Mr. Robert Villarreal, P.E., Replacements and Improvements, 2800 U.S. Highway 281 North, San Antonio, Texas 78212; (210) 233-2392.

Report Designation: Draft Environmental Assessment

Abstract: The existing 54-inch diameter Western Watershed sanitary sewer interceptor is approximately 20,000 LF located on JBSA-Lackland. SAWS maintains a 50-foot easement on JBSA-Lackland for the sanitary sewer interceptor pipeline. Portions of the existing wastewater pipeline have been rehabilitated as a result of pipeline deterioration and failure. Additionally, the pipeline has had occurrences of overflow, indicating that the capacity of the pipeline requires expansion. Hydraulic modeling of the collection system indicated that the wet weather peak flow rate for the sewer line at U.S. Highway 90 and Leon Creek would be 174.7 million gallons per day (MGD) by the year 2050.

JBSA is proposing to grant SAWS an easement, so that SAWS may construct the WWRL-Upper Segment Project. The purpose of the proposed WWRL-Upper Segment Project is to construct a new sewer relief line that provides additional capacity to SAWS. The Proposed Action is needed to meet future SAWS flow demands (174.7 MGD by 2050) and to correct recent failures and overflows with the existing Western Watershed sanitary sewer interceptor pipeline. The Proposed Action for the WWRL-Upper Segment consists of constructing approximately 14,436 LF of new 84- and 90-inch gravity sewer line through JBSA-Lackland between U.S. Highway 90 and SW Military Drive, with approximately 3,051 LF of new lateral sewer lines to existing systems. As part of the Proposed Action, the existing 50-foot easement would be renewed, while the 54-inch wastewater pipeline would be abandoned in place. The new easement for the proposed sewer line through JBSA-Lackland would include a 75-foot wide permanent utility easement and a 25-foot wide temporary construction easement. Additionally, a 50-foot permanent easement, and 25-foot temporary easement would be issued for the associated lateral lines.

Under the No-action Alternative, JBSA would not issue a new easement to SAWS, nor would the new WWRL-Upper Segment be constructed. The existing Western Watershed sanitary

sewer interceptor pipeline would continue to be used and additional structural failures, cave-ins, and sanitary sewer overflows would continue. Furthermore, future anticipated flow rates could not be supported. Disruption of wastewater service to JBSA-Lackland could interfere with critical military Base operations.

TABLE OF CONTENTS

Section **Page**

Section **Page**

Section **Page**

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

°F	degrees Fahrenheit
ɜ g/m^3	micrograms per cubic meter
ACC	Ambulatory Care Complex
ACM	Asbestos-containing material
ADP	Area Development Plan
AETC	Air Education and Training Command
AFB	Air Force Base
AFI	Air Force Instruction
AHPA	Archaeological and Historic Act
AICUZ	Air Installation Compatible Use Zone
AQCR	Air Quality Control Region
ARPA	Archaeological Resources Protection Act
ATC	Airmen Training Complex
AU	Assessment unit
BASH	Bird/Wildlife Aircraft Strike Hazard
bgs	below ground surface
BMPs	best management practices
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAR	Center for Archaeological Research
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Civil Engineering Squadron
CES/CEANR	CES/Civil Engineering Asset Management – Natural Resources - Restoration
CES/CEAOP	CES/Civil Engineering Asset Optimization Planning
CFR	Code of Federal Regulations
CH_4	Methane
CIP	Capital Improvements Program
CO	carbon monoxide
CO_2	carbon dioxide
COC	contaminants of concern
CO_{2eq}	CO_2 equivalents
COSA	City of San Antonio
CVIA/ECP	Commercial Vehicle Inspection Area and Entry Control Point
CWA	Clean Water Act
dB	Decibel

dBA	A-weighted decibel
DLIELC	Defense Language Institute Language Center
DNL	day-night average sound level
DoD	U.S. Department of Defense
DSHS	Department of State Health Services
EA	Environmental Assessment
EAC	Early Action Compact
EIAP	Environmental Impact Analysis Process
EBS	Environmental Baseline Study
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
FAA	Federal Aviation Administration
FCR	fire-cracked rock
FEMA	Federal Emergency Management Agency
FIRM	flood insurance rate maps
FONSI	Finding of No Significant Impact
FRPM	fiberglass-reinforced, polymer-mortar
GHGs	greenhouse gases
GWP	global warming potential
HFCs	hydrofluorocarbons
IAAFA	Inter-American Air Forces Academy
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
JBSA	Joint Base San Antonio
KFA	Kelly Field Annex
LBP	lead-based paint
LF	linear feet
LIDAR	Light Detection and Ranging
LTA	JBSA-Lackland Training Area
LTM	long-term monitoring
MBTA	Migratory Bird Treaty Act
MCDS	Material Safety Data Sheets
MGD	million gallons per day
MMRP	Military Munitions Response Program
mph	miles per hour
MS4	Municipal Separate Storm Sewer System
MSA	Metropolitan Statistical Area
MSC	medium-specific concentration

MSGP	Multi-Sector General Permit
MSW	Municipal Solid Waste
MWD	Military Working Dog
N_2O	nitrous oxide
NAA	non-attainment area
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEI	National Emission Inventory
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NET	National Emission Trends
NFRAP	No Further Response Action Planned
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOI	Notice of Intent
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O&M	operations & maintenance
O_3	Ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCB	polychlorinated biphenyl
PCEH	Public Center for Environmental Health
PER	Preliminary Engineering Report
PFCs	Perfluorocarbons
PM_{10}	particulate matter equal or less than 10 micrometers in diameter
$PM_{2.5}$	particulate matter equal or less than 2.5 micrometers in diameter
PPE	personal protective equipment
ppm	parts per million
RA	Remedial Action
RAL	Residential Assessment Levels
RCP	reinforced concrete pipe
RCRA	Resource Conservation and Recovery Act
RFIIC	Recruit Family Inprocessing and Information Center
RIP	Remedy in Place
RRS	Risk Reduction Standard

SAL	State Archeological Landmark
SARA	San Antonio River Authority
SAWS	San Antonio Water System
SF	square feet
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_X	sulfur oxides
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SPL	sound pressure level
STA	Station
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
TDSHS	Texas Department of State Health Services
TMDL	total daily maximum load
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
tpy	tons per year
TRRP	Texas Risk Reduction Program
TSA	Transportation Security Administration
TSCA	Toxic Substance Control Act
TXDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USC	United States Code
USCB	U.S. Census Bureau
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
UXO	unexploded ordnance
VOC	volatile organic compound
WESTON	Weston Solutions, Inc.
WHMC	Wilford Hall Medical Center
WWRL	Western Watershed Sewer Relief Line
WWTP	Waste Water Treatment Plant

CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

This chapter has six parts: a statement of the purpose of and need for action, a description of the location of the Proposed Action, a description of the scope of the environmental review, identification of the decision to be made, identification of applicable regulatory requirements, and an introduction to the organization of the document.

1.1 PURPOSE OF AND NEED FOR ACTION

The existing 54-inch diameter Western Watershed sanitary sewer interceptor is approximately 20,000 linear feet (LF) located on Joint Base San Antonio (JBSA)-Lackland Air Force Base (AFB). San Antonio Water System (SAWS) maintains a 50-foot easement on JBSA-Lackland for the sanitary sewer interceptor pipeline. Portions of the existing wastewater pipeline have been rehabilitated as a result of pipeline deterioration and failure. According to the 2008 Phase A Preliminary Engineering Report for the Western Watershed Relief Line - U.S. Highway 90 to SW Loop 410, a closed circuit television inspection revealed evidence of surcharge (or overload), grease and debris deposition, increased surface roughness due to exposed aggregate, exposed reinforcing steel, separated joints, and longitudinal and circular cracks. This data indicates that the sewer main is in poor operational and structural condition (SAWS, 2009a). This is evidenced by recent failures of the line. In 2010, approximately 700 LF of 24-inch and 54-inch siphon pipes required emergency line maintenance including cleaning and rehabilitation of two siphon structures under the Western Watershed Sewer Relief Line (WWRL)–Upper Segment, Morey Road Siphon Construction Project (SAWS Job No. 10-2507). Additionally, the pipeline has had occurrences of overflow (as recently as March 2012), resulting in negative environmental impacts to the surrounding area, specifically Leon Creek as described in Section 3 of this EA. These instances of overflow indicate that the capacity of the pipeline requires expansion. Hydraulic modeling of the collection system indicated that the wet weather peak flow rate for the sewer line at U.S. Highway 90 and Leon Creek would be 174.7 million gallons per day (MGD) by the year 2050. Dry weather peak flow rate is projected to be 99 MGD in 2050, which is greater than 3 times larger than the dry weather peak flow rate for 2007.

The JBSA is proposing to grant SAWS permanent and temporary easements, so that SAWS may construct the WWRL-Upper Segment Project. The purpose of the proposed WWRL-Upper Segment Project is to construct a new sewer relief line and associated laterals that provides additional capacity to SAWS. The Proposed Action is needed to meet future SAWS flow demands (174.7 MGD by 2050) and to correct recent failures and overflows with the existing Western Watershed sanitary sewer interceptor pipeline.

1.2 LOCATION OF THE PROPOSED ACTION

JBSA-Lackland is located within San Antonio, Bexar County, Texas approximately 7 miles southwest of the City of San Antonio (COSA) center (Figure 1-1). The project area is bound by U.S. Highway 90 to the north, JBSA-Lackland Golf Course to the west, JBSA-Lackland runway (joint use) to the east, and to the south by SW Military Drive (Figure 1-2). In 1995, the Base Realignment and Closure (BRAC) Commission voted to close the San Antonio Air Logistics Center at the former Kelly AFB and to realign a portion of the Base to JBSA-Lackland. JBSA-

Lackland assumed administrative and operations responsibility in October 2000 for a 2,789-acre portion of the former Kelly AFB, known as the JBSA-Kelly Field Annex (KFA).

1.3 SCOPE OF THE ENVIRONMENTAL REVIEW

The National Environmental Policy Act (NEPA) review requires federal agencies to consider environmental consequences during their decision-making process. The President's Council on Environmental Quality (CEQ) has issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental impact analysis. The U.S. Air Force *Environmental Impact Analysis Process* (EIAP), as detailed in Air Force Instructions (AFI) 32-7061, is accomplished through adherence to the procedures set forth in CEQ regulations (40 Code of Federal Regulations [CFR] Sections 1500-1508), Department of Defense [DoD] Instruction 4715.9 *Environmental Planning and Analysis,* and 32 Code of Federal Regulations (CFR) Part 989 (*Environmental Impact Analysis Process*), 15 July 1999, as amended. These federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action.

This Environmental Assessment (EA) identifies, describes and evaluates the potential environmental impacts associated with issuing an easement and the subsequent installation of a proposed sanitary sewer line through JBSA-Lackland. The potential environmental effects of taking no action are also described. As appropriate, the affected environment and environmental consequences of the action are described in either terms of a regional overview or a site-specific description to adequately define the resource using the most current information as the baseline condition.

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued by the President on 11 February 1994. In the EO, the President instructed each federal agency to make "achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." 'Adverse' is defined by the Federal Interagency Working Group on Environmental Justice as "having a deleterious effect on human health or the environment that is significant, unacceptable, or above generally accepted norms." This EA will determine if the Proposed Action or No-action Alternative would result in adverse effects to low-income or minority populations.

Through Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), requests have been made for information on planned actions in the surrounding community. If any past, present, or reasonably foreseeable future actions are identified during the EA process, they will be examined only in the context of potential cumulative impacts. A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

1.3.1 Resource Areas Addressed in Detail

Resource areas that could be affected by the Proposed Action or No-action Alternative have been selected to allow for a comprehensive analysis of potential impacts. The intent of this EA is to meet the NEPA requirements established in 32 CFR Part 989. The following resource areas are discussed in detail in the EA:

- Air Quality
- Noise
- Land Use
- Earth Resources
- Biological Resources
- Cultural Resources
- Water Resources
- Hazardous Materials and Wastes
- Utilities and Infrastructure
- Ground Safety
- Socioeconomic Resources
- Environmental Justice

1.3.2 Resource Topics Eliminated from Detailed Analysis

Resource areas that have been eliminated from further detailed study and the rationales for eliminating them are presented below:

- Aircraft Operations. The Proposed Action is not anticipated to change the number of active aircraft assigned to JBSA-Lackland, airfield facilities, or the JBSA-Lackland runway (joint use). Therefore, aircraft operations would not be affected by the Proposed Action or No-action Alternative.

- Airspace Use and Management. The Proposed Action is not anticipated to have a significant change in the airspace associated with aircraft operations. Therefore, airspace compliance with Laws, Executive Orders (EOs), and DoD instructions would not be affected by the Proposed Action or No-action Alternative.

1.4 DECISION TO BE MADE

This analysis evaluates the potential environmental consequences from establishing a new easement, constructing the WWRL-Upper Segment Project, and abandoning the existing Western Watershed sanitary sewer interceptor on JBSA-Lackland. Based on this analysis, JBSA-Lackland will determine whether to allow implementation of the Proposed Action or take no action ("No-action Alternative"). If it is determined, through this analysis, to proceed with the Proposed Action, JBSA-Lackland may issue an easement to SAWS for the installation and management of the WWRL-Upper Segment Project. As required by NEPA and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed project, and must be available to inform decision-makers of the potential environmental impacts of selecting the Proposed Action or the No-action Alternative.

1.5 APPLICABLE REGULATORY REQUIREMENTS

This EA is part of the EIAP for the proposed project and was prepared in compliance with NEPA regulations. The following paragraphs describe the laws and regulations that apply or may apply to the Proposed Action or No-action Alternative.

1.5.1 Interagency and Intergovernmental Coordination

Federal, state, and local agencies with jurisdiction that could be affected by the Proposed Action or No-action Alternative have been notified and consulted. A complete listing of the agencies consulted may be found in Chapter 6 and IICEP correspondence and responses are included in Appendix A. An initial project scoping was conducted with these groups on 20 June 2011 and this Draft EA has also been provided for a 30-day review. Any responses received from this public review will be included in Appendix A. This coordination fulfills the Interagency Coordination Act and EO 12372 *Intergovernmental Review of Federal Programs* (14 July 1982), which requires federal agencies to cooperate with and consider state and local views in implementing a federal proposal. EO 12372 is implemented by the Air Force in accordance with AFI 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning.*

1.5.2 Permits

Applicable permits from JBSA-Lackland, local, state, and federal agencies would be identified and obtained prior to construction or demolition activities associated with the Proposed Action. The construction contractor would identify and obtain all appropriate permits for construction and demolition activities. All underground utility locations would need to be identified prior to any construction or earth moving activities.

Compliance with the Texas Pollutant Discharge Elimination System (TPDES) Permit would be required. In order to obtain coverage under a TPDES Permit (TXR150000), a Notice of Intent (NOI) must be submitted to the Texas Commission on Environmental Quality (TCEQ) before any construction activities begin. The Permit would authorize stormwater discharges during large and small construction-related activities where the discharges have a potential to enter surface waters or a storm drain system. Construction activities would also require development, submittal, and implementation of a Storm Water Pollution Prevention Plan (SWPPP) to be covered under the TPDES permit for JBSA-Lackland.

Additionally, TCEQ would ensure that discharges to be permitted through the U.S. Army Corps of Engineers (USACE) – Clean Water Act (CWA) Section 404/401 Permit complies with state water quality standards. Erosion control and sediment control best management practices (BMPs) would be required.

Other permits that may be required and their respective authorizing entities are as follows:

- Federal Emergency Management Agency (FEMA) Floodplain Development Permit
- Texas Department of Transportation Utility Permit

1.5.3 Other Regulatory Requirements

This EA considers all applicable local, state, and federal laws and regulations. Applicable laws, regulations, and guidances identified for the Proposed Action have been identified and are provided in Table 1-1. These regulations, laws, and guidances are more fully described and discussed in the appropriate subsections of Chapters 3 and 4 of this document.

Table 1-1
Applicable Environmental Laws and Regulations

Federal Statutes and Policies
Archaeological and Historic Preservation Act (AHPA), 1974, as amended, 16 USC 469, et. seq.
Archaeological Resources Protection Act (ARPA), 16 USC 470 aa-mm
Clean Air Act (CAA), 1970, as amended, 42. USC 7609, et. seq.
Clean Water Act (CWA), 1972, as amended, 33 USC 1251, et. seq, Sections 401 and 404
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9610
Endangered Species Act (ESA), 1973, as amended, 16 USC 1531, et. seq.
Emergency Planning and Community Right-to-Know Act, 42 USC 11000, et seq.
National Historic Preservation Act (NHPA), 1966, as amended, 16 USC 470a, et. seq.
National Environmental Policy Act (NEPA), 1969, as amended, 42 USC 4321, et. seq.
Native American Graves Protection and Repatriation Act (NAGPRA), 1990, 25 USC 3001-13, et. seq.
Occupation Safety and Health Act (OSHA), 29 USC 651 et. seq.
Prevention of Significant Deterioration and Title V Greenhouse Gas (GHG) Tailoring Rule; Final Rule, 3 June 2010, 75 Federal Register (FR) 31514-01 and 40 CFR 51,52,70, et. al.
Pollution Prevention Act, 1990, 42 USC 6901 et. seq.
Protection of Historic Properties, 36 CFR Part 800
Resource Conservation and Recovery Act (RCRA), 1976, 42 USC 6901 et. seq.
Superfund Amendments and Reauthorization Act, 42 USC 9601 et. seq.
Toxic Substance Control Act (TSCA), 15 USC. 2601 et. seq.
Watershed Protection and Flood Prevention Act, 1954, 16 USC 1001, et. seq.
State Regulations
Texas Commission on Environmental Quality (TCEQ), Texas Pollutant Discharge Elimination System (TPDES)
30 Texas Administrative Code (TAC) Chapter 335, Industrial Solid Waste and Municipal Hazardous Waste
Executive Orders (EO)
Accommodation of Native American Sacred Sites (EO 13007), 1996
Consultation and Coordination with Indian Tribal Governments (EO 13175), 2000
Environmental Justice (EO 12898), 1994
Federal Facilities on Historic Properties (EO 13006), 1996
Floodplain Management (EO 11988), 1977
Intergovernmental Review of Federal Programs (EO 12372), 2009
Migratory Bird Treaty Act, 16 U.S.C. 703-711, et. seq. (EO 13186), 2001
Protection of Children from Environmental Health Risks and Safety Risks (EO 13045), 1997
Protection of Wetlands (EO 11990), 1977
Strengthening Federal Environmental, Energy, and Transportation Management (EO 13423), 2007
Superfund Implementation (EO 12580), 1987
Department of Defense (DOD) Regulations
DOD Instructions (DODI), Environmental Planning and Analysis (DoDI 4715.9), 3 May 1996
DODI, Cultural Resources Management (DoDI 4715.16), 18 September 2008
DODI, DoD Interactions with Federally Recognized Tribes (DODI 4710.02), 14 September 2006

1.6 INTRODUCTION TO THE ORGANIZATION OF THE DOCUMENT

This EA is organized into seven chapters.

Chapter 1 Contains a statement of the purpose of and need for action, the location of the Proposed Action, identification of the decision to be made, a summary of the scope of the environmental review, identification of applicable regulatory requirements, and a description of the organization of the document.

Chapter 2 Describes the history of the formulation of alternatives, identifies selection criteria, identifies alternatives eliminated from further consideration, provides a detailed description of the Proposed Action, describes the No-action Alternative, summarizes other actions announced for the project sites and the surrounding community, provides a comparison matrix of environmental effects for all alternatives, identifies the preferred alternative, and describes measures to minimize or reduce impacts.

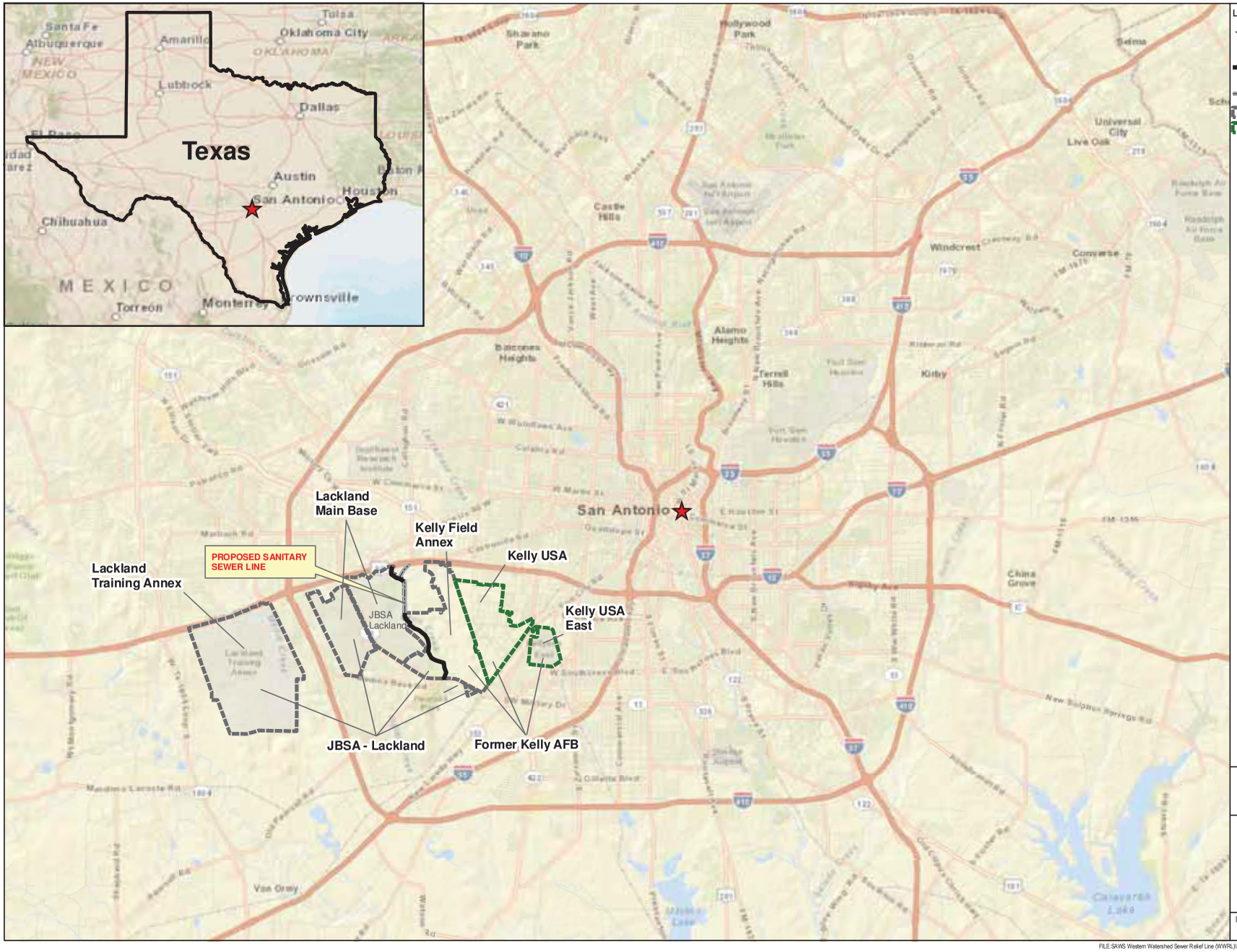
Chapter 3 Contains a general description of the current conditions of the resources that could potentially be affected by the Proposed Action or No-action Alternative.

Chapter 4 Provides an analysis of the environmental consequences of the Proposed Action and No-action Alternative.

Chapter 5 Lists preparers of this document.

Chapter 6 Lists persons and agencies consulted in the preparation of this EA.

Chapter 7 Lists source documents relevant to the preparation of this EA.



SOURCE: Virtural Earth, Microsoft Corp, 2009

FIGURE 1-1
REGIONAL LOCATION MAP
WESTERN WATERSHED SEWER
UPPER SEGMENT
SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
OCTOBER 2013	10412.017.001.8000	AS SHOWN

FILE:SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 1-1_v3.mxd 10/04/2013 nulur

LEGEND

- JBSA-Lackland
- Property Line
- Proposed Sanitary Sewer Line (Within JBSA-Lackland)
- Proposed Sanitary Sewer Line (Outside of JBSA-Lackland)
- Laterals
- Existing 54-inch Sewer Line

SOURCE: Virtural Earth, Microsoft Corp, 2009

0 500 1,000

Feet

N

FIGURE 1-2
VICINITY MAP
WESTERN WATERSHED SEWER
UPPER SEGMENT
SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 1-2_Vicinity Map.mxd 09/26/2013 nulur

CHAPTER 2: DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVE

This chapter has eight parts: a brief history of the formulation of alternatives, selection standards, identification of alternatives eliminated from further consideration, a description of the Proposed Action, a description of the No-action Alternative, identification of other projects planned for the surrounding communities, a summary of environmental impacts of all alternatives, identification of the preferred alternative, and a table of measures to minimize impacts.

2.1 HISTORY OF THE FORMULATION OF ALTERNATIVES

In September 2007, SAWS authorized Camp, Dresser & McKee, Inc. to conduct a Preliminary Engineering Report (PER) for the WWRL-Upper Segment project. In the final August 2009 PER, the report presented alternatives for improvements to the WWRL-Upper Segment (SAWS, 2009a). The alternatives were identified based on the condition of the existing system and the needed future design capacity for 2050 projections (i.e. 174.7 MGD). Several improvement scenarios were evaluated to maintain a gravity-flow sewer system that would roughly follow the route of the existing line.

As the delivery method is gravity based, the route of interceptor sewers, or in this case the WWRL-Upper Segment, is largely governed by topography and the location of the existing sewer collection system. An initial assessment using Light Detection and Ranging (LIDAR) survey data was conducted to determine the feasibility of a new pipeline alignment further west or east, to place it outside of the boundary of JBSA-Lackland and outside the limits of the 100-year floodplain. However, LIDAR topographic data indicated that significant deviation to the east or west would result in installation at extreme depths to maintain gravity-based flow. Installation of the pipeline at those depths would not only be difficult and costly to construct, but would also result in a system that was more difficult and hazardous to access for maintenance. Immediately west of the existing alignment, the elevation increases by approximately 100 feet outside of the floodplain, therefore, limiting development to the west (SAWS, 2009a). Significant alterations in the alignment of the new line (as compared to the existing) would also require extensive rerouting and replacement of the local collection system laterals currently connected to the existing sewer interceptor. Therefore, the alignment chosen for all alternatives was one that would allow for safe excavation/construction practices, minimize ground disturbance, and would allow for more facilitated accessibility and maintenance of the new sanitary sewer collection system. Additionally, construction of a new pipeline would be conducted via open cut and trenchless construction methods (described in greater detail in Subsection 2.4), with the only alternative variances occurring with the diameter of pipe required. The alternatives, therefore, would follow the same alignment within JBSA-Lackland and differ only in whether or not the existing pipeline is abandoned, rehabilitated in-place, or removed, as described in Subsection 2.3. Pipe sizing and alignment analysis were based on SAWS project design criteria and TCEQ Chapter 217, *Design Criteria for Domestic Wastewater Systems* (TCEQ, 2008).

The alignment route was developed with intensive coordination between JBSA-Lackland Civil, Real Estate, and Environmental Departments and the SAWS Operation & Maintenance Department to minimize encroachment into JBSA-Lackland Environmental Restoration Program (ERP) sites and to be consistent with future Base development plans and missions. JBSA-Lackland completed a Form 813, Request for Environmental Impact Analysis, for the project on 14 October 2010 and is included in Appendix B. A number of meetings were held from 2011 through 2013 between SAWS and JBSA-Lackland to refine the alternatives as well as the proposed alignments using information provided from JBSA-Lackland relating to the landfill cap limits and degree of hazardous materials buried therein.

2.2 SELECTION STANDARDS FOR ALTERNATIVES

The sanitary sewer system improvements were developed to meet the following goals:

- Allow for a safe construction environment.
- Reduce the potential for future sanitary sewer overflow events.
- Provide additional sewage collection and conveyance capacity to handle year 2050 projections (i.e. 174.7 MGD at wet weather flow maximums).
- Reduce system inflow and infiltration.
- Provide minimal need for operations and maintenance (O&M) by utilizing a gravity-based sewer line.
- Minimize impact to existing ERP Sites.
- Reduce the duration and scope of by-pass pumping operations for system installation.

A range of alternatives was considered; however, based upon project requirements, some alternatives were eliminated from further consideration. These alternatives are discussed in more detail in Section 2.3. The alternative identified as the Proposed Action is described in Section 2.4, and impacts anticipated from implementation of the Proposed Action are described in Chapter 4.

2.3 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Several potential alternatives were eliminated from further consideration as they would not fully meet SAWS project needs or JBSA-Lackland mission requirements. These previously eliminated alternatives included non-gravity flow system, in-place rehabilitation and replacement of facilities, as well as an off-base route, as detailed below.

Though considered, a non-gravity flow system, or lift station and force main option, was not considered feasible as is could not handle the projected design flow capacity and therefore would not meet the overall project objectives. High service pump systems are expensive to maintain and operate and require redundancy of pumps, force mains, storage capacity, and generators for reliability. Because of dependability and low operation and maintenance costs, a gravity flow system was selected as the preferred method to convey the wastewater. A well-designed gravity

flow system is cost effective, is self-cleansing, has a long design-life, and eliminates the need for mechanical devices (e.g., pumps) that have the potential to break down or become inoperative with a power outage.

Many various alternatives that involved in-place rehabilitation of the existing 54-inch pipeline were considered. One such option included conducting in-place rehabilitation of the existing sewer line, without adding any new pipelines in a new alignment. This rehabilitation-only alternative was eliminated from further consideration because rehabilitation would result in a reduced inside pipe diameter, thus reducing the pipeline capacity. Rehabilitation of the existing sewer would not have sufficient capacity for the projected year 2050 flow (SAWS, 2009a) and would therefore not meet the purpose or need of the project.

Another in-place rehabilitation alternative that was considered included the in-place rehabilitation of the existing 54-inch diameter pipeline and also installing a new, parallel relief sewer line to handle the increased capacity for future flow. Under this alternative, the existing 54-inch diameter pipeline would be rehabilitated by means of slip-lining resulting in a decreased diameter of 48-inches. A new 66-inch diameter pipeline would be installed paralleling the now 48-inch rehabilitated pipeline. This 66-inch diameter pipeline would gradually transition from 66-inches to 84-inches (72-inch diameter pipeline between U.S. Highway 90 and Kelly Road; and 84-inch diameter pipeline from Kelly Road to SW Military Drive). While this alternative may meet the project's purpose and need, this alternative was eliminated from further consideration due to safety concerns arising from the deteriorated state of the existing 54-inch sanitary sewer line. On-going impacts to the ERP caps are potentially present from sewage overflows, structural failures, cave-ins, and spot repairs on the existing sewer line. Additionally, this alternative would require temporarily diverting wastewater flow from the existing sewer while it is rehabilitated, which would require extensive use of by-pass pumping operations.

Also considered was an alternative that involved the in-place rehabilitation of the existing 54-inch diameter pipeline by means of Capital Improvements Program (CIP), which would allow the rehabilitated pipeline diameter to remain a 54-inch diameter pipe. A new 66-inch diameter pipeline would be installed, as described in the previous alternative, paralleling the existing (and CIP) pipeline. However, this alternative was also eliminated from future consideration due to safety concerns arising from the deteriorated state of the existing sanitary sewer line (described above), and the need for temporarily diverting wastewater flow off of the existing sewer while it is rehabilitated.

An alternative consisting of a complete removal and replacement of the existing 54-inch diameter pipeline with a new, single, full-capacity line was evaluated. According to the 2009 PER, this alternative would require the temporary by-pass of existing flow during construction, which would be prohibited within ERP sites on JBSA-Lackland. Due to this limitation, the alignment would be diverted west around the existing landfills, and therefore would also cross Leon Creek. This alternative would include the construction of a new 84-inch diameter pipeline within the existing SAWS 50-foot easement on the west side of the creek. The 84-inch new line would transition to a 90-inch diameter pipe within a proposed 50-foot easement along Hall Street to avoid existing landfills and prevent any disturbance to the existing capped environmental sites. This alternative would include the removal and replacement of at least one existing siphon and

the addition of one siphon to redirect the proposed line away from the landfills. While this alternative may meet the projects purpose and need, this alternative was eliminated from further consideration because it presents several significant environmental and safety risks during construction related to the poor condition of the existing sewer line and the need to maintain by-pass pumping operations in close proximity to Leon Creek. Additionally, handling of peak wet weather flow could be expected to be a massive undertaking necessitating the use of several large pumps, power, and backup pumps and generators over a long period of time.

Lastly, SAWS also assessed the potential to re-route the project so that it completely avoided JBSA-Lackland. However, this alternative was eliminated from further consideration due to engineering design and cost limitations from nearly doubling the length of the route. Additionally, an off-base route would not meet the projects selection standards, detailed in Section 2.2, by specifically increasing interactions with adjacent neighborhoods, Port of San Antonio property, and potentially the JBSA-Lackland flight line which would introduce construction, safety, and long-term maintenance issues.

2.4 DETAILED DESCRIPTION OF THE PROPOSED ACTION

The WWRL-Upper Segment project, as described depicted in Figure 2-1, is primarily comprised of two components: the installation of the new sewer line and its associated laterals within a new permanent utility easement on JBSA-Lackland, and the abandonment of the existing 54-inch sewer line and its associated 50-foot utility line easement on JBSA-Lackland.

2.4.1 New Sewer Line Installation

The Proposed Action would include SAWS constructing the WWRL-Upper Segment project, which includes approximately 14,436 LF of a new 84-inch and 90-inch gravity sewer line on JBSA-Lackland between U.S. Highway 90 and SW Military Drive. An additional 3,051 LF consisting of a portion of a new connected main line referred to as the eastern fork, and four new lateral sewer lines would also be installed from the proposed new sewer line and reconnected to existing systems on JBSA-Lackland. While Table 2-1, on the next page, contains a summary of the proposed sewer line installation, detailed sewer line information is provided in Appendix C. The location of the proposed relief line is shown in greater detail in Figure 2-1, Sheets 1 to 12. Below is a brief summary of the Proposed Action.

- JBSA-Lackland would first issue a permanent and temporary easement to SAWS for length of the WWRL-Upper Segment project located on base. The easement would be comprised of a 75-foot permanent utility easement and an additional 25-foot temporary construction easement for the length of the Proposed Sewer Lines A and B. Easements for the lateral lines would include a 50-foot permanent easement and 25-foot temporary easement in areas that do not overlap with the existing 50-foot easement. Temporary easements would only be issued for the duration of the construction to provide additional area to conduct construction-related activities. After the construction is complete, the temporary construction permit would expire. SAWS would maintain the permanent easements.

- The Proposed Sewer Line A would be comprised of segments totaling approximately 7,240 LF of 84-inch diameter pipeline and approximately 6,760 LF of 90-inch diameter pipeline. The remainder of the Proposed Sewer Line A (approximately 436 LF) would be comprised of two 48-inch siphon pipes and one 60-inch siphon pipe. The Proposed Sewer Line B on JBSA-Lackland would be an approximately 90 LF portion of two 42-inch air bypass siphon pipes. SAWS would own and maintain the Proposed Sewer Lines A and B located within the JBSA-Lackland 75-foot permanent utility easement.
- Four proposed lateral lines (C, D, E, and F) would be installed to reconnect the Proposed Sewer Line A to existing sewer lines. Proposed Lateral Line C would be comprised of approximately 580 LF of 18-inch pipe, 90 LF of 24-inch pipe, and 365 LF of two 24-inch air bypass siphon pipes. Proposed Lateral Line D would be comprised of approximately 1,136 LF of 30-inch pipe, and 368 LF of one 14-inch with two 20-inch siphon pipes. Proposed Lateral Lines E and F would be comprised entirely of 12-inch pipe. SAWS would own and maintain the majority of Proposed Lateral Lines C and D, while JBSA-Lackland would maintain Proposed Lateral Lines E and F, once installed by SAWS.
- The new pipeline would be fiberglass-reinforced, polymer-mortar (FRPM) pipe and would be installed by a combination of open-cut and trenchless methods. Boring or tunneling methods would be used at road crossings, creek crossings, and deeper segments where open-cut methods are not feasible. The open-cut construction method refers to the conventional installation of pipeline by digging a surface trench, installing the pipe, and then burying it. Trenchless construction methods minimize the disruptive effect of open trench pipeline construction and would be used in areas where excavation may impact vehicular traffic, waterways, or environmentally sensitive areas. Trenchless methods include tunneling, horizontal directional drilling, slip-lining, jack and bore for installation, and repair and rehabilitation of pipelines below the ground. The Proposed Sewer Line A, Lateral C, and Lateral D would each cross Leon Creek once within JBSA-Lackland. Crossings of Leon Creek and an unnamed drainage ditch would be conducted via trenchless methods, such as directional bore or tunneling.

Based upon information known at the time of preparation of this EA, SAWS is anticipated to release a contractor bid advertisement for the project in late 2014, for a construction start in early 2015 that could last through early 2019. At present, SAWS and the Design Engineer of Record are developing the 90-percent design plans, specifications, and an opinion of probable construction costs. The design phase would include coordination with various regulatory agencies for acquisition of permits related to the proposed improvements. Other related design activities include topographic and tree surveys, site reconnaissance, and geotechnical investigations.

Table 2-1
Summary of Proposed Installation on JBSA-Lackland

	Permanent Easement (acres)	Temporary Easement (acres)	Line (LF)	Pipe Diameter [a] (in.)	Construction Type	Owner / Operator [b]
Sewer Line A	22.37	7.62	14,436	(2) 48" with 60", 84", and 90"	Open-Cut / Trenchless	SAWS
Sewer Line B	0.18	0.04	93	(2) 42"	Open-Cut	SAWS
Lateral Line C	1.02	0.50	1,035	18", 24", and (2) 12"	Open-Cut / Trenchless	SAWS[C]
Lateral Line D	0.36[d]	0.80[d]	1,504	30"and (2) 20" with 14"	Open-Cut / Trenchless	SAWS[C]
Lateral Line E	-- [e]	-- [e]	346	12"	Open-Cut	JBSA-Lackland
Lateral Line F	-- [e]	-- [e]	73	12"	Open-Cut	JBSA-Lackland
TOTAL	**23.93**	**8.96**	**17,487**	**--**	**--**	**--**

a. The proposed pipeline varies between a single pipeline and sections comprised of multiple siphon pipelines of multiple diameters.
b. Following installation to be completed by SAWS, maintenance and operation would be the responsibility of the owner/operator of the sewer line or lateral line.
c. While the majority of Lateral Line C and would be owned and operated by SAWS, there is a small portion at the terminal owned by JBSA-Lackland
d. Proposed easement for Lateral Line D is limited to the portion of the line that crosses Leon Creek, and the remainder would be located within the existing SAWS 50-foot easement. A limited 10-foot temporary easement would be located off of the existing 50-foot easement for use during construction.
e. No new easement would be proposed for Lateral Lines E and F, as these are line that would be maintained and operated by JBSA-Lackland

2.4.2 Existing Sewer Line Abandonment

As part of the Proposed Action, the existing 54-inch wastewater pipeline on JBSA-Lackland would be no longer be utilized. The existing 50-foot easement would continue to be maintained by SAWS. The existing reinforced concrete pipe (RCP) would be abandoned in-place once construction of the new relief line is complete and operational.

Due to the deteriorated state of the existing pipeline and the potential threat of structural failures and cave-ins, the existing line would be stabilized to be abandoned in place. Stabilization and abandonment activities include, removing the existing sewer manholes to 2 feet below grade and then filling the main line with grout. The entirety of the existing line on JBSA-Lackland would be filled with grout.

Once the existing 54-inch sewer line is abandoned, SAWS would continue to maintain the existing 50-foot easement.

2.5 DESCRIPTION OF THE NO-ACTION ALTERNATIVE

The No-action Alternative would involve the continued use of the existing aged and deteriorating wastewater systems. Additional structural failures, cave-ins, sanitary sewer overflows, and also costly spot repairs would continue. The existing sewer system would remain in poor operational

and structural condition and have inadequate capacity. The potential exists for a water quality violation, disruptions in sewer service, and high repair and maintenance costs, as well as costs to restore the surrounding environment should a spill occur. The potential for a cave-in of a failed sewer line could also present a dangerous threat to human safety. Disruption of wastewater service to JBSA-Lackland could interfere with critical military Base operations.

2.6 OTHER ACTIONS ANNOUNCED FOR THE PROJECT AREAS AND SURROUNDING COMMUNITY

This EA also considers the direct and indirect effects of cumulative impacts (40 CFR 1508.7) and concurrent actions (40 CFR 1508.25[1]). A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Other actions announced for JBSA-Lackland and the surrounding community that could occur during the same time period as the Proposed Action are identified below.

- **Ambulatory Care Center:** JBSA-Lackland is constructing an Ambulatory Care Center (ACC) complex and associated infrastructure at the San Antonio Military Medical Center – South Campus location and will demolish the existing Wilford Hall Medical Center (WHMC) complex and associated infrastructure. The ACC will have the capacity to provide care for more than 57,000 patients annually, and there will be no change in the number of civilian or military personnel assigned to JBSA-Lackland. The construction of the ACC is being implemented in four phases over a period of approximately 4 years (2010 to 2014), and will ultimately replace the WHMC complex. An EA has been prepared for this project and a Finding of No Significant Impact (FONSI) has been signed.
- **Installation Development at JBSA-Lackland:** JBSA-Lackland is implementing the requirements of the BRAC program and performing other installation development activities based on the current JBSA-Lackland CIP to upgrade, replace, or supplement facilities. The components of the CIP assessed in the EA include the construction of 3,275,922 SF of new space and the construction or upgrade of 1,141,970 SF of pavement. Approximately 824,332 SF of facilities were planned for demolition and 174,100 SF of existing space would be vacated. Approximately 365,120 SF of pavement was also planned for demolition. An EA was prepared for this action in 2006 and a FONSI was signed. Since the EA was prepared, several of the BRAC/CIP projects in the vicinity of the Proposed Action have been completed or cancelled. Additionally, construction of the Headquarters Administrative Center is located over a mile away from the project site and is in the long-range base plan (beyond 5 years). Currently, administrative functions are housed in Building 171 at Port San Antonio and operate under a lease with the Port. It is unknown how long the Port will keep renewing the lease and whether future BRAC recommendations could accelerate or decelerate movement of these organizations off the Port. Therefore, this project is not considered reasonably foreseeable. One project,

construction/replacement of two elevated bridges at Leon Creek, is not yet programmed due to lack of funding. Two projects assessed within this 2006 EA, the Airmen Training Complex (ATC) and the Recruit Family Inprocessing & Information Center (RFIIC), are anticipated to be underway during the WWRL-Upper Segment project, and are therefore being carried forward for analysis for cumulative effects in this EA. The ATC is currently the largest on-going construction project ($850 million) on Lackland AFB and is comprised to two campuses along Carswell Avenue. The ATC project is the largest on-going construction project ($850 M) on JBSA-Lackland along Carswell Ave. The ATC Campus would consist of four dormitories, two classroom/dining facilities, a central utility plant and the Interfaith Religious Center with a total project area of 1,842,848 SF. Construction of the ATC Campus would also require demolishing Buildings 9121, 9020, 9028, 9140, 9142, 9144, and 9255. Construction and demolition activities would occur from 2014 to 2017. The RFIIC is a $23M center for in-coming recruits entering the Air Force that includes the construction of a 66,982 SF facility to support the Basic Military Training mission. Additionally, under the RFIIC, approximately 145,000 SF of pavements (parade drill pad, associated parking, and new pedestrian troop walks) would be constructed along with the demolition of approximately 100,000 SF of roads. An updated Draft Installation Development EA was released November 2012. None of the Installation Development projects located nearest the Proposed Action would be expected to occur during the WWRL-Upper Segment project. As a result, none of the projects analyzed in the Installation Development EA are being carried forward for analysis for cumulative effects in this EA.

- **Defense Language Institute English Language Center (DLIELC) and Inter-American Air Forces Academy (IAAFA) Area Development Plan (ADP):** JBSA-Lackland plans to implement the ADP for the DLIELC and IAAFA academic campus. Implementing the ADP will include the construction of new facilities and infrastructure, facility demolition, the installation of temporary modular trailers, and an increase in student and administrative population. The new facilities and academic campus footprint will accommodate approximately 4,600 students and 1,675 administrative staff, which is an increase of 3,705 students and 1,096 staff upon full implementation. The proposed construction and demolition began in 2012 and will occur in phases over the next 20 years until 2032. Temporary facilities will be installed immediately and removed upon completion of the facilities that will permanently accommodate the additional students and staff. An EA has been prepared for this project, and the FONSI was signed on 28 May 2012.

- **Growdon Gate/Road Relocation and Land Acquisition:** The Proposed Action would involve the acquisition of approximately 232 acres of land located northwest of the existing Growdon Road Commercial Vehicle Inspection Area and Entry Control Point (CVIA/ECP). A new CVIA/ECP would be constructed and operated on 80 acres on the western edge of the acquired property, and the existing Growdon Road CVIA/ECP would be demolished. Demolition would include Building 1213 and associated canopy, Building 1217, and the Vehicle Inspection Canopy for a total of approximately 4,230 SF. A new 9,000 foot long road would be constructed from U.S. Highway 90 at the Callaghan overpass, and the new road would be routed along the eastern edge of the Leon Creek floodplain buffer zone around to the new gate location. A portion of this road would be

concurrent with existing Growdon Road. Approximately 249,033 SF of Growdon Road from the existing CVIA/ECP to the location of the new Growdon Road concurrence would be demolished. An EA has been prepared for this project, and a FONSI has been signed.

- **Transportation Security Administration (TSA) Canine Academy and Associated Training Facilities:** USAF and TSA are proposing to construct a Canine Academy and associated training facilities on the South Campus of JBSA-Lackland, near the MWD campus. The Canine Academy would be constructed (approximately 90,300 SF of impervious surfaces) on the site of the current recreational vehicle storage area on the South Campus. Construction would require moving the recreational vehicles currently stored on site and removing the fencing surrounding the site. Additionally, the USAF and TSA propose to construct a new kennel (2,040 SF) at the current location of the 802d Security Forces Squadron kennel (Building 7497) to house TSA dogs. Finally, a new recreational vehicle storage area (approximately 13 acres) would be constructed in the 8600 Area of JBSA-Lackland. This new storage area would require demolishing Buildings 8850, 8853, and 8860 and two small out-buildings. The total demolition area would be approximately 6,000 SF. Construction would take approximately 12 months. Operation would involve approximately 45 new permanent staff working at the TSA Canine Academy and additional kennel (an increase from 55 to 100 staff). Additionally, the number of students at the TSA canine training program would increase from 250 to 275 per year. A draft EA for this project was released October 2012.

- **Re-vitalize Military Working Dog Campus**: JBSA-Lackland proposes to revitalize the Military Working Dog (MWD) Campus, which consists of 12 projects intended to increase the effectiveness of the MWD mission. This revitalization would serve to correct deficiencies in the existing campus and allow for future expansion of the MWD mission, as determined by increases in world-wide security threats against the U.S. Armed Forces and its allies. The Proposed Action includes the construction of a new central latrine partitioned for male and female MWD staff and students; construction of a MWD headquarters building that would include classroom training space, storage space, office space, other administrative areas, and a parking area suitable for 180 vehicles. The project also proposes the construction of four MWD training labs on JBSA-Lackland Main Base used for specialized dog training and evaluation; a Hospital Recovery Kennel; a vehicle wash rack on JBSA-Lackland Main Base; a Drug Vehicle Training Lot; a MWD lab on the JBSA-Lackland training Area (LTA); a parking lot along Craw Avenue; and a grooming station on JBSA-Lackland Main Base and on LTA. Additionally, the project involves moving the entire MWD campus outside of the floodplain on the LTA. An EA has been prepared for this project and a FONSI has been signed.

- **36th Street Project – U.S. Highway 90 to Growdon Road:** Between Fall 2010 and mid-2012, the COSA extended 36th Street as a four-lane divided road from the intersection of Growdon Road and Frank Luke Road south to Billy Mitchell Boulevard. In mid-late 2012, the COSA continued construction on the northern section of 36th Street from Growdon Road north to U.S. Highway 90. The entire project is approximately 2,300 LF and will include curbs, sidewalks, necessary drainage and utility relocation. Phase IIIb is currently under construction with an expected completion by the end of

2013. Once completed, the extension will increase connectivity to Port San Antonio and will open 150 acres to the development of new facilities for Port San Antonio's aerospace and air cargo customers. An EA has been prepared for this project and a FONSI has been signed.

- **SAWS WWRL-Upper Segment (portions located off of JBSA-Lackland):** As depicted in Figure 1-2 and detailed in Appendix C, approximately 875 feet of the WWRL-Upper Segment, Proposed Sewer Line A is located on private property (owned by Mr. Cristoval M. Alcoser) and 3,175 feet is located on COSA property, immediately adjacent to JBSA-Lackland. An additional, approximately 2,200 feet of Proposed Sewer Line B, from MH-26 on the Proposed Sewer Line A, is located on COSA property north of JBSA-Lackland. As this portion of the route is not located on JBSA-Lackland, an easement from JBSA-Lackland would not be required; therefore, this is not included in the Proposed Action. As this portion of the route will be constructed at the same time as the Proposed Action, it has been included in the cumulative impacts analysis. No other NEPA review is required for these portions of the WWRL-Upper Segment project.

For this analysis, the actions identified above are addressed from a cumulative perspective and are analyzed in Chapter 4. Given that the actions above would be funded separately from the Proposed Action and implementation would not be dependent upon another, the actions would not be incorporated into the baseline. All of the actions identified above have been, or will be evaluated under separate NEPA cover, and were incorporated in this analysis for their potential cumulative effect.

2.7 COMPARISON OF ENVIRONMENTAL EFFECTS OF ALL ALTERNATIVES

Table 2-2, on the following page, summarizes the impacts of the Proposed Action and the No-action Alternative. This table provides a comparison of the effects of the alternatives to assist in the decision-making process.

Table 2-2
Summary of Environmental Impacts

Resource	Proposed Action	No-action Alternative
Air Quality	No long-term change in air emissions, increase in short-term emissions from construction activities, emissions of NO_x and VOCs during the construction periods are anticipated to be less than the *de minimis* thresholds, increase in emissions would not be considered regionally significant by the U.S. Environmental Protection Agency (EPA).	No Change
Noise	Short-term increase in construction noise at nearby parks and recreation facilities; increased interior and exterior noise levels at some nearby residences; no long-term impacts from noise.	No Change
Land Use	No Change	No Change

Resource	Proposed Action	No-action Alternative
Earth Resources	No long-term impacts to soils, geology, and surface topography, short-term impacts to the surface soils and to the upper portion of the underlying alluvial sediments from surface disturbance, increase in windblown and sheet flow erosion associated with excavation activities.	No Change
Water Resources	No long-term impacts to surface waters; short-term increases in sedimentation of surface water and groundwater as a result of construction activities; no impacts to floodplain.	Long-term increase in sanitary sewer discharges and pollutant loads due to undersized infrastructure and structural failures resulting in significant adverse impacts to surface water and groundwater quality.
Biological Resources	Loss of habitat and food for wildlife from tree removal, affected wildlife would be displaced to adjacent areas, Short-term minor impacts on wildlife from noise and construction activities, minor potential for indirect impacts to wetlands from increased sedimentation from ground disturbances and pollutants from construction activities.	No Change
Cultural Resources	No impacts to historic or archaeological resources.	No Change
Hazardous Materials and Substances	Short-term impacts to active ERP sites from trenching activities, with possible long-term affects depending on the materials encountered (Class 3 modification to the TCEQ Kelly AFB Permit and Compliance Plan No. 50310 would be required if existing remedy is modified). No impacts to hazardous materials or wastes anticipated.	Threat of failed sewer line (breaks, cave ins or leaks) could result in adverse impacts to ERP sites.
Utilities and Infrastructure	No impacts to potable water, electricity, or natural gas infrastructure; long-term decrease in repairs of sanitary sewer infrastructure; long-term increase in sanitary sewer capacity by over 90-percent in the Upper WWRL; no break in service for any utilities during construction; no long-term changes to drainage patterns; minimal impervious surface increases; minor short-term increases in traffic counts at construction site entry and exit points and along the U.S. Highway 90 access road near the north end of the new sewer line.	The existing sanitary sewer system would remain in poor structural and operational condition with inadequate capacity resulting in structural failures, illicit discharges, and costly repairs. Disruption of sanitary sewer service to JBSA-Lackland could interfere with critical military Base operations.
Ground Safety	No long-term impacts to safety, no change in ground and traffic safety related to privately owned vehicles, short-term potential impact to safety due to the temporary increase in construction activities.	Threat of a potential cave-in of a failed sewer line could present a dangerous threat to human safety.
Socioeconomic Resources	No change to population, housing, employment, or local school enrollment; increase in local expenditures incurred for the replacement of the sewer line including construction materials and goods.	No change to population, housing, employment, or local school enrollment; increase in local expenditures incurred for the continued repair of the sewer line.
Environmental Justice	Impacts would generally be localized to the project site and would not impact surrounding communities.	No impact to Environmental Justice populations.

2.8 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The Air Force has evaluated each alternative to identify which one best complies with the mission, meets the operational goals of JBSA-Lackland, and accomplishes the purpose and need of the action. By issuing an easement to SAWS and completing the WWRL-Upper Segment Project, the Proposed Action would provide a reliable wastewater system with increased capacity and meet the sanitary sewer system improvement goals presented in Subsection 1.1. Additionally, the Proposed Action was selected as the preferred alternative based on cost, ease of construction, and feedback provided by JBSA-Lackland Civil, Real Estate, and Environmental Departments, as well as SAWS personnel and the Operation & Maintenance Department. Subsection 2.3 of this EA describes other alternatives eliminated from further consideration. The No-action Alternative does not meet the purpose and need of the action. Therefore, the preferred alternative is the Proposed Action.

2.9 MEASURES TO MINIMIZE IMPACTS

Analysis of environmental impacts has determined that no mitigation measures would be necessary to prevent significant adverse effects. Additionally, best management practices (BMPs) are proposed to help minimize impacts. Table 2-3 presents a summary of these reduction measures proposed under the Proposed Action and the No-action Alternative.

Table 2-3
Summary of Measures to Minimize Impacts

Resource	Measures to Minimize or Reduce Impacts and BMPs
Air Quality	No mitigation measures would be necessary. BMPs would include watering the disturbed construction area, covering soil and aggregate trucks and/or piles, keeping paved roads clear of soil, using erosion barriers and wind breaks, and using low sulfur and bio-diesel fuel in construction/transport vehicles.
Noise	No mitigation measures are necessary. Noise-generating heavy equipment at the project site should be equipped with the manufacturer's standard noise control devices (i.e., mufflers, baffling, and/or engine enclosures). All equipment should be properly maintained to ensure that no additional noise from worn or improperly maintained equipment parts is generated. Construction activities would occur between 7:00am and 7:00pm and would be conducted according to OSHA regulations 29 CFR 1910.95 and 29 CFR 1926.52. Occupational exposure to the noise from heavy equipment could be reduced by requiring workers to wear appropriate hearing protection. Hearing protective devices such as ear plugs or ear muffs should be worn at all locations where workers may be exposed to high noise levels.
Land Use	No mitigation measures are necessary and no BMPs will be implemented.
Earth Resources	No mitigation measures are necessary. A TPDES general construction permit would be required. While excavating trenches, the construction contractor would be required to implement sediment, erosion, and pollution prevention control measures. The applicable local sediment and erosion control plans of the project TPDES permit would allow for use of temporary control measures (i.e., sediment control fences, rock filter dams, and soil retention blankets) to preclude any changes to the soil composition, structure, or function within the environment. The proposed action from Military Drive to Alcoser property is within Kelly AFB Zones 1 and 5 which are regulated under the active Kelly AFB RCRA Permit No. HW-50310 and Compliance Plan. Excavation in these zones would be subject to the RCRA Permit and Compliance plan and contingencies would be developed for soil and groundwater management.
Water Resources	No mitigation measures are necessary. A construction-specific SWPPP would be implemented as required by the TPDES General Construction Permit (TXR150000) and a FEMA Floodplain Development Permit. The construction SWPPP would be compliant with applicable requirements of Federal, State, and local erosion and sedimentation control plans and regulations. Temporary control measures and BMPs would be implemented and maintained during construction activities to assure erosion and sedimentation of surface water and groundwater is minimized. For construction within Kelly AFB Zones 1 and 5, which are subject to the RCRA Permit and Compliance Plan, contingencies would be developed for construction for management of groundwater waste generated, if encountered, and to protect construction workers from COCs encountered during construction.
Biological Resources	No mitigation measures are necessary. Impacts to vegetation and wildlife would be reduced by locating the relief line in areas to minimize tree removal. Impacts to the water-based biological resources would be reduced by tunneling under Leon Creek and nearby wetlands.
Cultural Resources	No mitigation measures or BMPs are proposed.

Resource	Measures to Minimize or Reduce Impacts and BMPs
Hazardous Materials and Substances	No mitigation measures are necessary. An air monitoring program would be established in the areas being trenched in and around the ERP sites in order to be protective of human health. An unexploded ordnance (UXO) sweep of the area bordering sites AL240 and AL722 would occur prior to the initiation of Proposed Action activities. Radiation monitoring would be conducted in and around the area of Lateral Line C (near site RW026). Contingencies would be developed prior to construction to protect construction workers from COCs and to properly manage wastes, and any contaminated soil and groundwater will be properly managed and disposed.
Utilities and Infrastructure	No mitigation measures would be necessary to minimize impacts to infrastructure and utilities. As previously discussed in Section 4.6.3 a construction-specific SWPPP would be implemented as required by the TPDES General Construction Permit (TXR150000) to assure erosion and sedimentation of stormwater is minimized. Prior to construction, underground and overhead utilities would be located and marked and construction crews would use caution in digging and operating machinery under and around utilities to prevent and damage to existing infrastructure. A pre-approved Traffic Control Plan would be developed to minimize traffic and ensure appropriate control devices would be in place during construction.
Ground Safety	No mitigation measures are necessary. Construction contractors would be required to develop and implement site specific Health and Safety Plans. Potential hazards would be minimized through the use of engineering controls, administrative controls, and through use of personal protective equipment.
Socioeconomic Resources	No mitigation measures are necessary and no BMPs will be implemented.
Environmental Justice	No mitigation measures are necessary. BMPs to reduce noise impacts would include utilization of standard noise control devices on equipment and limitation of hours of construction.

Notes:
BMPs – Best Management Practices
ERP – Environmental Restoration Program
FEMA – Federal Emergency Management Agency
TPDES – Texas Pollutant Discharge Elimination System
WWRL – Western Watershed Relief Line
OSHA – Occupational Health and Safety Administration
SWPPP – Storm Water Pollution Prevention Plan
UXO – Unexploded Ordnance

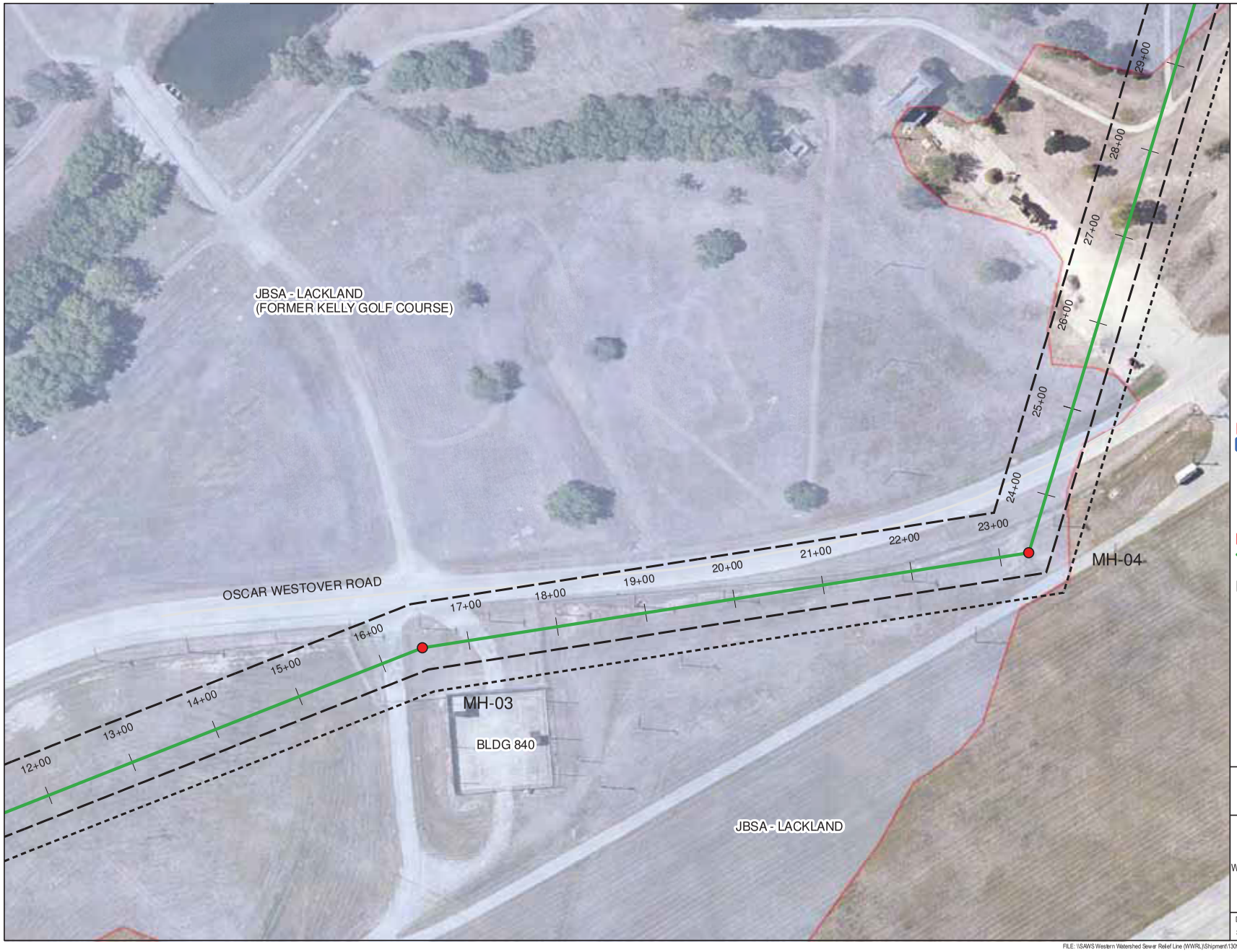
FIGURE 2-1 (SHEET 1 OF 12)

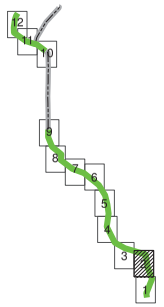
PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 1 OF 12.mxd 09/26/2013 nulur





LEGEND

- 100 Yr Floodplain
- JBSA-Lackland
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

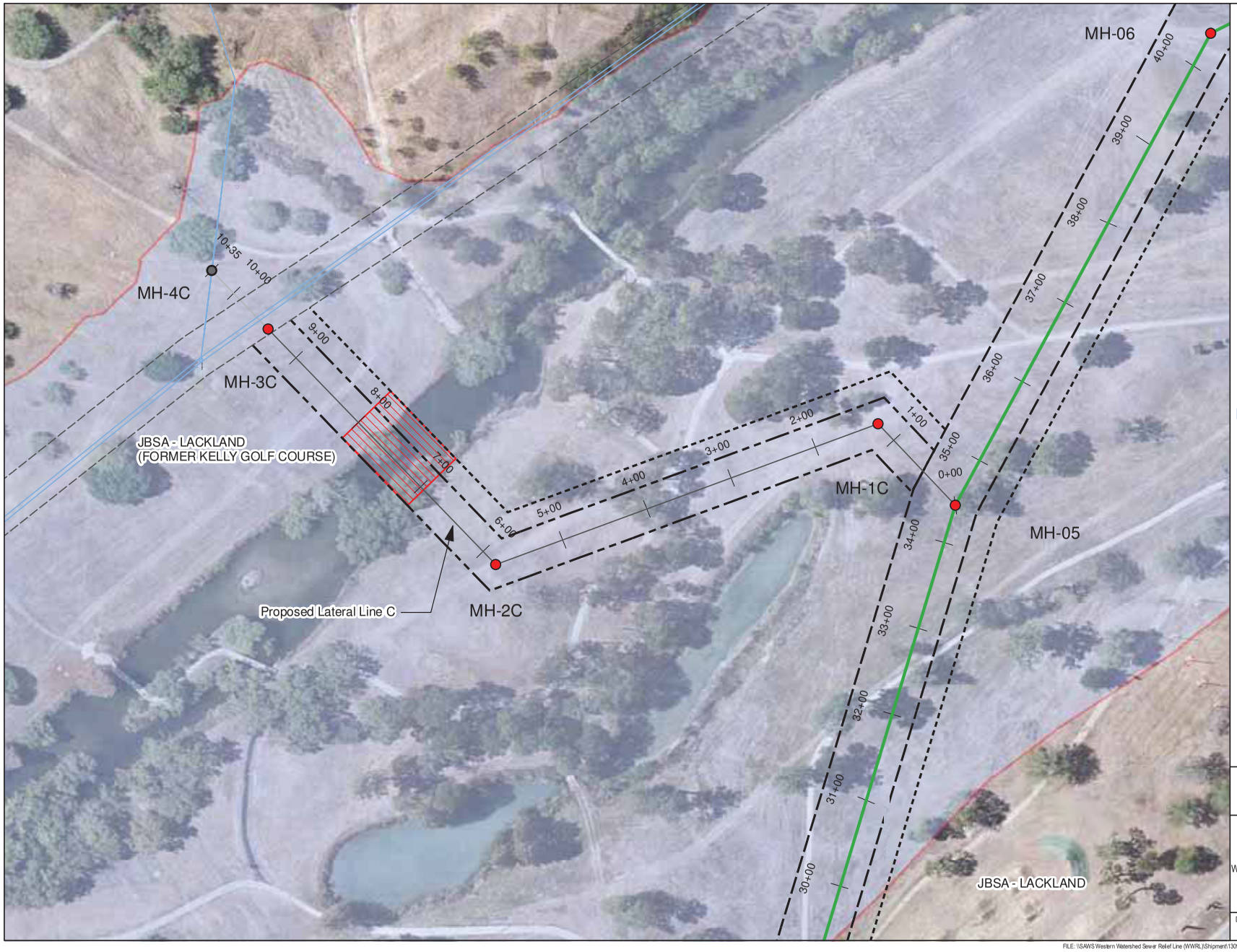
FIGURE 2-1 (SHEET 2 OF 12)

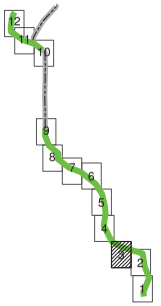
PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 2 OF 12.mxd 09/26/2013 nulur





LEGEND

- 100 Yr Floodplain
- JBSA-Lackland
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 50-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Lateral Maintained By Lackland
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

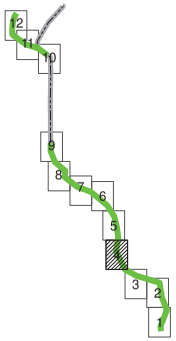
FIGURE 2-1 (SHEET 3 OF 12)

PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
OCTOBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 3 OF 12.mxd 10/04/2013 nulur



LEGEND

- 100 Yr Floodplain
- JBSA-Lackland
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

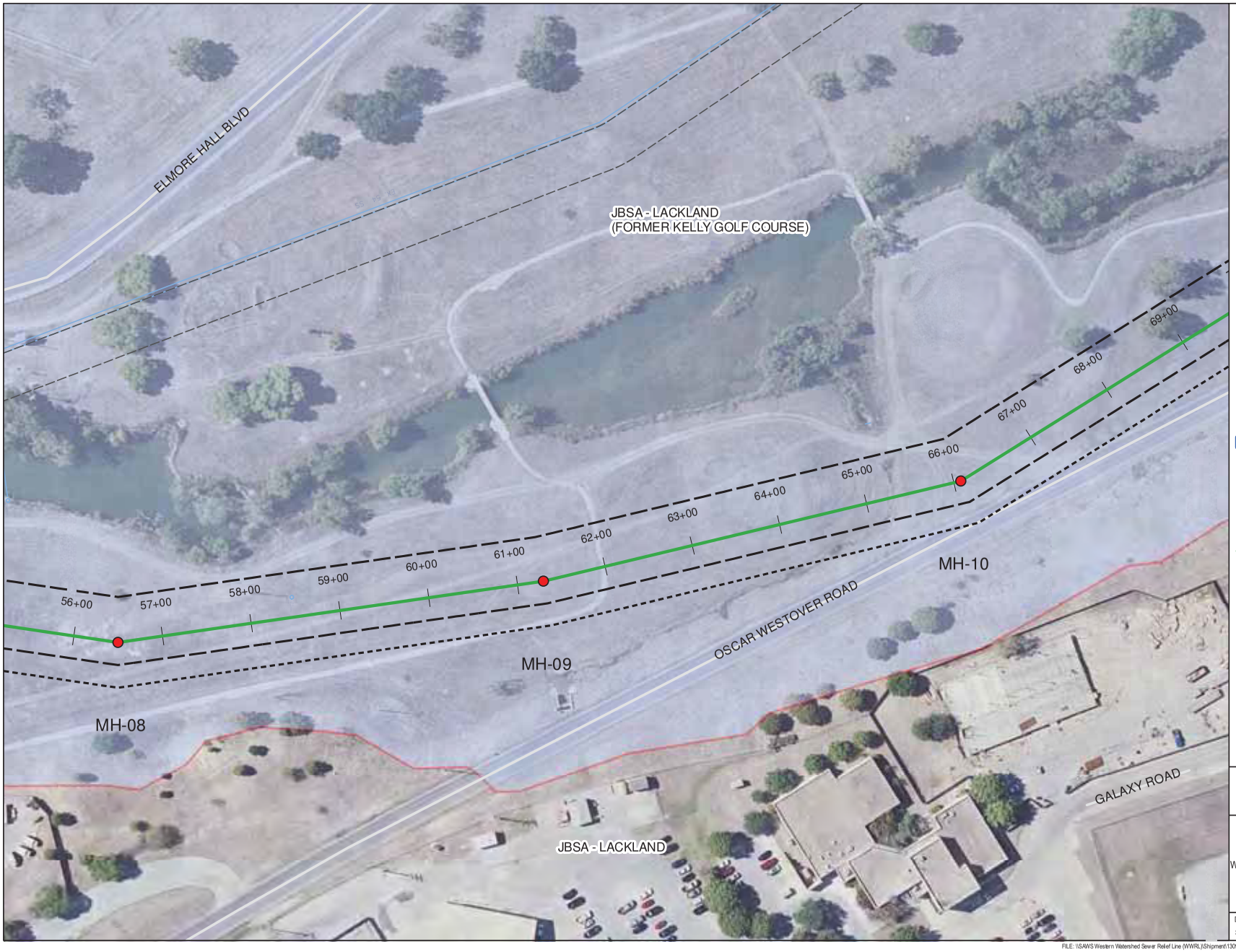
FIGURE 2-1 (SHEET 4 OF 12)

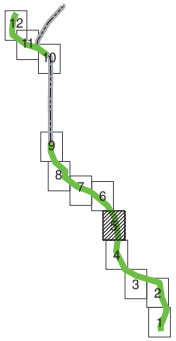
PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 4 OF 12.mxd 09/26/2013 nulur





LEGEND

- 100 Yr Floodplain
- JBSA-Lackland
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

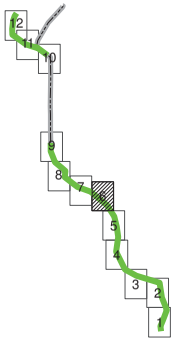
FIGURE 2-1 (SHEET 5 OF 12)

PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 5 OF 12.mxd 09/26/2013 nulur



LEGEND

- 100 Yr Floodplain
- JBSA-Lackland
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

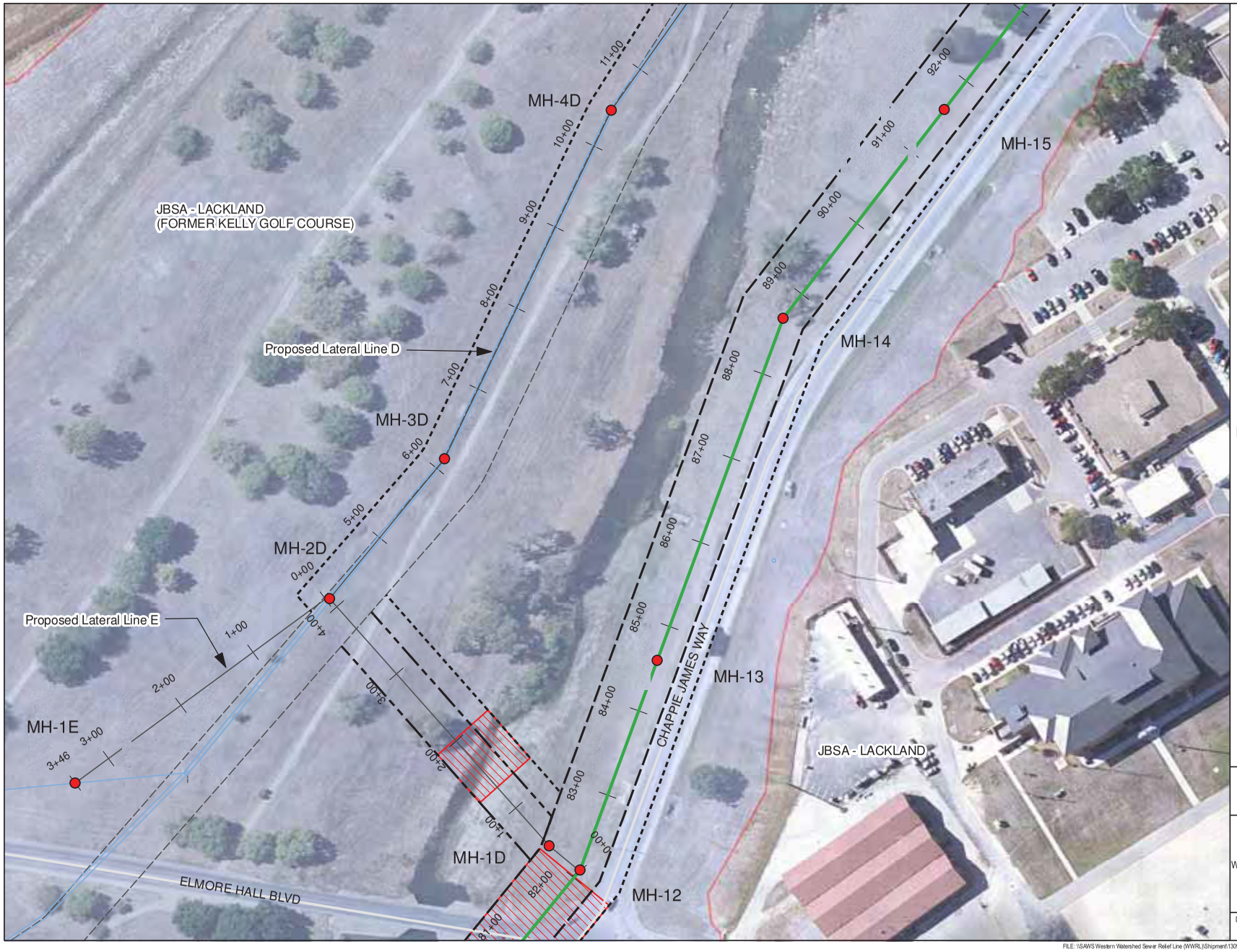
FIGURE 2-1 (SHEET 6 OF 12)

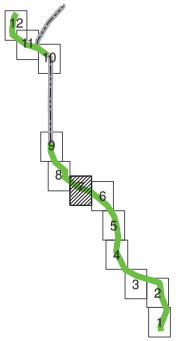
PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 6 OF 12.mxd 09/26/2013 nulur





LEGEND

- 100 Yr Floodplain
- JBSA-Lackland AFB
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 50-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

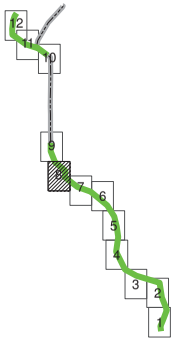
FIGURE 2-1 (SHEET 7 OF 12)

PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
OCTOBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 7 OF 12.mxd 10/04/2013 nulur



LEGEND

- 100 Yr Floodplain
- JBSA-Lackland
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 50-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Lateral Maintained By Lackland
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

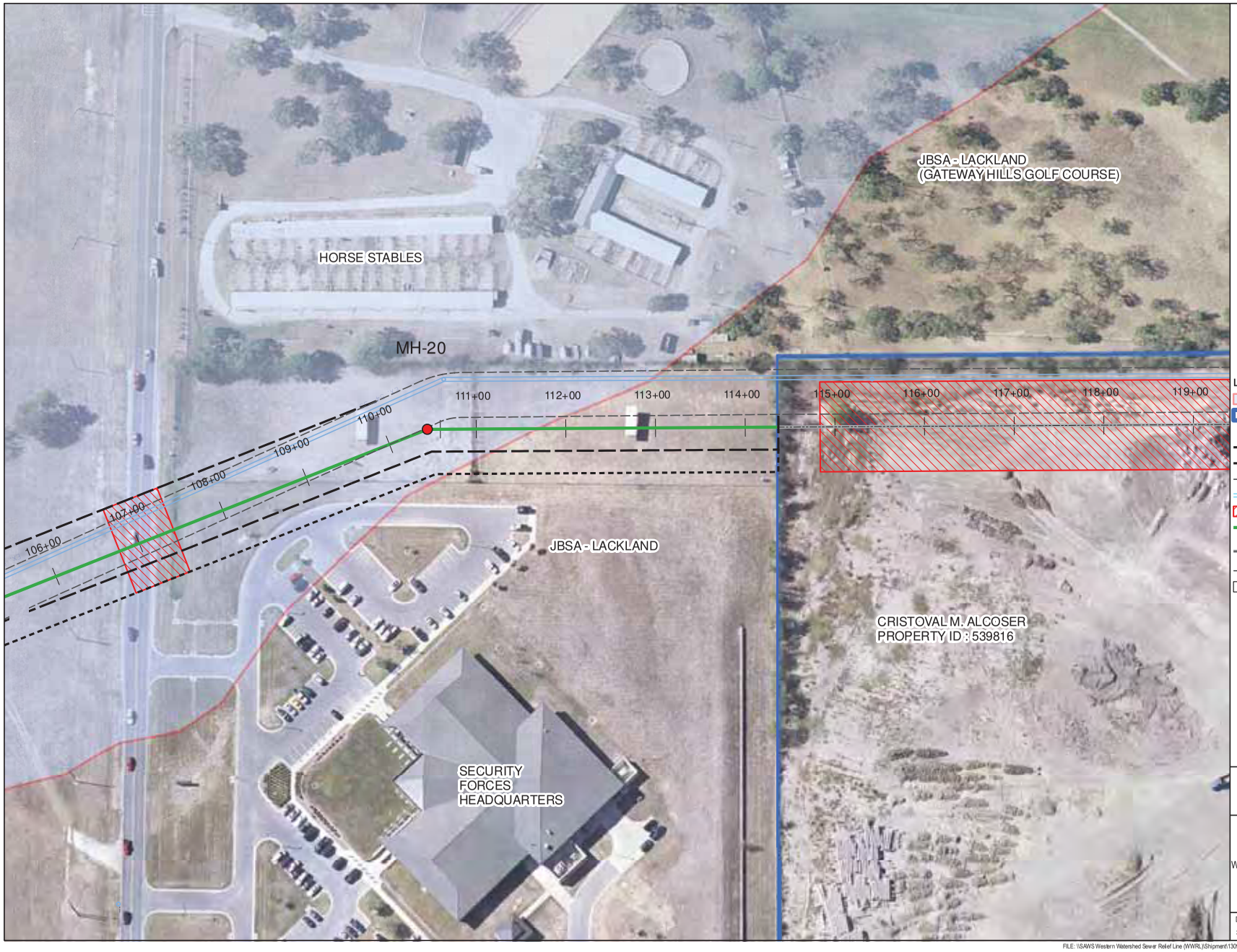
FIGURE 2-1 (SHEET 8 OF 12)

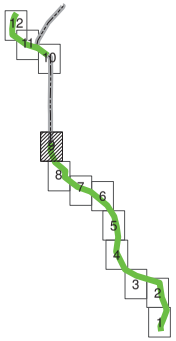
PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
OCTOBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 8 OF 12.mxd 10/04/2013 nulur





LEGEND

- 100 Yr Floodplain
- JBSA-Lackland
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Proposed Sewer Line A – Outside of JBSA-Lackland
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

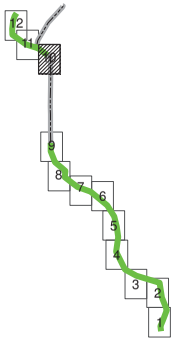
FIGURE 2-1 (SHEET 9 OF 12)

PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 9 OF 12.mxd 09/26/2013 nulur



LEGEND

- 100 Yr Floodplain
- JBSA-Lackland
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Proposed Sewer Line A – Outside of JBSA-Lackland
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

FIGURE 2-1 (SHEET 10 OF 12)

PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: I:\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 10 OF 12.mxd 09/26/2013 nulur

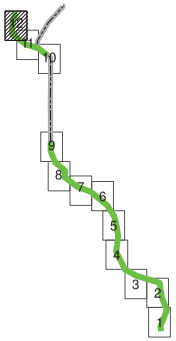
FIGURE 2-1 (SHEET 11 OF 12)

PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
OCTOBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 11 OF 12.mxd 10/04/2013 nulur



LEGEND

- 100 Yr Floodplain
- JBSA-Lackland
- Sewer Manhole
- Proposed 75-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Existing 50-foot Easement
- Existing Sanitary Sewer
- Trenchless Installation
- Proposed Sanitary Sewer Line A
- Laterals
- Property Line

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

FIGURE 2-1 (SHEET 12 OF 12)

PROPOSED ACTION
WESTERN WATERSHED SEWER UPPER SEGMENT
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: I:\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 2-1_SHEET 12 OF 12.mxd 09/26/2013 nulur

CHAPTER 3: AFFECTED ENVIRONMENT

This chapter describes the current environmental resources conditions, either natural or man-made, that have the potential to be affected by the implementation of the Proposed Action and No-action Alternative and describes the current baseline conditions in sufficient detail to support the potential impacts presented in Chapter 4 Environmental Consequences.

3.1 General Setting

As described in Subsection 1.2, the project area is located within San Antonio, Bexar County, Texas, (Figure 1-1) and is bound by U.S. Highway 90 to the north, JBSA-Lackland Golf Course to the west, JBSA-Lackland runway (joint use) to the east, and to the south by SW Military Drive (Figure 1-2). From 1917 to 1941, prior to JBSA-Lackland, the project area was used as a bomb training range for Kelly Field (subsequently Kelly AFB). However, in June 1942, the war department separated the two bases and established what would later be known as JBSA-Lackland. The newly formed base was then named the San Antonio Aviation Cadet Center. After 1946, the San Antonio Aviation Cadet Center became the primary base for basic Air Force training and for military indoctrination of officer candidates. In July 1947, the San Antonio Aviation Cadet Center was renamed Lackland AFB in honor of Brigadier General Frank D. Lackland, who established the original aviation cadet reception and training center at Kelly Field. Through the 1950s and 1960s, Lackland AFB provided training in support of the Korean and Vietnam wars. The Lackland AFB training mission was further cemented during the 1990s in support of Desert Storm, and then again with the relocation of the Inter-American Air Forces Academy from Homestead AFB. In July 2001, neighboring Kelly AFB, one of the oldest military airfields in the United States, was closed as a part of the BRAC initiatives. Its missions were realigned to other bases in the San Antonio area as well as across the country.

JBSA-Lackland is part of the larger JBSA, comprised of JBSA-Camp Bullis, JBSA-Fort Sam Houston, JBSA-Lackland, and JBSA-Randolph, that was established in accordance with congressional legislation implementing the recommendations of the 2005 BRAC. The legislation ordered the consolidation of the four facilities, which were separate military bases, into a single joint installation under the control of one commander. The San Antonio Joint Program Office (formerly the San Antonio Integration Office) was established in July 2006 to help implement the BRAC 2005 decisions affecting San Antonio, Texas.

The 37th Training Wing is a major tenant organization at JBSA-Lackland, known as the "Gateway to the Air Force" and the largest training wing in the Air Force. The JBSA-Lackland four primary training facilities graduate more than 86,000 students annually. The missions of these four training facilities include the following:

- Basic military training of all enlisted people entering the Air Force, Air Force Reserve, and Air National Guard.
- Technical training encompassing hundreds of courses for a wide array of career fields and functions.

- English language training for international military personnel attending the Defense Language Institute.
- Specialized maintenance and security training for Latin American students attending the Inter-American Air Forces Academy.

The wing also provides quality operating support to more than 70 tenant and associate units. Historically, training has been the mainstay of the base, and that continues today with a wide variety of organizations dedicated to training.

3.2 Air Quality

3.2.1 Air Quality Standards and Regulations

The U.S. Environmental Protection Agency (EPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) under the Clean Air Act Amendments of 1990 (CAA). The CAA also set emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated technologies, and established national emission standards for hazardous air pollutants (NESHAP).

The CAA specifies two sets of standards, primary and secondary, for each regulated air pollutant. Primary standards define levels of air quality necessary to protect public health, including the health of sensitive populations such as people with asthma, children, and the elderly. Secondary standards define levels of air quality necessary to protect against decreased visibility and damage to animals, crops, vegetation, and buildings. Federal air quality standards are currently established for six pollutants (known as criteria pollutants), including carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur oxides (SO_x, commonly measured as sulfur dioxide – SO_2), lead, particulate matter equal to or less than 10 micrometers in aerodynamic diameter (PM_{10}) and particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). Although, O_3 is considered a criteria pollutant and is measurable in the atmosphere, it is often not considered as a pollutant when reporting emissions from specific sources, because O_3 is not typically emitted directly from most emissions sources. It is formed in the atmosphere from its precursors, nitrogen oxides (NO_x) and VOCs that are directly emitted from various sources. Thus, emissions of NO_x and VOCs are commonly reported instead of O_3 (EPA, 2012).

The NAAQS for the six criteria pollutants are shown in Table 3-1. Units of measure for the standards shown in this table are micrograms per cubic meter of air (µg/m3), except for ozone, which is in parts per million (ppm).

The EPA classifies the air quality within an Air Quality Control Region (AQCR) according to whether the region meets federal primary and secondary air quality standards. An AQCR or portion of an AQCR may be classified as attainment, nonattainment, or unclassified with regard to the air quality standards for each of the criteria pollutants. "Attainment" describes a condition in which standards for one or more of the six pollutants are being met in an area. The area is considered an attainment area for only those criteria pollutants for which the NAAQS are being met. "Nonattainment" describes a condition in which standards for one or more of the six

pollutants are not being met in an area. "Unclassified" indicates that air quality in the area cannot be classified and the area is treated as attainment. An area may have all three classifications for different criteria pollutants.

Table 3-1
National Ambient Air Quality Standards (NAAQS)

Pollutant		Standard Value (μg/m^3)	Standard Type
CO	1-hr average	40,000	Primary
	8-hr average	10,000	Primary
NO_2	1-hr average [b]	188	Primary and secondary
	Annual average	100	
O_3	8-hr average (2008 std) [c]	0.075 [a]	Primary
	8-hr average (1997 std) [d]	0.08 [a]	Primary
Lead	Quarterly average	1.5	Primary
PM_{10}	24-hr average [e]	150	Primary and secondary
$PM_{2.5}$	24-hr average [f]	35	Primary
	Annual average [g]	15	Primary
SO_2	1-hour average [h]	197	Primary
	3-hr average	1,300	Secondary
	24-hr average	365	Primary
	Annual average	80	Primary

Notes:
[a] Units for ozone are parts per million (ppm).
[b] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed this 188 μg/m^3.
[c] To attain the 8-hour ozone standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm.
[d] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
[e] The 24-hour standard for PM_{10} is not to be exceeded more than once per year.
[f] The $PM_{2.5}$ 24-hour standard is based on the 3-year average 98th percentile of 24-hour concentrations at each population-oriented monitor.
[g] The $PM_{2.5}$ annual standard is based on 3-year average of annual arithmetic means.
[h] Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 197 μg/m^3.
μg/m^3 = microgram per cubic meter

The CAA requires federal actions to conform to any applicable state implementation plan (SIP). A SIP must be developed to achieve the NAAQS in nonattainment areas (i.e., areas not currently attaining the NAAQS for any pollutant) or to maintain attainment of the NAAQS in maintenance areas (i.e., areas that were nonattainment areas but are currently attaining that NAAQS). General Conformity refers to federal actions other than those conducted according to specified transportation plans (which are subject to the Transportation Conformity Rule). Therefore, the General Conformity rule applies only to non-transportation actions in nonattainment or maintenance areas. Such actions must perform a determination of conformity with the SIP if the emissions resulting from the action exceed applicability thresholds specified for each pollutant and classification of nonattainment. Both direct emissions from the action itself and indirect emissions that may occur at a different time or place but are an anticipated consequence of the action must be considered. The Transportation Conformity Rule does not apply to this project.

The applicability thresholds are 100 tons per year (tpy) for criteria pollutants, except for those given in Table 3-2.

Table 3-2
General Conformity Applicability Thresholds

NAAQS Pollutant	Type of Nonattainment Area (NAA) or Maintenance Area	Applicability Threshold (tpy)
Ozone	Extreme NAAs	10 tpy VOC or NO_x
	Severe NAAs	25 tpy VOC or NO_x
	Serious NAAs	50 tpy VOC or NO_x
	Marginal or moderate NAAs inside an ozone transport region	50 tpy VOC (100 tpy NO_x)
	Maintenance areas inside an ozone transport region	50 tpy VOC (100 tpy NO_x)
CO	All NAAs	100 tpy
SO_2	All	100 tpy
PM_{10}	Serious NAAs	70 tpy PM_{10}
	Moderate NAAs	100 tpy PM_{10}
	All Maintenance areas	100 tpy
$PM_{2.5}$	All	100 tpy
Lead	All NAAs	25 tpy Pb
	All Maintenance areas	25 tpy Pb

Note:
CO = carbon monoxide
NAA = Nonattainment Area
NAAQS = National Ambient Air Quality Standard
NO_x = nitrogen oxides
Pb = Lead
PM_{10} = particulate matter equal or less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter
SO_2 = sulfur dioxide
tpy = tons per year
VOC = volatile organic compound

A number of actions are exempted from the requirements of General Conformity including:

- Actions that do not have emissions increases.
- Actions with an emissions increase that is clearly *de minimis* (21 actions are listed; primarily actions that are administrative, legal, or routine in nature including routine movement of mobile assets, material, and personnel as well as routine maintenance and repair).
- Actions that are not reasonably foreseeable or that respond to natural disasters or emergencies.
- Actions that have been approved under specified federal programs.

If an action triggers the applicability thresholds and is not exempt from the requirements, the federal agency must demonstrate and document that the direct and indirect emissions would conform to the SIP. In particular, it must be demonstrated that the Proposed Action would not:

- Cause or contribute to a new violation of an NAAQS.
- Interfere with the SIP.

- Increase the frequency or severity of existing violations.
- Delay attainment or any required progress toward that attainment.

The determination generally involves emission estimation and air quality modeling for the entire nonattainment or maintenance area (usually a multi-county area). If the initial conformity determination demonstrates that the Proposed Action does not conform to the SIP, measures must be established and committed to mitigate the projected air quality impacts. A timeline for implementation of these measures may be specified; however, enforcement measures must also be established to ensure that they are implemented as required.

3.2.2 Regional Air Quality

JBSA-Lackland is located within the Metropolitan San Antonio Interstate AQCR 217, which consists of the counties of Atascosa, Bandera, Bexar, Comal, Dimmitt, Edwards, Frio, Gillespie, Gonzales, Guadalupe, Karnes, Kendall, Kerr, Kimble, Kinney, La Salle, Mason, Maverick, Medina, Real, Uvalde, Val Verde, Wilson, and Zavala. The San Antonia Metropolitan Statistical Area (MSA) (Bexar, Comal, Guadalupe, and Wilson Counties) is designated as a –near nonattainment area for ozone with deferred attainment date under their Early Action Compact (EAC). Near nonattainment areas are those that have known air quality concerns and must meet Federal standards by a designated date; otherwise they are reclassified as nonattainment areas. Therefore, the Base is subject to the General Conformity regulations (40 CFR Parts 6, 51, and 93). This requires a conformity demonstration for each pollutant where the total direct and indirect emissions from a federal action exceeds the corresponding *de minimis* level.

Potential emissions from the Proposed Action would occur primarily from construction activities at the project site and would include activities such as grading, excavation, filling, and equipment operation. Thus, emissions would be localized within the area surrounding the project location. For this reason, the analysis in this EA would address potential impacts within the San Antonio MSA, instead of the entire AQCR that covers a large geographical area.

3.2.3 JBSA-Lackland Air Quality

An accurate emissions inventory is needed for assessing the potential contribution of a source or group of sources to regional air quality. An emissions inventory is an estimate of the actual and potential pollutant emissions generated by a source or sources over a period of time, normally a calendar year. The San Antonio MSA emissions include emissions from point, area, non-road mobile, and on-road mobile sources. Stationary emission sources at JBSA-Lackland include boilers, generators, surface coating, paint booths, storage tanks, fueling operations, and woodworking operations among others. Mobile and biogenic emission sources are not included in the emission totals for JBSA-Lackland. Table 3-3 compares the 2009 actual emissions for JBSA-Lackland and the 2002 San Antonio MSA emissions. As shown in Table 3-3, JBSA-Lackland contributes a small amount to the San Antonio MSA emission totals.

Table 3-3
San Antonio MSA Emissions and JBSA-Lackland Actual Emissions

Emissions Scenario	Annual Emissions (tpy)					
	CO	VOC	NOx	SO_2	PM_{10}	$PM_{2.5}$
2002 San Antonio MSA (tpy) [a]	451,768	73,201	81,631	38,175	109,980	15,737
2009 JBSA-Lackland Actual [b, c]	73.2	18.3	339	1.8	30.1	29.3
Percent Regional [d]	0.016	0.025	0.42	4.72E-03	0.027	0.19

Notes:
[a] Includes emissions from point, area, on-road, non-road mobile sources, and biogenic sources. San Antonio MSA consists of Bexar, Comal, Guadalupe, and Wilson Counties. Source: AIRData 2009; Emissions come from an extract of EPA National Emission Inventory (NEI) and/or National Emission Trends (NET) database. NEI superseded NET in 2002. Data for year 2002 were extracted from the NEI final version 10, January 2009. NEI is an emissions database developed by UPA. 2002 is the latest year of emissions available.
[b] 2009 actual emissions were obtained from 2009 Air Emission Inventory for JBSA-Lackland. Emissions from mobile and biogenic sources not included.
[c] Actual emissions are the air pollutant emissions that result from the actual operation and material usage quantities during a one-year period (i.e., typically a calendar year).
[d] Percent 2009 JBSA-Lackland Actual Emissions of 2002 San Antonio MSA Emissions.

3.2.4 Greenhouse Gases

The six greenhouse gases (GHGs) covered by the Kyoto Protocol include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The emissions of each GHG are calculated separately and then converted to CO_2 equivalents (CO_2e) on the basis of their global warming potential (GWP) the universal unit of measurement expressed in terms of one unit of carbon dioxide. GWP is used to evaluate the release of different GHGs against a common basic measure of how much a given mass of GHG is estimated to contribute to global warming. It is a relative scale that compares the gas in question to that of the same mass of carbon dioxide (whose GWP is by definition 1). Table 3-4, on the following page, lists the GWP (EPA, 2005) of the six GHGs regulated under the Kyoto Protocol.

Only three of the Kyoto GHGs, are considered in the emissions from the Proposed Action. These three GHGs, CO_2, CH_4, and N_2O, represent the majority of CO_2e associated with operations in the Proposed Action. The other Kyoto GHGs were not considered in the potential emissions from the Proposed Action as they are presumed to be not emitted. HFCs are most commonly used in refrigeration and air conditioning systems; PFCs and SF_6 are predominantly emitted from various industrial processes including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting, none of which are part of the Proposed Action.

Table 3-4
Global Warming of Kyoto Protocol GHGs

Gas	Chemical Formula	GWP [a]
Carbon dioxide	CO_2	1
Methane	CH_4	21
Nitrous oxide	N_2O	310
Hydrofluorocarbons	HFCs	various
Perfluorocarbons	PFCs	various
Sulfur hexafluoride	SF_6	23,900

Source: [a] EPA 2005
CH_4 = methane
CO_2 = carbon dioxide
GWP = global warming potential
HFC = hydrofluorocarbons
N_20 = nitrous oxide
PFC = Perfluorocarbons
SF_6 = Sulfur hexafluoride

Direct emissions of CO_2, CH_4, and N_2O occur naturally to the atmosphere, but human activities have increased global GHG atmospheric concentrations. The 2009, total United States GHG emissions were 6,639,700,000 metric tons of CO_2e (EPA, 2011). The total United States GHG emissions have risen 7.4 percent from 1990 to 2009 (EPA, 2011).

3.3 Noise

Noise is sound that, if loud enough, can induce hearing loss and can be undesirable if it annoys people due to interference with ordinary daily activities such as communication or sleep. A person's reaction to noise varies according to the duration, type, and characteristics of the source; distance between the source and receiver, receiver's sensitivity, background noise level, and time of day. When describing sound levels in relation to humans, a weighted sound level is used to characterize the sound levels to which the human ear responds especially well by emphasizing mid-frequencies and de-emphasizing the low and high frequencies. Sound levels weighted in this manner are referred to as A-weighted decibel (dBA). Sound levels are further described using metrics that reflect the intensity of the sound pressure at a given moment or the average exposure to sound over an extended period of time.

The measure of the maximum sound pressure at a given instant and known distance is referred to as sound pressure level (SPL). For example, an aircraft with jet engines overflying at 100 feet would typically have a measured peak SPL of 120 dBA. However, that peak sound level falls fairly rapidly as the aircraft moves away from the receiver. One of the most common ways to describe ambient noise exposure over an extended period of time is as a day-night average sound level (DNL) measured in decibels. This is a cumulative metric that accounts for the total sound energy occurring over a 24-hour period with a 10 decibel (dB) penalty added to those noises occurring between the hours of 10 p.m. and 7 a.m. when most people are asleep and most sensitive to noise.

To account for these varied reactions to sound and based on scientific studies confirming its validity, the federal government has selected the DNL as its common metric to describe noise exposure when describing and assessing aircraft noise. The DNL is used by the U.S. Department of Housing and Urban Development, the Federal Aviation Administration (FAA), the EPA, and the DoD.

Federal and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise.

The potential for permanent hearing loss arises from direct exposure to noise on a regular, continuing long-term basis (16 hours a day for 40 years) to levels above 75 dBA DNL. Hearing loss is not expected in people exposed to 75 dBA DNL or less (EPA, 1974). The Federal Interagency Committee on Noise states that hearing loss due to noise: (1) may begin to occur in people exposed to long-term noise at or above 75 dBA DNL; (2) would not likely occur in people exposed to noise between 70 and 75 dBA DNL; and (3) would not occur in people exposed to noise less than 70 dBA DNL (FAA, 1992).

Elevated noise levels can potentially interfere with speech, cause annoyance, or disturb sleep. Annoyance resulting from noise exposure is typically measured via community surveys where the level of tolerance can vary greatly among individuals (EPA, 1974). It is estimated that 13.5 percent of the population exposed to 65 dBA DNL would be highly annoyed, while 37 percent would be highly annoyed if exposed to a 75 dBA DNL (EPA, 1974). Research also indicates that the "type of neighborhood" a person inhabits influences their noise annoyance level, with instances of noise complaints being greater for those living in rural areas than in suburban or urban residential areas (Schomer, 2001).

Noise associated with the operation of machinery on construction sites is typically short-term, intermittent, and highly localized. The loudest machinery generally produces peak SPLs ranging from 86 to 95 dBA at 50 feet from the source (Table 3-5). It is important to note that the peak SPL range for construction equipment noise does not take into account the ability of sound to be reflected/absorbed by nearby objects, which would further reduce noise levels. Additionally, interior noise levels would be reduced by 18 to 27 dBA due to the noise level reduction properties of the building's construction materials (FAA, 1992).

Table 3-5
Peak Sound Pressure Level of Heavy Equipment from a Distance of 50 Feet

Equipment	Noise Generated*
Bulldozer	95 dBA
Flat-bed Truck (18 wheel)	75 dBA
Dump Truck	75 dBA
Concrete Truck	75 dBA
Concrete Finisher	80 dBA
Scraper	94 dBA
Front Loader	94 dBA
Backhoe	92 dBA
Trenching Machine	85 dBA
Grader	91 dBA
Crane	86 dBA

Source: Reagan and Grant, 1977 and CERL, 1978
Note: * Noise from a single source
dBA = A-weighted decibel

The primary source of noise at and near the project site is from aircraft operations. This environment is fully described in the installation's most recent Air Installation Compatible Use Zone (AICUZ) report, released in 2008. The project site lies between the 65 and 70 dB DNL contours, as modeled in the current report (USAF, 2008).

A noise-sensitive receptor is commonly defined as the occupants of any facility where a state of quietness is a basis for use such as a residence, hospital, or church. The project area traverses through several noise-sensitive receptors including Camargo Park, Stillman Park, and the Gateway Hills Golf Course. Several other noise-sensitive receptors are located within 1 mile of the proposed site, including a residential area to the northeast (600 feet), Levi Strauss Park (0.2 mile), a residential area to the northwest (0.5 mile), a residential area to the southwest (0.6 mile), Wilford Hall Medical Center (0.6 mile), Lackland Elementary School and Stacey High School (0.7 mile), West Campus Baptist Church (0.8 mile), Jehovah's Witness Church (0.8 mile), Jesus Christ Lives Church (0.9 mile), and Macedonia Baptist Church (0.9 mile).

3.4 Land Use

Land use refers to the human modification of land, often for residential or economic purposes. Management plans and zoning regulations are used to determine the type and extent of land use allowable in areas and are often intended to protect environmentally sensitive areas.

Land use at JBSA-Lackland is generally defined under grounds maintenance land use categories to indicate scope and intensity of land management. The three land use categories include

Improved, Semi-Improved, and Unimproved. Descriptions for each land use category are as follows:

- Improved – Lands occupied by buildings, permanent structures, and lawns or landscape plantings that are maintained, such as cantonment areas, parade grounds, drill fields, athletic area, cemeteries, and housing areas.

- Semi-improved – Places where periodic maintenance is performed primarily for operational reasons (such as erosion control), and includes areas such as areas adjacent to runways, taxiways, and aprons; runway clear zones, lateral safety zones; rifle and pistol ranges; and antenna facilities.

- Unimproved – All other areas not classified as Improved or Semi-improved, and include forest lands; lakes, ponds, and wetlands; and any areas where natural vegetation is allowed to grow unimpeded by maintenance activities.

Greater than 75 percent of the existing and proposed easement is located within a land use area classified as Semi-improved. The existing easement is not located within areas designated as Improved. Approximately 13 percent of the proposed easement area is located within land designated as Improved, and approximately 10 percent of the proposed easement is within areas designated as Unimproved. General land use allocations within the existing easement and the proposed easement are presented in Table 3-6 and depicted on Figure 3-1.

Thirteen improved grounds use categories have also been identified on JBSA-Lackland: administrative, aircraft operations and maintenance, community-commercial, community-service, housing accompanied, housing unaccompanied, industrial, medical, open space, outdoor recreation, airfield-runway/taxiway/apron, training indoor, and training outdoor. More than half of the land on JBSA–Lackland is composed of open space and airfield space (JBSA-Lackland, 2012). The majority of the proposed easement is located within land also designated as outdoor recreation.

Table 3-6
Land Cover within the Project Area

	Easement		Improved	Semi-Improved	Unimproved
	Width (feet)	Type	Acres		
Existing Easements					
Existing 54" Sewer Line	50	Permanent	--	11.39	3.21
Proposed Easements					
Sewer Line A	75	Permanent	2.88	17.00	2.49
	25	Temporary	1.34	5.99	0.29
	50	Construction[1]	--	2.75	--
Sewer Line B	75	Permanent	--	0.18	--
	25	Temporary	--	0.04	--

	Easement		Improved	Semi-Improved	Unimproved
	Width (feet)	Type	Acres		
Lateral Line C	50	Permanent	--	0.80	0.21
	25	Temporary	--	0.37	0.13
Lateral Line D	50	Permanent	0.11	0.06	0.19
	25	Temporary	0.06	0.65	0.09
	50	Construction[1]	--	1.26	0.04
Lateral Line E	50	Construction[1]	--	0.50	--
Lateral Line F	50	Construction[1]	--	0.16	--
		SUBTOTAL	**4.39**	**29.76**	**3.44**

Data presented in Table based on SAWS easements depicted in Figure 2-1.

1. Portions of Lines A, D, E and F do not have a new associated SAWS easement, as they are located within the existing 54" Sewer line easement or will be owned and maintained by JBSA-Lackland after construction. Therefore, values in this table represent the land use categories within the construction right-of-way.

3.5 Earth Resources

The portion of Bexar County in which the WWRL–Upper Segment project and JBSA-Lackland are located lies within the Interior Coastal Plains sub-province of the Gulf Coastal Plain physiographic province (BEG, 1996). The Interior Coastal Plains is characteristically flat to gently rolling, and generally consists of parallel ridges and valleys.

3.5.1 Topography

The topography of Bexar County is related to the geologic structure. The topography of the project area is flat to gently rolling, with elevations ranging from approximately 600 to just over 850 feet above mean sea level (USGS, 1992 and 1993). Generally, elevations are lowest along surface water features (Leon Creek) and highest at the northern portion of the alignment along U.S. Highway 90. The elevation of the proposed project area is approximately 623 (Station [STA] 0+00) to 715 feet (STA 174+00) above sea level. Overall, surface topography at the proposed project area and the surrounding area is flat with occasional slope, primarily towards Leon Creek. The elevation of the north section ranges from approximately 675 (STA 184+00) near Highway 90 to 715 feet (STA 174+00) above sea level, then slopes down to 683 feet near STA 160+75. The elevation of the south section is approximately 665 feet (STA 110+00) above sea level near Kelly Drive, then slopes down to 623 feet above sea level (STA 0+00), near Military Drive. Station information is shown on Figure 2-1, Sheets 1 through 12. The geologic units and soils for the project area are described below.

3.5.2 Geology

According to the *Geologic Atlas of Texas*, San Antonio Sheet, the outcropping geologic formation at the WWRL-Upper Segment project is Quaternary Terrace Deposits, consisting of mixed and discontinuous layers of clay, silt, sand, and gravel beds (BEG, 1974). These deposits form an alluvial aquifer that contains limited amounts of fresh groundwater. Groundwater is most commonly found in the lower clayey gravel and basal gravel units immediately overlying

the Navarro Clay. The thickness of the saturated alluvium in the proposed project area ranges from a thin veneer up to 10 feet (Shaw, 2012). The variation in the thickness of the alluvium is primarily attributable to changes in the elevation of the top of the Navarro Clay.

The Navarro Clay is approximately 600 to 800 feet thick in the proposed project area and forms the lower confining unit for the alluvial aquifer. The aquifer is discontinuous, of poor quality, and is not used as a water resource in the vicinity of JBSA-Lackland. While the alluvial aquifer is absent is areas of JBSA- Lackland due to the presence of paleotopographic highs of the Navarro Clay, the alluvial aquifer is present within the project area. A saturated interval can also be absent when alluvial gravel is not present above the Navarro Clay. The elevation of the top of the Navarro Clay determines the occurrence of shallow groundwater.

3.5.3 Soils

The soil types vary throughout the project area and are summarized in Table 3-7 and depicted in Figure 3-2. The southern segment of the WWRL-Upper Segment Proposed Sewer Line A from STA 0+00 to 7+00, from STA 35+00 to 45+00, and from STA 75+00 to STA 80+00 is within Loire clay loam, 0 to 2 percent slopes, occasionally flooded. Loire soil consists of clay loam formed in recent, calcareous loamy alluvium and is well drained. The capacity to transmit water is moderately high to high. The southern segment from STA 7+00 to 35+00, from 45+00 to 75+00, and from 80+00 to 94+00 is characterized by Sunev clay loam, with slopes ranging from 1 to 5 percent. Sunev clay loam is a well-drained soil that is a loamy alluvium of Quaternary age derived from mixed sources. From STA 94+00 to 114+40, the soils are also composed of Lewisville silty clay. The Lewisville silty clay is a well-drained soil with a slope of zero to one percent with a parent material of alluvium of the Quaternary age derived of mixed sources composed of silty clay; these both have moderately high to high capacities to transmit water.

The northern segment from STA 175+00 to 184+86 is within Loire clay loam, 0 to 2 percent slopes, occasionally flooded. The northern segment from STA 152+00 to 175+00 is within Patrick soils, 1 to 3 percent slopes, rarely flooded, and Patrick soils, 3 to 5 percent slopes, rarely flooded. The Patrick soils are well-drained composed of a parent material of clayey alluvium of Quaternary age derived from mixed sources and/or sandy alluvium of the Quaternary age, and have moderately high to high capacity to transmit water.

The segment of Lateral Line C from STA 8+90 to 9+44 is within Houston Black gravelly clay, 5 to 8 percent slopes, which consists of gravelly clay deposits with low permeability that are sloping, have more rapid runoff, and are susceptible to erosion. The segment of Lateral Line C from STA 0+00 to 8+90, along with the entire portions of Lateral Lines D and E, are within Loire clay loam, described above.

Table 3-7
Soils within the Project Area

Soil Unit (Map Label)	Total Area of Soil Unit (acres)	Total Area of Soil Unit (%)
Loire clay loam, 0 to 2 percent slopes, occasionally flooded (Fr)	13.10	33
Lewisville silty clay, 0 to 1 percent slopes (LvA)	4.53	12
Patrick soils, 1 to 3 percent slopes, rarely flooded (PaB)	2.13	6
Patrick soils, 3 to 5 percent slopes, rarely flooded (PaC)	2.02	5
Sunev clay loam, 1 to 3 percent slopes (VcB)	3.87	11
Sunev clay loam, 3 to 5 percent slopes (VcC)	11.85	32
Houston Black gravelly clay, 5 to 8 percent slopes (HuD)	0.09	0.2
Total	37.59	--

3.6 Water Resources

3.6.1 Surface Water

The project area within JBSA-Lackland is located within the San Antonio River Basin. The San Antonio River Basin drains an area of approximately 4,180 square miles and includes all or parts of fourteen counties, including Bexar County. The basin is bordered by the Nueces River Basin to the west and by the Guadalupe River Basin to the east. The San Antonio River Basin is comprised of the Upper and Lower San Antonio River, Cibolo Creek, Leon Creek, the Medina River, Medio Creek, and Salado Creek watersheds. The proposed project site is located within the Leon Creek watershed (Wildie, 2007 and SARA, 2010).

Leon Creek is an intermittent stream that flows southeast through JBSA-Lackland and serves as a water hazard for the golf course and recreational use at Stillman Park. Leon Creek receives stormwater runoff from the JBSA-Lackland, KFA, and non-point source pollutants as a result of golf course maintenance. A drainage system collects and discharges stormwater to Leon Creek through a combination of underground pipe and natural and man-made drainage ditches. A small tributary to Leon Creek receives treated wastewater discharged from the Wilford Hall Medical Center. No other industrial or municipal discharges by Base-operated treatment systems are discharged to Leon Creek. Permits that authorize discharges of stormwater and wastewater from JBSA-Lackland into Leon Creek are discussed in Subsections 3.10.1 (Stormwater) and 3.10.3 (Wastewater), respectively. Leon Creek flows into the Medina River and then ultimately to the San Antonio River located in southern Bexar County (Wildie, 2007).

TCEQ identifies the portion of Leon Creek that flows through JBSA-Lackland as Segment 1906, or Lower Leon Creek, and recognizes six sub segments, or assessment units (AUs), within Lower Leon Creek. Two of the six AUs receive surface water runoff from the project area. Table 3-8 summarizes the impairment status and designated uses of these two Lower Leon Creek AUs.

Table 3-8
Lower Leon Creek Impairment Status and Designated Uses

AU ID	AU Description	Impairment Category	Designated Use	Pollutant/ Water Quality Condition
1906-04	From Hwy 353 (New Laredo Hwy) to two miles upstream.	5a (since 1999)	Aquatic Life	Depressed Dissolved Oxygen; Silver in Sediment
			Recreation	None
			General	None
			Fish Consumption	PCBs in Edible Tissue
			Public Water Supply	None
1906-05	From 2 miles upstream of Hwy 353 (New Laredo Hwy) to Hwy 90.	5a (since 2004)	Aquatic Life	Depressed Dissolved Oxygen; Silver in Sediment; Cadmium in Sediment
			Recreation	None
			General	None
			Fish Consumption	PCBs in Edible Tissue
			Public Water Supply	None

Source: TCEQ, 2013a
PCB = polychlorinated biphenyl

The TCEQ 2013 303(d) List reports that AUs 1906-04 and 1906-05 are impaired due to depressed dissolved oxygen, metals in sediment, and PCBs in edible tissue. The impairment category "5a" indicates that "the water body does not meet applicable water quality standards or is threatened for one or more designated uses by one or more pollutants and total daily maximum loads (TMDLs) are underway, scheduled, or will be scheduled for one or more parameters" (TCEQ, 2013a).

In 2002, the Department of State Health Services (DSHS) cast an advisory against consumption of fish from Lower Leon Creek due to high levels of polychlorinated biphenyls (PCBs). From 2007 to 2009, several organizations, including TCEQ, DSHS, San Antonio River Authority (SARA), and the COSA Public Center for Environmental Health (PCEH), collected and analyzed data. TCEQ plans to evaluate all existing data and consult with stakeholders prior to initiating a TMDL project (TCEQ, 2012b and 2013b).

In 2008, TCEQ contracted SARA to assist with a TMDL project consisting of data collection and analysis in Lower Leon Creek to assess levels of dissolved oxygen and bacteria. The project was completed in 2010 and results of the study indicated the creek was supporting its designated use of contact recreation, which was previously a concern caused by discovery of low dissolved oxygen levels in 2006. However, TCEQ and SARA continue to monitor Lower Leon Creek (TCEQ, 2012b and 2013b).

As recently as March 2012, the existing 54-inch sanitary sewer line experienced a failure which required emergency repairs.

3.6.2 Floodplain

EO 11988, Floodplain Management, requires that federal agencies

> *avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.* (FEMA, 2013)

According to the FEMA flood insurance rate maps (FIRMs) approximately 35.68 acres and 23.82 percent of the project area is within the 100-year floodplain and approximately 30.93 acres and 20.65 percent of the project area is within the 500-year floodplain as shown on Figure 2-1 (FEMA, 2010a-d).

3.6.3 Groundwater

The subject properties are located above the Edwards Aquifer, which is the primary source of drinking water for the San Antonio area and JBSA-Lackland. The Edwards Aquifer is designated a sole source aquifer by the EPA under the Safe Drinking Water Act. The aquifer is an extensively fractured and faulted limestone formation that ranges from 450 to 600 feet thick. The geologic features that include interconnected porosity, large size, and storage capacity allow for a highly productive aquifer. The recharge area consists of a west to east outcropping over approximately 160 miles of south-central Texas. Recharge occurs from precipitation, percolation in fault areas, and from streams and rivers that lose flow to the northern Balcones fault zone (Wildie, 2007).

JBSA-Lackland has eight on-site water wells completed in the Edwards Aquifer between 1940 and 1991. JBSA-Lackland removes approximately 1.2 billion gallons per year of groundwater and operates two public water supply systems. Due to groundwater impact from withdrawals by JBSA-Lackland during drought conditions and recommendations by the U.S. Fish and Wildlife Service (USFWS), JBSA-Lackland voluntarily complies with a drought management plan to limit groundwater pumping based on aquifer levels (USFWS, 2008 and USFWS, 2012). No public water supply or domestic water wells were located within the Proposed Action easement; however, there is one SAWS public water well located near the project area (EDR, 2013). SAWS also provides potable water from the Edwards Aquifer to supplement the groundwater that is pumped by JBSA-Lackland. One irrigation well completed in the Edwards Aquifer is reportedly located on private property owned by Mr. Cristoval Alcoser outside on the project area on JBSA-Lackland (TWDB, 2011).

As discussed in greater detail in Subsection 3.9, there are identified Environmental Restoration Sites on JBSA-Lackland. The majority of restoration sites are former landfills that accepted waste from former Base operations. Select areas have contaminated shallow groundwater bearing units, which can by hydraulically connected to Leon Creek. Groundwater containment and recovery systems have been installed to recover the contaminated groundwater and to prevent migration (CDM, 2009). In addition, JBSA-Lackland is located over the confined zone of the

Edwards Aquifer which is not hydraulically connected to shallow groundwater bearing units (Wildie, 2007).

Subsurface exploration by Rock Engineering & Testing Laboratory, Inc. (RETL) was conducted in December 2010 and January 2011 that included the completion of 23 borings in the project area. Groundwater was encountered during drilling of these borings at depths of 5.5 to 44 feet below ground surface (bgs). Piezometers installed in two of the borings recorded groundwater depths on 28 January 2011 at 10 and 7 feet bgs, and again on 10 February 2011 at 8 and 9 feet bgs (RETL, 2011).

A total of 24 soil borings were completed in April 2012 for the Phase II Environmental Baseline Study (EBS) conducted by WESTON (Appendix F). Groundwater was encountered in eight of the soil borings at depths ranging from 5 to 23 feet bgs. The presence of groundwater observed during the investigation was generally related to the proximity of the sample location to Leon Creek and to the presence of higher permeability soils (e.g., gravels and silty/sandy clays). Groundwater was not detected within the Navarro Clay at any location sampled (WESTON, 2014).

3.7 Biological Resources

Biological resources include plant and animal species and the habitats in which they occur. For this analysis, biological resources are divided into the following categories: vegetation, wildlife, wetlands, and protected species. Vegetation and wildlife refer to the plant and animal species, both native and introduced, which characterize the region. Wetlands are special habitats that support specific plants and wildlife. Protected species are plant and animal species in need of protection to ensure that the species do not decline to extinction.

3.7.1 Vegetation

Bexar County, including JBSA-Lackland, is located in a physiographic transition zone of the Balcones Canyon Lands, which includes portions of three physiographic regions: the Edwards Plateau, the Texas Blackland Prairie, and the Rio Grande Plain (also known as the South Texas Coastal Plain). The majority of Bexar County, including the project area, is located within the southern edge of the Texas Blackland Prairies ecoregion (Griffith et.al., 2007). The Texas Blackland Prairies once supported tall-growing grasses such as big bluestem (*Andropogon gerardii)*, little bluestem (*Schizachyrium scoparium*), indiangrass (*Sorghastrum nutans*), and switchgrass (*Panicum virgatum*). Other commonly associated plants in this region include Texas prickly pear, western ragweed (*Ambrosia psilostachya)*, dewberry (*Rupus spp.)*, and honey locust (*Gleditsia triacanthos)*. However, due to the developed nature of JBSA-Lackland and the project area, vegetation typically found in Blackland Prairie may have been altered from the natural state, as supported in a Texas Parks and Wildlife Department (TPWD) study, *Vegetation Types of Texas* (McMahan et.al., 1984).

As detailed in Subsection 3.4, land use on JBSA-Lackland has been classified into Unimproved, Improved, and Semi-Improved. The majority of the project area is designated as Semi-Improved. Semi-improved areas are places where periodic maintenance is performed primarily

for operational reasons, such as mowing and other maintenance activities. Consequently, these areas contain little native vegetation. Most of the grass within this area is composed of lawn or turf species, and the trees are decorative or ornamental varieties.

Within JBSA-Lackland and the surrounding area, two general plant communities typically occur: non-native herbaceous grasses and deciduous shrublands/woodlands. Non-native herbaceous grasses are associated with areas that are Semi-Improved, while Unimproved areas contain the deciduous shrub/woodlands. As detailed in Table 3-6, in Subsection 3.4, over 75 percent (25.45 acres) of the project area is dominated by non-native Bermuda grass (*Cynodon dactylon*) with ongoing mowing and maintenance related to the golf course and urban development of the installation. Scattered shade trees and ornamental vegetation also occur within these mowed and maintained herbaceous areas. Primarily focused on the northern portion of the project area, approximately 10 percent (3.40 acres) of the project area is deciduous shrub/scrub and woodlands, found on slopes, in upland areas, and in well-watered soil on creek terraces. These shrub/scrublands are comprised primarily of Honey mesquite (*Prosopis glandulosa*), hackberry (*Celtis laevigata)*, silver bluestem (*Bothriochloa laguroides*), Texas prickly pear (*Opuntia engelmannii*), and Eve's necklace (*Sophora affinis)*. No special plant species or natural communities are known to occur within the project area (LAFB, 2007a and LAFB, 2010a).

The Federal Noxious Weed Act (7 U.S.C. 2801 et seq.), enacted in January 1975, established a federal program to control the spread of noxious weeds. It gave the Secretary of Agriculture authority to designate plants as noxious weeds by regulation; to inspect, seize and destroy product; and to quarantine areas, if necessary, to prevent the spread of such weeds. EO 13112 was issued in 1999 to enhance federal coordination and response to the complex and accelerating problem of invasive species. The EO defines an invasive species as a species not native to the region or area whose introduction (by humans) causes or is likely to cause harm to the economy or the environment, or harms animal or human health (NISC, 2005). Notable invasive or exotic species that occur on JBSA-Lackland include Chinese tallow tree (*Triadica sebifera*), chinaberry (*Melia azedarach*), ragweed (*Ambrosia* spp), privet (*Ligustrum* ssp.), nandina (*Nandina domestica*), and Johnson grass (*Sorghum halepense*) (LAFB, 2007a).

3.7.2 Wildlife

Mammals

While Bexar County and its provinces are rich in faunal diversity, JBSA-Lackland is highly urbanized with isolated undeveloped areas. Thus, most of the wildlife species that occur on the Base have adapted to human disturbances (LAFB, 2010a). The opossum (*Didelphis marsupialis*), raccoon (*Procyon lotor*), and the striped skunk (*Mephitis mephitis)* are the most likely to be found near developed areas of the installation like the project area. Other mammals such as the red fox (*Vulpes vulpes*), grey fox (*Urocyon cinereoargenteus*), white-tailed deer (*Odocoileus virginianus*), black tailed jackrabbit (*Lepus californicus*), eastern cottontail (*Sylvilagus floridanus*), and ringtail (*Bassariscus astutus*), nine-banded armadillo (*Dasypus novemcinctus*), eastern woodrat (*Neotoma floridana*), hispid cottonrat (S*igmondon hispidus*), and white-ankled mouse (*Peromyscus pectoralis*) could be present in undeveloped areas of the installation where more vegetation is present. Additionally, the Axis deer (*Axis axis*), Catalina goat (*Capra* spp.),

and feral hogs (*Sus scrofa*) are also species that have been introduced to JBSA-Lackland and surrounding areas as escapees from private ranches and are currently proliferating in the wild (LAFB, 2007a).

Birds

JBSA-Lackland is located within the Central Migratory Flyway of North America. The flyway is bounded by the Mississippi River to the east and the Rocky Mountains to the west. Migratory species typically use this flyway to travel from wintering grounds in the south to summering grounds in the north, though migratory patterns vary by species. Approximately 53 percent of the 629 species of birds documented as occurring in Texas are classified as temperate to tropical latitude migrants (Shackelford et al., 2005). Bird species present in JBSA-Lackland can vary greatly depending on the time of year and which species are migrating through the vicinity.

Common avian species found throughout JBSA-Lackland include the Loggerhead Shrike (*Lanius ludovicianus*), Western Kingbird (*Tyrannus verticalis*), Scissor-tailed Flycatcher (*Tyrannus forficatus*), Greater Roadrunner (*Geococcyx californianus*), Common Ground Dove (*Columbina passerine*), White-wing Dove (*Zenaida asiatica*), Mourning Dove (*Zenaida macroura*), Rio Grande Turkey (*Meleagris gallopavo intermedia*), Bobwhite Quail (*Colinus virginianus*), Cattle Egret (*Bubulcus ibis*), Yellow-billed Cuckoo (*Coccyzus americanus*), Painted Bunting (*Passerina ciris*), Western Scrub-jay (*Aphelocoma californica)*, and Bewick's Wren (*Thryomanes bewickii*) (LAFB, 2007a).

Birds of prey occur commonly throughout JBSA-Lackland. Typical species observed include the Red-tailed Hawk (*Buteo jamaicensis*), Eastern Screech-owl (*Megascops asio*), Great Horned Owl (*Bubo virginianus*), Red-shouldered Hawk (*Buteo lineatus*), Swainson's Hawk (*Buteo swainsoni*), Cooper's Hawk (*Accipiter cooperii*), Barred Owl (*Strix varia*), Barn Owl (*Tyto alba*), Harris Hawk (*Parabuteo unicinctus*), Turkey Vulture, and Black Vulture (*Coragyps atratus*) (LAFB, 2007). Other raptors observed foraging throughout the installation include the American Kestrel (*Falco sparverius*), Peregrine Falcon *(Falco peregrines)*, Northern Harrier (*Circus cyaneus)*, Crested Caracara *(Caracara cheriway),* Broad-winged Hawk (*Buteo platypterus),* Mississippi Kite (*Ictinia mississippiensis)*, Sharp-shinned Hawk (*Accipiter striatus),* and Osprey *(Pandion haliaetus)*. Ladder-backed Woodpecker (*Picoides scalaris*) and Golden-fronted Woodpecker are two of the common woodpeckers.

Reptiles and Amphibians

As with mammalian and avian species, reptiles and amphibians (collectively known as herpetofauna) can be found in abundance throughout Bexar County. Approximately 92 species of reptiles and amphibians have been reported in the vicinity of JBSA, including 6 species of salamanders, 19 species of toads and frogs, 7 species of turtles, 21 species of lizards, and 38 species of snakes. Common herpetofauna species observed include cricket frog (*Acris crepitans*), red-spotted toad (*Bufo punctatus*), gulf coast toad (*Bufo valliceps*), the southern leopard frog (*Rana utricularia*), six-lined racerunner (*Cnemidophorus sexlineatus*), yellow mud turtle (*Kinosternon flavescens*), red-eared turtle (*Chrysemys scripta elegans*), bullsnake (*Pituophis melanoleucus*), western coachwhip (*Masticophis flagellum testaceus*), checkered

garter (*Thamnophis marcianus*), Texas coral snake (*Micrurus fulvius tenere*), Texas ratsnake (*Elaphe obsoleta lindheimeri*), Great Plains ratsnake (*Elaphe guttata emoryi*), Texas patchnose (*Salvadora grahamiae lineata*), rough greensnake (*Opheodrys aestivus*), and western diamondback (*Crotalus atrox*) (LAFB, 2007a).

Fish

Leon Creek provides suitable surface water to support numerous warm water aquatic species, including bluegill (*Lepomis macrochirus*), blackstripe top minnow (*Fundulus notatus*), largemouth bass (*Micropterus salmoides*), mosquito fish (G*ambusia* sp.), Rio Grande cichlid (*Cichlasoma cyanoguttatum*), channel catfish (*Ictalurus punctatus*), blue catfish (*Ictalurus furcatus*), yellow bullhead (*Ameiurus natalis*), long-ear sunfish (*Lepomis megalotis*), flathead catfish (*Pylodictis olivaris*) and largemouth bass (*Micropterus salmoides*) (LAFB, 2007a).

3.7.3 Wetlands

Wetlands provide diverse habitats for numerous species, protection from flooding and erosion, and are also important in the recycling of nutrients. The USACE regulates "Waters of the United States", wetlands, and special aquatic sites under Section 404 of the CWA. The USACE and EPA define wetlands (in 40 CFR 230.3[t]) as "*those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas*." This definition takes into consideration three distinct environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. EO 11990, Protection of Wetlands, signed by President Carter in 1977, requires federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. It also requires that agencies avoid construction or providing assistance for new construction located in wetlands, to the extent practicable.

Based on review of the USFWS National Wetlands Inventory (NWI) database, wetlands are potentially present within JBSA-Lackland in the project area, as depicted on Figure 3-3 (USFWS, 2012). According to the Cowardin classification system (Cowardin, 1979), the USFWS has classified Leon Creek as a lower perennial and permanently flooded riverine wetland with an unconsolidated bottom (R2UBH). The USFWS has also identified two other types of wetlands located within Leon Creek, a temporarily-flooded, palustrine forested wetland with broad-leaved deciduous vegetation (PFO1a) and multiple palustrine wetlands with an unconsolidated bottom that are permanently flooded due to dikes or impoundments (PUBHh). Also on JBSA-Lackland is an unnamed ditch that drains into Leon Creek that is an intermittent and temporarily flooded riverine wetland with an excavated streambed (R4SBAx) (USFWS, 2012).

In addition to Leon Creek, three other wetlands have been identified by USFWS on JBSA-Lackland associated with golf course water features within the project area. Two wetlands are located east of the proposed alignment and Leon Creek, a palustrine wetland with an unconsolidated bottom that has been excavated and is permanently flooded (PUBHx) and a

palustrine wetland with persistent emergent vegetation that has been excavated and is seasonally flooded (PEM1Cx). Additionally, a PUBHh wetland is located south of the proposed alignment between the alignment and Leon Creek (USFWS, 2012).

3.7.4 Protected Species

Under the Endangered Species Act (ESA; 16 U.S.C. 1536), the USFWS and maintains an active conservation program for threatened and endangered species and the habitats in which they are found. An "endangered species" is defined as any species in danger of extinction throughout all or a large portion of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. USFWS also maintains a list of species considered to be candidates for possible listing under the ESA. Although candidate species receive no statutory protection under the ESA, USFWS advises government agencies, industry, and the public that these species are at risk and might warrant future protection under the ESA. The USFWS also maintains a species of conservation concern list. This list includes unprotected species that are likely to become candidate species in the future under the ESA. The law requires federal agencies, in consultation with the USFWS to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species.

The Bald and Golden Eagle Protection Act (16 USC 668a; 50 CFR 22) was enacted to protect America's national symbol, the bald eagle (*Haliaeetus leucocephalus*). The golden eagle is a similar-appearing eagle, especially in immature life stages, and therefore was added to ensure protection of the bald eagle. This law, originally passed in 1940 and as amended, provides for the protection of the bald eagle and the golden eagle (*Aquila chrysaetos*) by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit. The USFWS defines disturbance to eagles as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information (1) injury to the eagle, (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment" (50 CFR Part 22.3).

Additionally, the TPWD maintains a list of state-identified threatened and endangered species. TPWD regulations (contained within chapters 67 and 68 of the Texas Parks and Wildlife Code and Sections 65.171–65.176 of Title 31 of the Texas Administrative Code) prohibit the taking, possession, transportation, or sale of any of the animal species designated by state law as endangered or threatened without the issuance of a permit.

Table 3-9 includes the species listed by the USFWS and TPWD as federal- and/or state-listed Threatened and Endangered Species for Bexar County and their potential presence on JBSA-Lackland (TPWD, 2012 and USFWS, 2013b). No critical habitat for these listed species is designated on or in the vicinity of the project area (USFWS, 2013c). The TPWD established the Texas Natural Diversity Database (TXNDD) in 1983 to contain the most comprehensive information on threatened and endangered plants, animals, invertebrates, exemplary natural communities, and other significant features. The TXNDD is continually updated with data received from public information sources, such as peer-reviewed publications, as well as from

field surveys conducted by TPWD employees and scientists. According to the TXNDD, there are no known federal- or state-listed endangered, threatened, or rare species or USFWS-designated critical habitat identified within the project area (TPWD, 2013).

Table 3-9
Bexar County Threatened and Endangered Species

Common Name	Scientific Name	Federal Status	State Status	Suitable Habitat Occurrence on JBSA-Lackland	Potential Species Presence
AMPHIBIANS					
Cascade Caverns Salamander	*Eurycea latitans*	--	T	**No** – Springs and caverns in Cibolo Creek watersheds within the Edwards Aquifer Area.	Unlikely to Occur in Area
Comal Blind Salamander	*Eurycea tridentifera*	--	T	**No** – Springs, seeps, cave streams, and creek headwaters; often hides under rocks and leaves in water in Comal River watershed.	Unlikely to Occur in Area
San Marcos Salamander	*Eurycea nana*	E	--	**No –** Clear and flowing spring water coming from the headwaters of the San Marcos River.	Unlikely to Occur in Area
Texas Blind Salamander	*Eurycea rathbuni*	E	--	**No** – Water-filled caves of the Edwards Aquifer near San Marcos, Texas.	Unlikely to Occur in Area
ARACHNIDS					
Bracken Bat Cave Meshweaver	*Cicurina venii*	E	--	**No** – Known to occur in north and northwest Bexar County.	Unlikely to Occur in Area
Cokendolpher Cave Harvestman	*Texella cokedolperi*	E	--	**No** – Known to occur in north and northwest Bexar County.	Unlikely to Occur in Area
Government Canyon Bat Cave Meshweaver	*Cicurina vespera*	E	--	**No** – Known to occur in north and northwest Bexar County.	Unlikely to Occur in Area
Government Canyon Bat Cave Spider	*Neoleptoneta microps*	E	--	**No** – Known to occur in north and northwest Bexar County.	Unlikely to Occur in Area
Madla's Cave Meshweaver	*Cicurina madla*	E	--	**No** – Known to occur in north and northwest Bexar County.	Unlikely to Occur in Area
Robber Baron Cave Meshweaver	*Cicurina baronia*	E	--	**No** – Known to occur in north and northwest Bexar County.	Unlikely to Occur in Area

Common Name	Scientific Name	Federal Status	State Status	Suitable Habitat Occurrence on JBSA-Lackland	Potential Species Presence
BIRDS					
Black-capped Vireo	*Vireo atricapilla*	E	E	**No** – Minimal presence of oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces on JBSA-Camp Bullis; Fire suppression and ashe juniper growth may be limiting suitable habitat.	Unlikely to Occur in Area
Golden-cheeked Warbler	*Setophaga chrysoparia*	E	E	**No** – Juniper-oak woodlands, dependent on Ashe juniper for long, fine bark strips only available from mature trees used in nest construction.	Unlikely to Occur in Area
Interior Least Tern	*Sterna antillarum athalassos*	E	E	**No** – Nests along sand and gravel bars within braided streams and rivers; also known to nest on man-made structures such as inland beaches, wastewater treatment plants, gravel mines, etc.	Unlikely Migrant Through Area
Peregrine Falcon	*Falco peregrinus*	--	T	**Yes** – Migrant across state from more northern states; winters along coast and farther south; found in a variety of habitats during migration, including urban areas; preferred stopover habitat is landscape edges such as lake shores, coastlines, and barrier islands.	Known Migrant Through Area
Sprague's Pipit	*Anthus spragueii*	C	--	**No -** wintering migrant found typically in native upland prairie and coastal grasslands, and sensitive to patch size and avoids edges.	Unlikely Migrant Through Area
White-faced Ibis	*Plegadis chihi*	--	T	**No** – Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.	Unlikely Resident in Area
Whooping Crane	*Grus Americana*	E	E	**Yes** – Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.	Possible Migrant Through Area
Wood Stork	*Mycteria Americana*	--	T	**Yes** – Forages in prairie ponds, flooded pastures, ditches, and other shallow standing water, including salt water; usually roosts communally in tall snags; breeds in Mexico and move into Gulf states in search of mudflats and other wetlands. Minimal stopover habitat located in wetlands on JBSA-Lackland.	Possible Migrant Through Area
Zone-Tailed Hawk	*Buteo albonotatus*	--	T	**Yes** – Arid open country, including open deciduous or pine-oak woodland often near watercourses, and wooded canyons and tree-lined rivers. Stopover habitat located on undeveloped areas of JBSA-Lackland.	Possible Transient Across JBSA-Lackland

Common Name	Scientific Name	Federal Status	State Status	Suitable Habitat Occurrence on JBSA-Lackland	Potential Species Presence
CRUSTACEAN					
Peck's Cave Amphipod	*Stygobromus pecki*	E	--	**No** – Aquifer and stream bottom, hidden between rocks and in decaying leaves; occurs in and around Comal and Hueco springs.	Unlikely to Occur in Area
FISH					
Fountain Darter	*Etheostoma fonticola*	E	--	**No** – Clear, thermally constant waters of the upper San Marcos and Comal Rivers.	Unlikely to Occur in Area
Toothless Blindcat	*Trogloglanis pattersoni*	--	T	**No** – Endemic to the San Antonio Pool of the Edwards Aquifer.	Unlikely to Occur in Area
Widemouth Blindcat	*Satan eurystomus*	--	T	**No** – Endemic to the San Antonio Pool of the Edwards Aquifer.	Unlikely to Occur in Area
INSECTS					
[Unnamed] ground beetle	*Rhadine exilis*	E	--	**No** – Known to occur in north and northwest Bexar County	Unlikely to Occur in Area
[Unnamed] ground beetle	*Rhadine infernalis*	E	--	**No** – Known to occur in north and northwest Bexar County	Unlikely to Occur in Area
Helotes Mold Beetle	*Batrisodes venyivi*	E	--	**No** – Known to occur in north and northwest Bexar County	Unlikely to Occur in Area
MAMMALS					
Black Bear	*Ursus americanus*	T	T	**No** – Bottomland hardwoods and large tracts of inaccessible forested areas.	Unlikely to Occur in Area
Gray Wolf	*Canis lupus*	E	E	**Yes** – Extirpated; formerly known throughout western two-thirds of state in forests, brushlands, and grasslands. Habitat exists in the general area.	Unlikely to Occur in Area
Red Wolf	*Canis rufus*	E	E	**Yes** – Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas as well as coastal prairies. Habitat exists in the general area.	Unlikely to Occur in Area
MOLLUSKS					
False Spike Mussel	*Quadrula mitchelli*	--	T	**No** – Possibly extirpated in Texas; found in medium to large rivers with substrates from mud through mixtures of sand, gravel, and cobble; found in Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins.	Unlikely to Occur in Area
Golden Orb	*Quadrula aurea*	--	T	**Yes** – Sand and gravel in some locations and mud in others; found in lenthic and lotic conditions; San Antonio River basins. JBSA located in historical range.	Unlikely to Occur in Area
Texas Fatmucket	*Lampsilis bracteata*	--	T	**No** – Streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock, and course gravel or sand in moderately flowing water; Colorado and Guadalupe River basins.	Unlikely to Occur in Area

Common Name	Scientific Name	Federal Status	State Status	Suitable Habitat Occurrence on JBSA-Lackland	Potential Species Presence
Texas Pimpleback	*Quadrula petrina*	--	T	**No** – Mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins.	Unlikely to Occur in Area
REPTILES					
Texas Horned Lizard	*Phrynosoma cornutum*	--	T	**Yes** – Open, arid, and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush, or scrubby trees of JBSA-Camp Bullis and JBSA-Lackland; soil may vary in texture from sandy to rocky; burrows in soil, enters rodent burrows, or hides under rock when inactive.	Known Resident on JBSA-Lackland
Texas Indigo Snake	*Drymarchon melanurus erebennus*	--	T	**Yes** – Found south of the Guadalupe River and Balcones Escarpment; thornbrush-chapparal woodlands or undeveloped areas of JBSA-Camp Bullis and JBSA-Lackland, in particular dense riparian corridors; can do well in suburban and irrigated croplands if not molested or indirectly poisoned; requires moist microhabitats, such as rodent burrows for shelter.	Possible Resident on JBSA-Lackland
Texas Tortoise	*Gopherus berlandieri*	--	T	**Yes** – Open brush with a grass understory is preferred, like undeveloped areas of JBSA-Camp Bullis and JBSA-Lackland; open grass and bare ground are avoided; when inactive, occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects.	Possible Resident on JBSA-Lackland
Timber/ Canebrake Rattlesnake	*Crotalus horridus*	--	T	**Yes** – Floodplains, upland pine and deciduous woodlands, wetlands, riparian zones of JBSA-Camp Bullis and JBSA Lackland; prefers dense ground cover (i.e., grapevines or palmetto).	Possible Resident in riparian areas of JBSA-Lackland
PLANTS					
Texas Wild-Rice	*Zizania texana*	E	--	**No** – Clear, spring-fed waters of rivers; relict population isolated to a one and a half mile length of headwaters of the San Marcos River.	Unlikely to Occur in Area

Source: TPWD, 2012 and USFWS, 2013b
Notes:
-- = Not Applicable
C = Candidate
DL = De-listed
E = Endangered
JBSA = Joint Base San Antonio
T = Threatened

1

Migratory birds are protected by the Migratory Bird Treaty Act (MBTA) (16 U.S.C.§703) as well as EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds). Illegal actions against migratory bird species are defined by the Migratory Bird Treaty act as any "attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof" (USFWS, 2013a). JBSA-Lackland currently maintains a Migratory Bird Depredation Permit from the USFWS as part of the Bird/Wildlife Aircraft Strike Hazard (BASH) Plan. The following migratory bird species are monitored as part of BASH prevention: American Crow (*Corvus brachyrhynchos*), Barn Swallow (*Hirundo rustica*), Boat-tailed Grackle (*Quiscalus major*), Brown-headed Cowbird (*Molothrus ater*), Cattle Egret (*Bubulcus ibis*), Chimney Swift (*Chaetura pelagica*), Eastern Meadowlark (*Sturnella magna*), European Starling (*Sturnus vulgaris*), House Finch (*Haemorhous mexicanus*), Killdeer (*Charadrius vociferus*), Mourning Dove, common Nighthawk (*Chordeiles minor*), Red-winged Blackbird (*Agelaius phoeniceus*), Rock Pigeon (*Columba livia*), Western Meadowlark (*Sturnella neglecta*), and White-winged Dove. Under the permit, JBSA-Lackland is allowed to conduct controlled shootings of these species within zones, such as the airfield, designated based on documented hazards (LAFB, 2011a).

3.8 Cultural Resources

Several archaeological investigations have been conducted on and around JBSA-Lackland, including the area of the proposed project (Huhnke et al. 2006; Nickles et al. 1997; USAF 2007, Snavely et al. 1984). Each of these investigations were conducted in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended through 2000 [16 U.S. Code [U.S.C.] § 470 et seq.; P.L. 89–665; 80 Stat. 915] or the *Antiquities Code of Texas* [Title 9, Chapter 191, the *Natural Resources Code of Texas*]. The ultimate goal of these investigations was to identify and inventory any cultural resources properties and to evaluate their potential for inclusion in the National Register of Historic Places (NRHP) or their designation as a State Archeological Landmark (SAL).

Five sites have been identified within a mile of the proposed project, with two of those (41BX1107 and 41BX1108) adjacent to the proposed project. Site 41BX1107, originally recorded in 1995 by Center for Archaeological Research (CAR) (Nickles et al. 1997), is found on alluvial floodplain deposits within the limits of JBSA-Lackland Golf Course. The site was recorded as a lithic quarry containing an Edgewood projectile point, a non-diagnostic point fragment, bifaces, debitage, and fire-cracked rock (FCR). Based on the artifacts, the site was dated to the Early and Transitional Archaic periods, with the potential for NRHP eligibility. However, in 2005, Geo-Marine, Inc. tested the site, recovering additional debitage, a modified flake, and a core, all in a disturbed and secondary context. Site 41BX1107 was thus recommended not eligible for NRHP inclusion (Huhnke et al. 2006).

Site 41BX1108, originally recorded in 1995 by CAR (Nickles et al. 1997), is on Holocene alluvium floodplain deposits within the limits of the JBSA-Lackland Golf Course. It is a prehistoric campsite of unknown cultural affiliation and yielded a biface, debitage, animal bone, and mussel shell as well as quantities of buried FCR, indicating possible features. Additional investigations by CAR resulted in the recommendation that the site is eligible for inclusion in the NRHP. Geo-Marine also conducted further test on this site in 2005, and found that the site

contained features typical of a burned rock "hearth field' or "pavement" typical of sites in south Texas, thus supporting the recommendation that the site is NRHP eligible (Huhnke et al. 2006). Therefore, further investigations would be required if Site 41BX1108 were to be impacted.

Site 41BX1061, was originally recorded as two separate historic brick-lined well/cisterns (Wherry sites 1 and 2) during an initial survey by CAR in 1994 (Raymond, 1997) on the Pleistocene Leona Formation. Subsequent fieldwork by CAR in 1995 found that these features were actually brick-lined manholes to an old sewer system built in the 1920s as part of the early military installation. These inlet shafts contained 1920s brick, 1900s clay tile and concrete and artifactual materials of posts, brick aprons and fragments, concrete curbs, and clay pipe fragments and were determined not eligible for inclusion in the NRHP (Nickles et al. 1997). JBSA-Lackland considered the open pits to be hazardous and subsequently these manholes have been filled and covered (Huhnke et al. 2006).

Site 41BX1066, recorded by CAR in 1995 (Nickles et al. 1997), is a prehistoric camp of unknown time period found on the Pleistocene Leona Formation. It contained an end scraper, debitage, and FCR, with the possibility of buried features and was recommended eligible for the NRHP. No further work has been conducted to date. Therefore, further investigations would be required if Site 41BX1066 were to be impacted.

Site 41BX598 is south of SW Military Drive and was recorded as part of the 201 Wastewater Treatment project by CAR in 1983. It was situated on fluviatile deposits along Leon Creek as a thin lithic scatter of unknown prehistoric affiliation. Debitage was the only material observed and it was recommended as not eligible for inclusion in the NRHP. The site has since been destroyed.

About 2,400 feet at the north end of the project area (from U.S. Highway 90 across Mateo Camargo Park to Leon Creek) has not received archaeological investigation to date. However, this area was used for gravel extraction sometime prior to building of the park and has since been reclaimed (USGS, 1993a and USGS, 1993b). The proposed WWRL-Upper Segment sewer line is directly adjacent to the existing line in this area. Following extensive agency coordination, the Texas Historical Commission (THC) State Historic Preservation Office (SHPO) concurred on 25 March 2013 that no further investigations would be necessary within the project area.

3.9 Hazardous Materials and Substances

A Phase I and Phase II EBS were conducted for the easement to be awarded by JBSA-Lackland to SAWS as part of the Proposed Action. The Phase II EBS investigations included surface and subsurface soil sampling and groundwater sampling. The Phase I and II EBS reports are attached in Appendices D and E and are summarized in the following Subsections.

3.9.1 Hazardous Materials

Hazardous material use and management at JBSA-Lackland are regulated under the Toxic Substance Control Act (TSCA), Occupational Safety and Health Administration (OSHA), Emergency Planning and Community Right–to-Know Act, and Air Force Occupational Safety

and Health Standards. Regulations require personnel using hazardous material to be trained in the application, management, handling, and storage of the material; to know the location of material safety data sheets (MSDSs) for all hazardous materials being used; and to wear the correct personal protective equipment (PPE) required for materials that are being used. JBSA-Lackland has a Spill Prevention, Control and Countermeasures Plan (SPCCP) in place that establishes procedures, methods, equipment, and other criteria to prevent and respond to discharges of oil products and hazardous substances on JBSA-Lackland and associated property. The SPCCP is written in accordance with 40 CFR, Chapter 112 (LAFB, 2006b).

As identified within the Phase I EBS and discussed in greater detail in Appendix E, no hazardous materials are managed within the project area or within the easement area.

Asbestos Containing Materials

Asbestos is generally present in older buildings built prior to 1980 and can be found in different forms. Asbestos is regulated under the Toxic Substances Control Act through the EPA Clean Air Act. Asbestos is currently managed on JBSA-Lackland under the Lackland AFB Asbestos Management and Operations Plan (LAFB 2012a). It is anticipated that no asbestos-containing materials (ACM) would be encountered in the area of the Proposed Action, because of the absence of buildings and structures; however, ACM could be present in landfills known to contain construction debris and demolition waste (LF011 and LF012 – East), as described in the Phase I EBS provided in Attachment D.

Lead Based Paint

Lead-based paints (LBP) are typically present in homes or buildings built prior to 1978. LBP is currently managed under the Lackland AFB Lead-Based Paint Management and Operations Plan (LAFB, 2012b). However LBP is not anticipated to be present at the project location because of the absence of buildings or structures. The area for the Proposed Action and immediate areas that would include the construction easement do not have buildings present, thus the likelihood for lead-based paint to be found within the area is minimal. However, LBP could be present in landfills known to contain construction debris and demolition waste (LF011 and LF012 – East), as described in the Phase I EBS provided in Attachment D.

Pesticides

Pesticide application and management at JBSA-Lackland, and within the project area, is conducted in accordance with the Pest Management Plan which has been prepared in accordance with DoD Instruction 4150.07 and as outlined in the Armed Forces Pest Management Board's Technical Information Memorandum No. 18. The JBSA-Lackland pest management is conducted by the Civil Engineer Pest Management shop. Pesticide use on sensitive areas such as wetlands, golf course ponds, or creeks require appropriate controls for application (LAFB 2010b). Historical aerial photographs indicate that prior to Air Force acquisition portions of the project site were used for agricultural purposes. Historical Air Force use of some of the southern project area included a golf course. Currently, sections of the project site are used as recreational areas, including a golf course in the northern portion of the project area. Past and present use of

the project area suggests that current and historical use of pesticides on the project area is probable.

3.9.2 Hazardous Waste

Hazardous wastes are defined by the Solid Waste Disposal Act as amended by RCRA, which was further amended by the Hazardous and Solid Waste Amendments, RCRA subtitle C (40 CFR, Parts 260 through 270). Hazardous wastes are defined as wastes with properties that are dangerous or potentially harmful to human health or the environment. Hazardous wastes are regulated by the EPA. However, in Texas, the EPA has delegated its hazardous waste regulatory authority to the State of Texas TCEQ. Additionally, JBSA-Lackland hazardous waste management is regulated under AFI 32-7013, Hazardous Waste Management and Minimization.

Hazardous waste regulations are implemented at JBSA-Lackland through hazardous waste permitting procedures and implementation of the 2007 Lackland AFB Hazardous Waste Management Plan. The plan details hazardous waste packaging, turn-in, transportation, storage, recordkeeping, and emergency procedures. Hazardous waste is generated at JBSA-Lackland from aircraft, vehicle, building, and equipment maintenance; spent hazardous materials; and spills. There are no hazardous waste accumulation areas located in the area of the Proposed Action. Waste management operations at JBSA-Lackland are registered with the EPA under identification number TX4571524129 (LAFB, 2007b).

3.9.3 Environmental Restoration Program

The Environmental Restoration Program (ERP) at JBSA-Lackland was implemented by the DoD to identify and evaluate areas and constituents of concern from toxic and hazardous material disposal and spill sites. Once the areas and constituents had been identified, the ERP was tasked to remove the hazards in an environmentally responsible manner. All response actions are based upon provisions of RCRA, CERCLA, and the Superfund Amendments and Reauthorization Act of 1986 as clarified in 1991 by EO 12580, Superfund Implementation.

JBSA-Lackland has a total of 76 ERP sites. Currently, 74 of the sites have achieved Remedy in Place (RIP)/Regulatory Closure and the remaining 2 sites were validated in 2010 and obtained RIP in 2011. There are also 17 long-term management sites on JBSA-Lackland, with 15 landfill sites that require post-closure care (cap maintenance and/or groundwater monitoring) indefinitely. Two of the long-term monitoring (LTM) sites require continued groundwater monitoring only. The Military Munitions Response Program (MMRP) has 14 sites that are currently under contract to achieve RIP (LAFB, 2011b).

There are 12 ERP and MMRP sites that are located within the project area, as depicted within Figure 3-4. Table 3-10 summarizes these ERP and MMRP sites located within the project area.

Table 3-10
Summary of ERP Sites within Project Area

Site ID	Site Name	Station Location	Regulatory Phase	Description
MSW[1] LF#12	Landfill 12	Line A 184+00 - 176+00 (Borders construction easement)	RIP	This site is approximately 8 acres in size and was operated from 1976 to 1994 as a municipal landfill. In 1982 the site was permitted as a Type IV (MSW Permit No. 1515) municipal landfill that accepted construction debris and demolition waste. Land use restrictions are currently "residential use and groundwater use prohibited." This site has an irrigation system.
LF011-North Middle, and South	Former Landfill D-1	Line A 97+00 – 91+00	RIP	The size of LF011 North is less than two acres and is a former waste disposal area that operated from 1942 until 1957 accepting general refuse and construction debris. LF011-Middle lies adjacent to the North portion of the landfill and is also approximately two acres in size. The area was operated between 1950 and 1960 and also received construction debris. . Land use restrictions are currently "residential use and groundwater use prohibited. LF011-North and Middle do not have irrigation systems. This is part of the Zone 1 Landfills, which are covered by the still active Permit and Compliance Plan (No. 50310) for the Former Kelly AFB.
LF012-East	Former Landfill D-2	Line A 69 +00– 56+00	RIP	Site (approximately eight acres) was in active operation between 1942 through 1957 and received construction rubble, general refuse, scrap metal, and garbage. The LF012 East site has not been shown to contain any drum burial area within it. It is possible that oily wastes or residues are present in the area of this landfill. Environmental samples in the area indicated elevated levels of polynuclear aromatic hydrocarbons and metals above the human health based standards, which is indicative of the oily waste and anticipated to be non-hazardous waste (if encountered). Land use restrictions are currently "residential use and groundwater use prohibited." This site has an irrigation system. This is part of the Zone 1 Landfills, which are covered by the still active Permit and Compliance Plan (No. 50310) for the Former Kelly AFB.
LF015 and RW026	Former Landfill D5	End of Lateral Line C	RIP	Site is approximately 13 acres and believed to have operated from the 1950s to the 1960s. The landfill was reported to be divided into three areas that included a waste staging area, a waste disposal area and former oil-burning pit/evaporation pond. Also a former radioactive waste disposal site (RW026) is located on the northern end of the landfill. Site RW026 was closed by the Air Force in June 2002. A dissolved phase chlorinated solvent plume extends from the former oil evaporation pond (south of the subject property) to Leon Creek. A groundwater recovery system is in place, but not within area of the Proposed Action. LF015 was closed under the TCEQ Risk Reduction Standards No. 3, industrial/commercial soil criteria with

Site ID	Site Name	Station Location	Regulatory Phase	Description
				land use restrictions being non-residential use only. This site has an irrigation system. This is part of the Zone 1 Landfills, which are covered by the still active Permit and Compliance Plan (No. 50310) for the Former Kelly AFB.
SS043	N/A	End of Lateral Line C	RIP	The site is approximately 18 acres. Waste disposal activities took place from 1954 – 1970, accepting construction debris, hard fill, and some organic chemical waste. It is believed that radioactive disposal site RW027 (RD-2) is within site SS043. RW027 was closed and is not within the area of the Proposed Action. Site SS043 was closed under Risk Reduction Standards No. 3, industrial/commercial soil criteria with land use restrictions being non-residential only. This site has an irrigation system. This is part of the Zone 1 Landfills, which are covered by the still active Permit and Compliance Plan (No. 50310) for the Former Kelly AFB.
LF036	Area of Concern #4	Line A 175+00 – 171+00	RIP	The landfill is a 24 acre site located within the former Kelly Bombing Range North (AL240). The landfill was in use during the 1950s accepting general wastes generated by Lackland AFB. The site was closed and the Record of Decision states that there is unrestricted land use for the site (WESTON, 2008). This site does not have an irrigation system.
AL240	Former Kelly Bombing Range North	Line A 175+00 – 155+00	RA	Site is approximately 550 acres that was thought to have been used around World War II (1922 – 1927) as a practice bombing range. A CSE Phase II determined that the range should be divided into three military response sites: • AL240 – approximately 17.9 acres with identified munitions debris but no MEC identified. Proposed Action would not affect this area. • AL240a – approximately 450 acres with no munitions debris or MEC identified. No further action recommended. The project area associated with Proposed Sewer line A stations 169+00 – 155+00 crosses through the northeastern section of site. • AL240b – approximately 33.2 acres with munitions debris identified. Consists of the active Operational Munitions Training Area and does not qualify for MMRP. Proposed Action would not affect this area. (URS, 2011)
TS271	OR003 Skeet Range	Line A 40+00 – 23+00	RA	Site consisted of three small arms skeet ranges, approximately 21 acres. The CSE Phase II report recommended that the site should be split into two separate MRSs: • TS271 – approximately 0.7 acre (non-contiguous) with PAH contaminated soils. • TS271a – approximately 20.3 acres with no identified contamination and a recommendation of

Site ID	Site Name	Station Location	Regulatory Phase	Description
				No Further Action (URS 2011). The June 2013 Draft Response Action Completion Report concluded that the affected soil was removed and no further action is required (Kemron 2013).
SR272	OR004 1940 Pistol Range	(only easement contacts site boundaries) 47+00 – 42+00	RA	The site is a former small arms pistol range operational in the 1940s. The CSE Phase II reports that no MEC or munitions debris was identified at the site and no further action was recommended (URS, 2011).
TG273	OR005 Aircraft Gun Testing Range	Line A 29+00 – 25+00	RA	The site is a former static aircraft gun testing range operational in the late 1940s to the early 1950s. The CSE Phase II reports that no MEC or munitions debris was identified and no further action is recommended (URS, 2011).
FR274	OR006 1960 Firing Range	Line A 41+00 – 40+00	RA	The site is a former small arms training range operational in the 1960s. The CSE Phase II reports that no MEC or munitions debris was identified and no further action is recommended (URS, 2011).
FR294	OR004 1940 Rifle Range	Line A 42+00 – 38+00	RA	The site is a former small arms rifle range operational in the 1930s and 1940s. The CSE Phase II reports that no MEC or munitions debris was identified. Lead was identified in the surface soil and sediment samples above ecological screening criteria, but the area does not support suitable habitat for ecological receptors, therefore no further action is recommended (URS, 2011).
AL722	Former Kelly Bombing Range South	(Border of site is adjacent to easement) Line A 132+00 – 110+00	RA	Site is approximately 450 acres that was thought to have been used around World War I (1922 – 1927) as a practice bombing range. A Phase II has been completed and is currently under contract to receive RIP. Land use restrictions are yet to be determined (URS, 2011).

Notes:
CSE Phase II – Comprehensive Site Evaluation Phase II
MEC – Munitions and Explosives of Concern
MMRP – Military Munitions Response Program
MRS – Munitions Response Site
MSW[1] – Municipal Solid Waste (not part of ERP)
NFA – No Further Action
No. – Number
RA – Remedial Action
RIP – Remedy in Place
WWRL – Western Watershed Sewer Relief Line

3.10 Utilities and Infrastructure

3.10.1 Stormwater

Stormwater at JBSA-Lackland is conveyed to Leon Creek with a storm sewer system, open channels, and sheet flow. There are several stormwater drainage structures at JBSA-Lackland that intersect the project area including headwalls with pipes that drain to Leon Creek (at STAs

62+00, 73+50, 80+00, 83+00, and 87+00) as well as drainage swales (at STAs 7+00, 22+00, 62+00, 80+00, 87+00, 93+00, and 96+00).

As further discussed in Section 3.6.1 (Surface Water) of this report, Lower Leon Creek, the JBSA-Lackland runoff receiving waters, is impaired according to the EPA-approved TCEQ 303(d) List. To maintain and improve the status of water quality of receiving waters the National Pollutant Discharge Elimination System (NPDES) program, authorized by the CWA and regulated by the EPA, controls pollutant discharges into waters of the U.S.. In Texas, the TCEQ has federal regulatory authority to administer the NPDES program under the TPDES program.

JBSA-Lackland has been issued authorization by TCEQ to manage and discharge stormwater under two TPDES general permits: the Small Municipal Separate Storm Sewer System (MS4) General Permit (TXR040000) and the Multi-Sector General Permit (MSGP) (TXR050000) (JBSA-Lackland 2012). A Stormwater Management Plan (SWMP) is maintained and implemented to comply with the TPDES program and the MS4 General Permit (TXR040000) under authorization number TXR040068A (LAFB, 2009a). The SWMP must include the following six minimum control measures:

1. Public education and outreach on stormwater impacts;
2. Public involvement/participation;
3. Illicit discharge detection and elimination;
4. Construction site stormwater runoff control;
5. Post-construction stormwater management in new development and redevelopment; and
6. Pollution prevention/good housekeeping for municipal operations (TCEQ, 2007).

TXR040000 expired on expired 13 August 2012; however, authorized facilities have been directed to continue to operate according to the expired permit until it is reissued by TCEQ (TCEQ, 2013d). A Stormwater Pollution Prevention Plan (SWPPP) must be maintained and implemented to comply with the TPDES program and (MSGP) (TXR050000) and must include:

- Identification of potential stormwater pollutions sources;
- Establishment of practices and necessary control measures that will prevent or reduce pollution in stormwater;
- Documentation of stormwater monitoring and inspections performed at the site (TCEQ, 2011).

In addition to these TPDES permits and plans, any construction projects that will disturb one or more acres require a TCEQ authorization to manage and discharge stormwater under the Construction General Permit (TXR150000). In this case, a construction specific SWPPP must be maintained and implemented to comply with the TPDES program and the Construction General Permit (TXR150000) and must include the BMPs required to minimize risk of erosion, sedimentation, and pollutant release during construction activities.

3.10.2 Water

JBSA-Lackland removes approximately 1.2 billion gallons per year of groundwater and operates two public water supply systems. Due to groundwater impact from withdrawals by JBSA-Lackland during drought conditions and recommendations by the USFWS, JBSA-Lackland voluntarily complies with a drought management plan to limit groundwater pumping based on aquifer levels (USFWS, 2008 and USFWS, 2012). No public water supply or domestic water wells were located within the Proposed Action easement; however, there is one SAWS public water well located near the project area (EDR, 2013). SAWS provides potable water from the Edwards Aquifer to supplement the groundwater that is pumped by JBSA-Lackland. As a whole, a total of 92 wells pump, on average, 136.50 million gallons or 418 acre-feet of potable water from the aquifer to SAWS customers per day (SAWS, 2013). The SAWS potable water system is capable of providing JBSA-Lackland with more than enough potable water to meet their demands (LAFB, 2002). In addition, JBSA-Lackland is continually increasing their potable water use efficiency, in turn reducing their demand (Holmes, 2007). For instance, the installation supplements potable water with recycled water provided by SAWS for activities such as irrigation (LAFB, 2007).

The project area crosses a 12-inch, cast iron water main owned by SAWS at two places: STA 50+00 (See Figure 2-1, Sheet 4) and STA 104+00 (See Figure 2-1, Sheet 9). Based upon SAWS Standard Specifications for Construction, these lines are located between 48 and 60 inches bgs (SAWS, 2009a). The condition of these potable water lines was unknown at the time of the report.

3.10.3 Wastewater

SAWS provides wastewater collection and treatment services to JBSA-Lackland. The wastewater collection system consists of approximately 44 miles of pipe, several lift stations, and forces mains. The condition of JBSA-Lackland wastewater infrastructure varies. Some of the original clay pipe has been replaced with polyvinyl chloride (PVC) while remaining segments, more than 30 years old, are brittle and deteriorating (JBSA-Lackland, 2012).

The existing WWRL, constructed of 54-inch reinforced concrete pipe around 1960, is approximately 17,500 LF. It receives wastewater from JBSA-Lackland and delivers it to the Leon Creek Wastewater Treatment Plant (WWTP). The Leon Creek WWTP has a total capacity of 32 MGD (Gholkar, 2000). The main segment of the existing WWRL has a flow rate of 56.94 to 94.43 MGD. The existing eastern fork, located at the northern end of the project area, has a flow rate of 63.66 to 73.14 MGD. There are seven lateral wastewater lines that connect to the main segment of the existing WWRL at various points between U.S. Highway 90 and SW Military Drive.

According to a 2009 Phase A Preliminary Engineering Report, a closed circuit television inspection was performed on the main segment of the WWRL from April 2008 to May 2008. This inspection revealed evidence of surcharge, grease and debris deposition, increased surface roughness due to exposed aggregate, exposed reinforcing steel, separated joints, and longitudinal and circular cracks. This data indicates that the infrastructure is in poor operational and structural

condition (SAWS 2009b). Failures and overflows of the WWRL, as recent as March 2012 which resulted in emergency repair at JBSA-Lackland landfill SS043, also indicate that the current condition and capacity is insufficient. No known inspections have been performed on the eastern fork of the WWRL; however, since this segment was installed at approximately the same time and consists of similar materials, it is assumed that the eastern fork is in a similarly poor condition.

3.10.4 Electricity and Natural Gas

CPS Energy owns the electricity and natural gas infrastructure and provides service in the project area. The project area crosses two overhead electric lines at STA. 55+00 (See Figure 2-1, Sheet 5) and STA 104+00 (See Figure 2-1, Sheet 9). Another overhead electric line is located parallel to the proposed wastewater line from STA. 111+00 through STA. 122+00 (See Figure 2-1, Sheets 9 and 10). The project area crosses a natural gas line at STA 47+00 (See Figure 2-1, Sheet 4).

3.10.5 Telecommunications

The telecommunications system at JBSA-Lackland consists of underground multimode fiber optic and copper cable. It was reported in the Phase I EBS that a major fiber optic line associated with security operations at JBSA-Lackland is located along portions of Westover Road and Chappie James Way, potentially within the project area between STA 9+00 and 10+00, STA 16+00 and 24+00, and STA 66+00 and STA 99+00.

3.10.6 Transportation

JBSA-Lackland and the project area are located on the southwest side of San Antonio near the interchange of U.S. Highway 90 and Interstate 410. The project area is bordered on the north by the U.S. Highway 90 access road and on the south by SW Military Drive. According to TXDOT, approximately 79,000 vehicles travel daily along U.S. Highway 90 near Callaghan Road (TXDOT 2008); however, it is unknown how many of these vehicles travel on the U.S. Highway 90 access road. The project area crosses several JBSA-Lackland roads including Kelly Drive and Elmore Hall Boulevard, and would be constructed parallel to two roads, Chappie James Way and Oscar Westover Road. Several other unimproved roads and paths are also located within the project area.

There are nine access control entrance gates at JBSA-Lackland, most connected to Military Drive (LAFB, 2009b). In January 2005, a traffic study was conducted at seven of the gates. Peak traffic volume occurred between 6 a.m and 12 p.m., with a count of approximately 14,000 vehicles entering the installation on both Tuesday and Wednesday (LAFB, 2005). During Base Military Training (BMT) Graduation, traffic escalates at JBSA-Lackland due to elevated numbers of visitors on-site (LAFB, 2006a).

The primary mode of roadway transportation at JBSA-Lackland is privately owned vehicles (POVs). A shuttle bus system also circulates the installation (LAFB, 2006a). A network of troop walks is also used by students of BMT to travel between major facilities such as

dormitories and those used for training and exercise. Troop walks are typically 12 feet wide, adjacent to roads, and separated by a curb, roadway buttons, or a painted road stripe. Travel on the troop walks can be individual or in flights of up to 55 students. Troop walks and major roadways conflict at several points at JBSA-Lackland, causing traffic and troop movement delays and safety concerns. Major intersections have flashing crosswalk lights to alert vehicle traffic of pedestrians (LAFB, 2002).

3.10.7 Solid Waste

Solid waste from JBSA-Lackland is sent to the Covel Gardens Landfill, which was authorized under TCEQ permit number MSW2093B in 1992 and opened in 1993 (JBSA-Lackland, 2012 and WM, 2013). The Covel Gardens Landfill property is located at the intersection of Covel Road and Patrol Road in San Antonio on approximately 783 acres of land, with a disposal area of 480 acres. The landfill is classified as a Type I Municipal Solid Waste Management Facility. This classification allows for the disposal of Municipal Solid Waste, Class 1 Nonhazardous Industrial Waste, Class 2 Industrial Waste, Class 3 Industrial Waste, and Special Waste. The total volume permitted is 124,100,000 cubic yards and the minimum expected life of the landfill is 17 years. Based on these values, it was projected that the Covel Gardens Landfill would accept a maximum of 7,300,000 cubic yards per year (WM, 2013). In 2009, JBSA-Lackland generated approximately 11,500 tons of solid waste that was disposed of at the Covel Gardens Landfill (JBSA-Lackland, 2012).

3.11 Ground Safety

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. The elements of an accident-prone environment include the presence of hazard and an exposed population at risk of encountering a hazard. Numerous approaches are available to manage the operational environment to improve safety, including reducing the magnitude of a hazard through engineering and administrative controls as well as proper use of personal protective equipment (PPE). The primary safety categories discussed in this analysis include Ground and Traffic Safety and Construction and Excavation Safety.

3.11.1 Ground and Traffic Safety

This section includes activities associated with ongoing operational, sports and recreation, and other activities that are associated with vehicle usage/traffic safety issues on Base. Factors involving primary occupational safety and health issues are addressed in the Occupational Safety and Health Act and Air Force Occupational Safety and Health Standards. All day-to-day operations and maintenance activities on JBSA-Lackland are performed by trained, qualified personnel in accordance with applicable equipment, technical directives, approved occupational safety and health standards, and sound maintenance practices. Both natural and man-made environmental hazards may be present on Base at any time due to the varied activities that take place at JBSA-Lackland. Naturally-occurring potential health and safety hazards include insects, snakes, rough terrain, climatic conditions, and flash floods. Potential man-made health and

safety hazards include general injuries due to outdoor physical training activities and motor vehicle accidents.

Because the scope of this project would not involve any changes to current weapons/explosive operations at JBSA-Lackland, safety in these areas of operation was not addressed in this section.

3.11.2 Construction and Excavation Safety

Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees (and the public who may be in proximity of the site inadvertently), and implementation of operational practices that reduce or eliminate the risk of injury, illness, death, or property damage. The health and safety for on-site workers are safeguarded by numerous DoD and Air Force regulations designed to comply with or exceed OSHA standards. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors. A number of potential hazards are associated with excavations and the equipment necessary to create excavations. These hazards include but are not limited to, pinch points, stuck-by, underground utility strikes, trench cave-ins, entrapment, hazardous atmospheres, surcharge loads (buildings, spoil piles, poles, pavement, or other structural objects), potential for encounter with UXO, and falls into the excavation. Having a competent person (as described per OSHA) conduct regular excavation checks is paramount to the site and worker safety.

3.12 Socioeconomics

The socioeconomic characteristics considered for this EA include population and regional economic influence to the COSA and Bexar County. As discussed in Section 1.1, the proposed project is intended to provide additional capacity for SAWS to service the COSA area. Based on the broad nature of the project and its purpose, this analysis focuses on the regional population and economic activity for the greater COSA region, rather than just JBSA-Lackland.

3.12.1 Population

JBSA-Lackland is located in San Antonio, Bexar County, Texas. San Antonio has experienced continued population growth since at least 1860. From 2000 to 2010, the City experienced a 15.9 percent increase in population (COSA, 2013a). The U.S. Census Bureau reported the population estimate for the COSA as 26,059,203 for 2012, a 4.2 percent increase since 2010 (USCB, 2013a). A comparison of population characteristics for COSA and Bexar County is provided in Table 3-11.

Table 3-11
Regional Population Characteristics

Population Characteristic	City of San Antonio	Bexar County	Texas
Population (2012 Estimate)	1,382,951	1,785,704	26,059,203
Population (1 April 2010 estimates base)	1,327,605	1,714,777	25,145,561
Percent Population Growth (1 April 2010 to 1 July 2012)	4.2	4.1	3.6

Source: USCB, 2013a; USCB, 2013b

3.12.2 Local Economy

According to the 2010 Census, the COSA labor force is comprised of 647,908 residents. The mean household income reported for the COSA in 2010 is $59,924. In San Antonio, the top three leading non-governmental industries are (1) educational services, health care, and social assistance; (2) retail trade; and (3) professional, scientific, and management, and administrative and waste management services (USCB, 2013d). The 2010 unemployment rate for San Antonio was 7.6 percent similar to the unemployment rate for Bexar County (7.3 percent) and the State unemployment rate (7.3percent) (USCB, 2013d; USCB, 2013e; and USCB, 2013f). Table 3-12 depicts a comparison of the per capita income and unemployment rate for San Antonio and Bexar County.

Table 3-12
Regional Economic Characteristics

Demographic Characteristic	City of San Antonio	Bexar County	Texas
Mean Household Income ($)	59, 924	65,341	70,777
Unemployment Rate (%)	7.6	7.3	7.3
Persons below Poverty Level (%)	19.2	17.1	17.0

Source: USCB, 2013d; USCB, 2013e; USCB, 2013f.

3.13 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires the following:

> *Federal agenc[ies] shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.*

An additional Presidential memorandum specified that federal agencies shall analyze the environmental effects of their Proposed Actions on minority and low-income communities, including health, economic, and social effects when such analysis is required by NEPA.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, mandates the investigation of environmental effects on children. This EO acknowledges that children may suffer disproportionately from environmental health risks and safety risks; therefore, each federal agency is required to make it a priority to identify and assess environmental health and safety risks on children and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health or safety risks.

Disadvantaged groups within the affected area, including minority and low-income communities, are specifically considered in order to assess the potential for disproportionate occurrence of impacts.

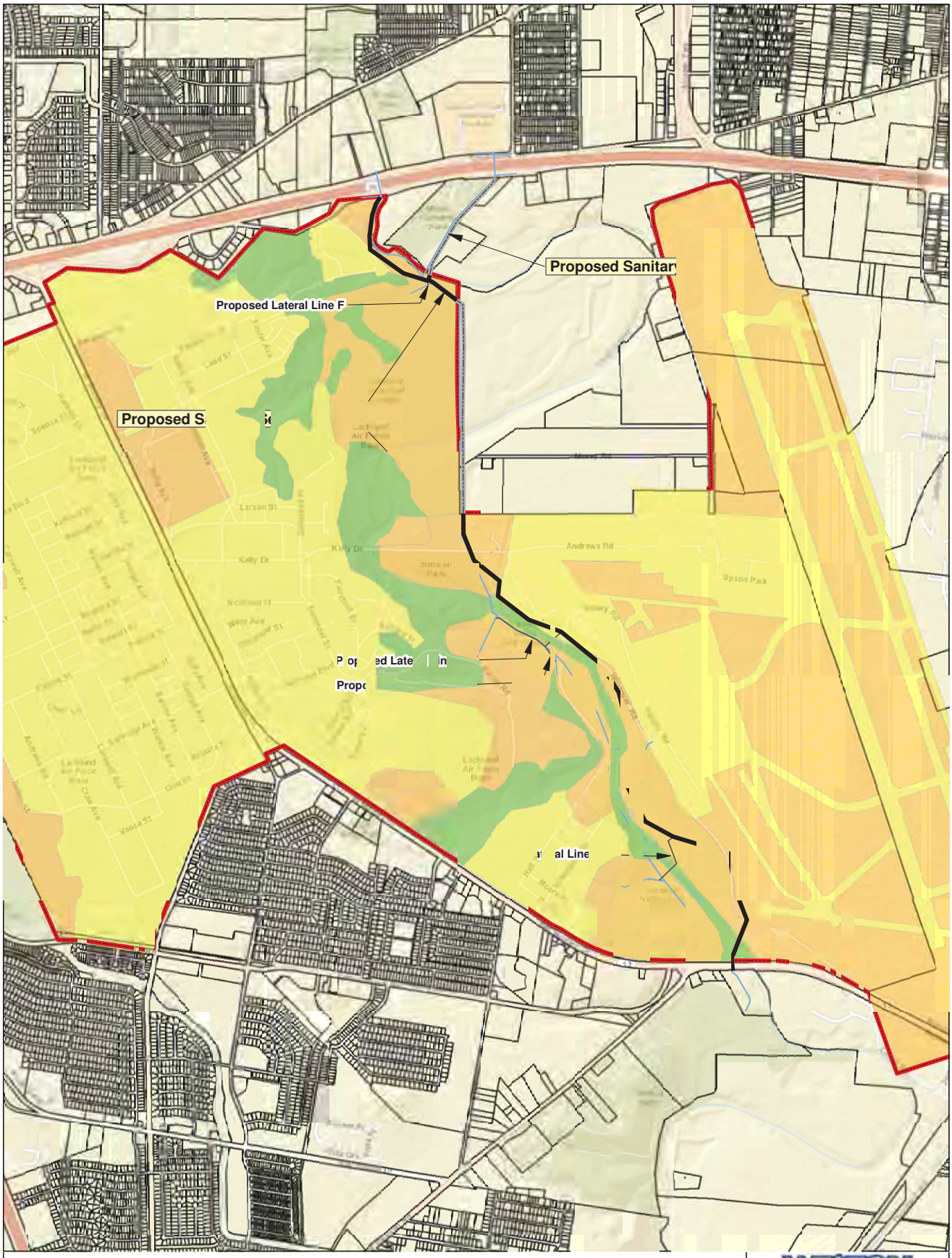
For the purpose of this analysis, disadvantaged groups are defined as follows:

- Minority Population: Black or African American, American Indians, Alaska Natives, Asians, Native Hawaiian and Other Pacific Islanders, and some other races (e.g. for individuals that consider themselves to be different than the other minority or majority groups). For the 2010 Census, race and Hispanic origin (ethnicity) were considered two separate concepts and were recorded separately. For the purposes of this analysis, the total minority race population will be separate from the total Hispanic population to determine total minority race population from the Hispanic total within the affected areas.

- Low-Income Population: Persons living below the poverty level, according to income data collected in the U.S. Census 2010.

According to the CEQ Guidance for Environmental Justice Analysis from December 1997, any area whose population consists of greater than 50 percent minorities (including Hispanics or Latinos) or low-income families is considered to be a majority-minority or majority-low-income population. Additionally, if the affected area percentage of minority or low-income population is greater than that of the general population, the affected area is considered to be a minority or low-income population.

The population of COSA and Bexar County are both comprised of greater than 50 percent minorities; therefore, they are considered majority-minority populations. Less than 50 percent of the population of COSA and Bexar County are living below the poverty level; therefore, they are not considered majority-low income populations



LEGEND

- Property Line
- Proposed Sanitary Sewer Line (Within JBSA-Lackland)
- Proposed Sanitary Sewer Line (Outside of JBSA-Lackland)
- Laterals
- Existing 54-inch Sewer Line
- Improved Grounds
- Semi-Improved Grounds
- Unimproved Grounds
- JBSA-Lackland

0 500 1,000
Feet

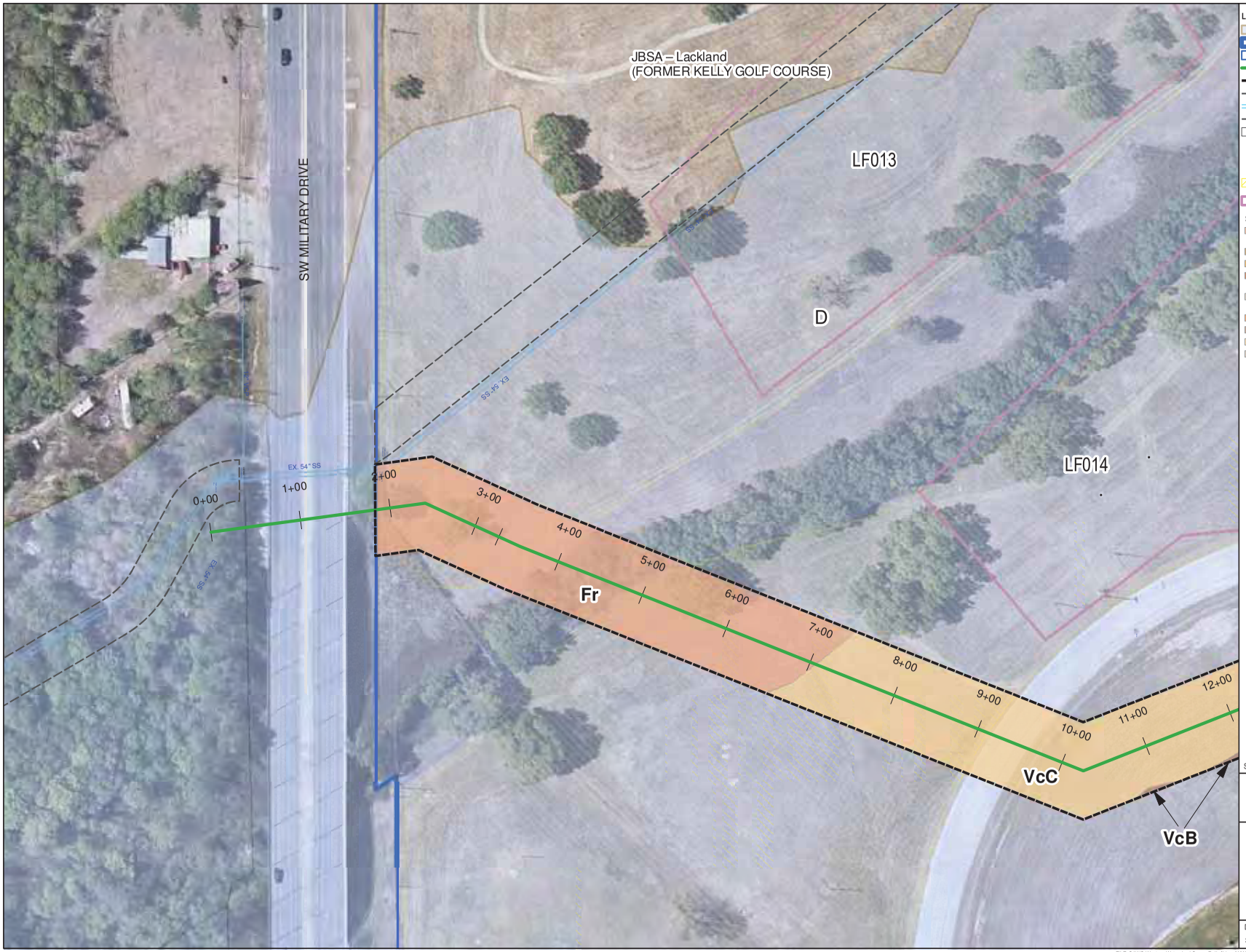
N

SOURCE: Virtural Earth, Microsoft Corp, 2009

FIGURE 3-1
LAND USE MAP
WESTERN WATERSHED SEWER
UPPER SEGMENT
SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 3-1.mxd 09/26/2013 nulur

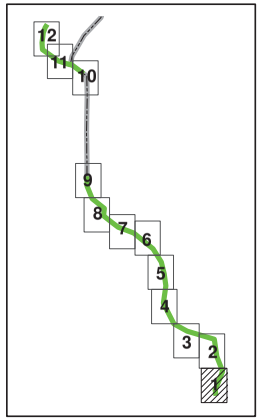


LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- 100 - Foot Easement
- Laterals
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

0 100

Feet

DRAFT

SOURCE: CITY OF SAN ANTONIO, TX

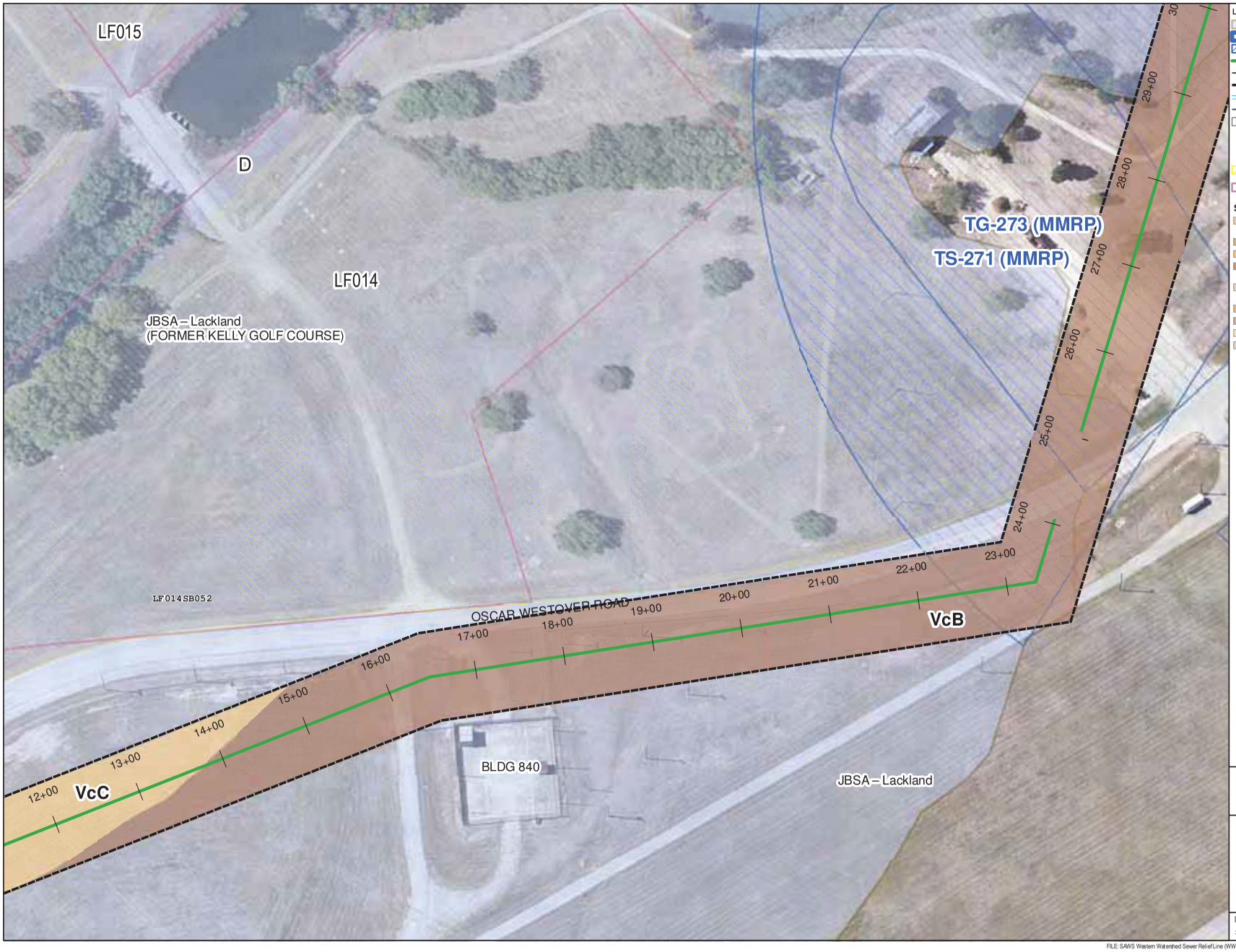
WESTON SOLUTIONS

FIGURE 3-2 (SHEET 1 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 1 of 12).mxd 09/23/2013 nulur

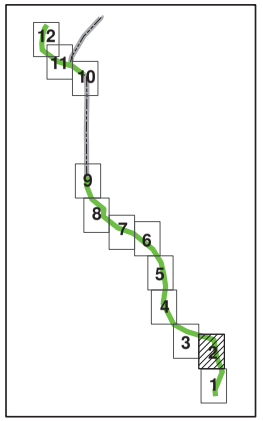


LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

DRAFT

0 400

Feet

SOURCE:CITY OF SAN ANTONIO, TX

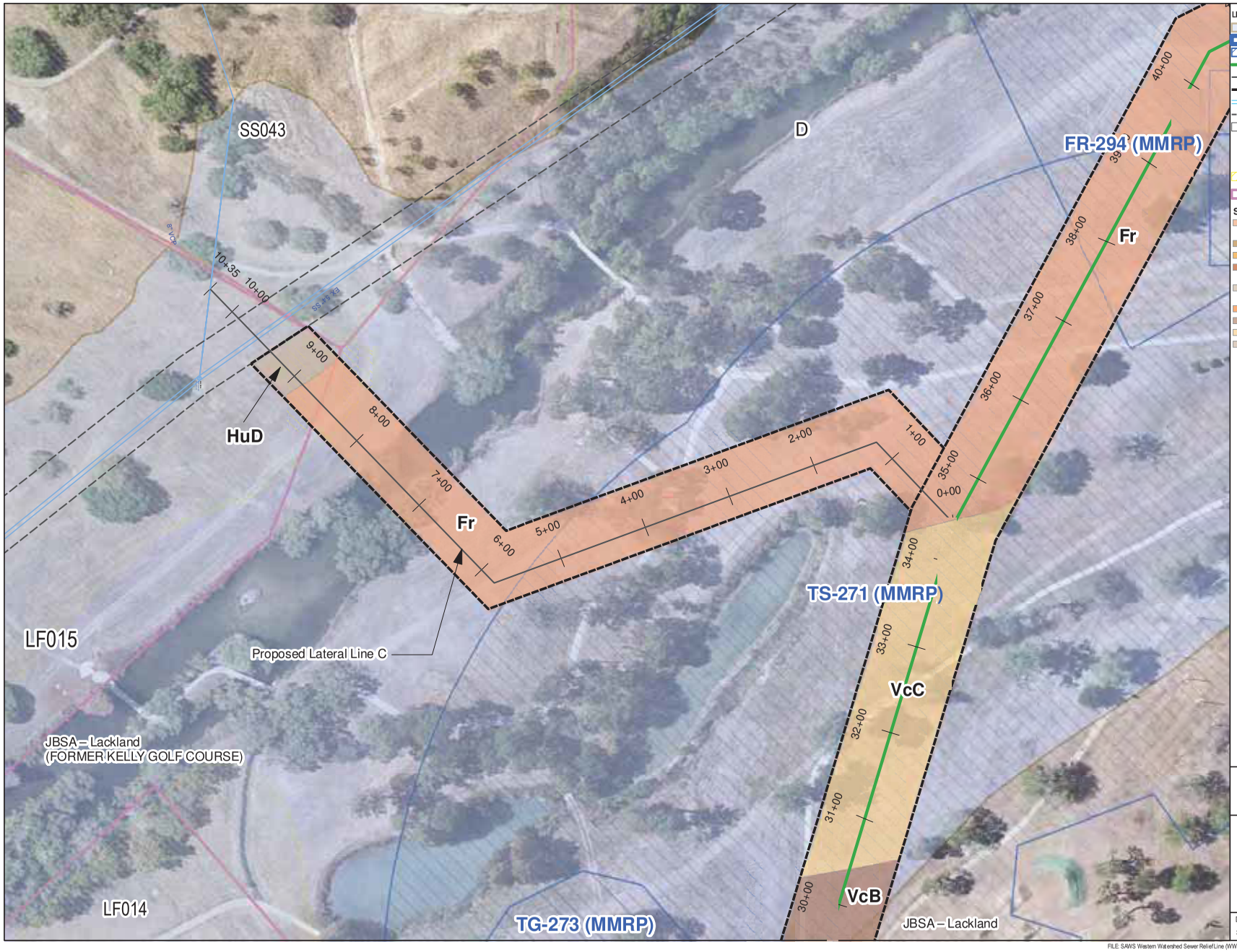
WESTON SOLUTIONS

FIGURE 3-2 (SHEET 2 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 2 of 12).mxd 09/23/2013 nulur

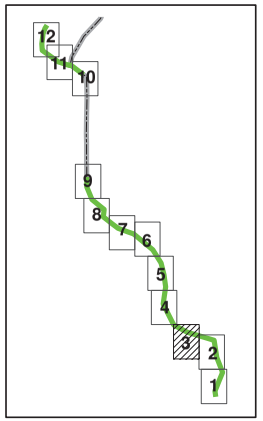


LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

DRAFT

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

FIGURE 3-2 (SHEET 3 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

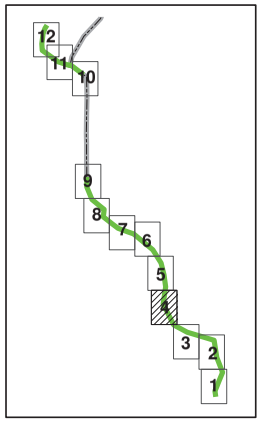
FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 3 of 12).mxd 09/23/2013 nulur

LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

DRAFT

0 100

Feet

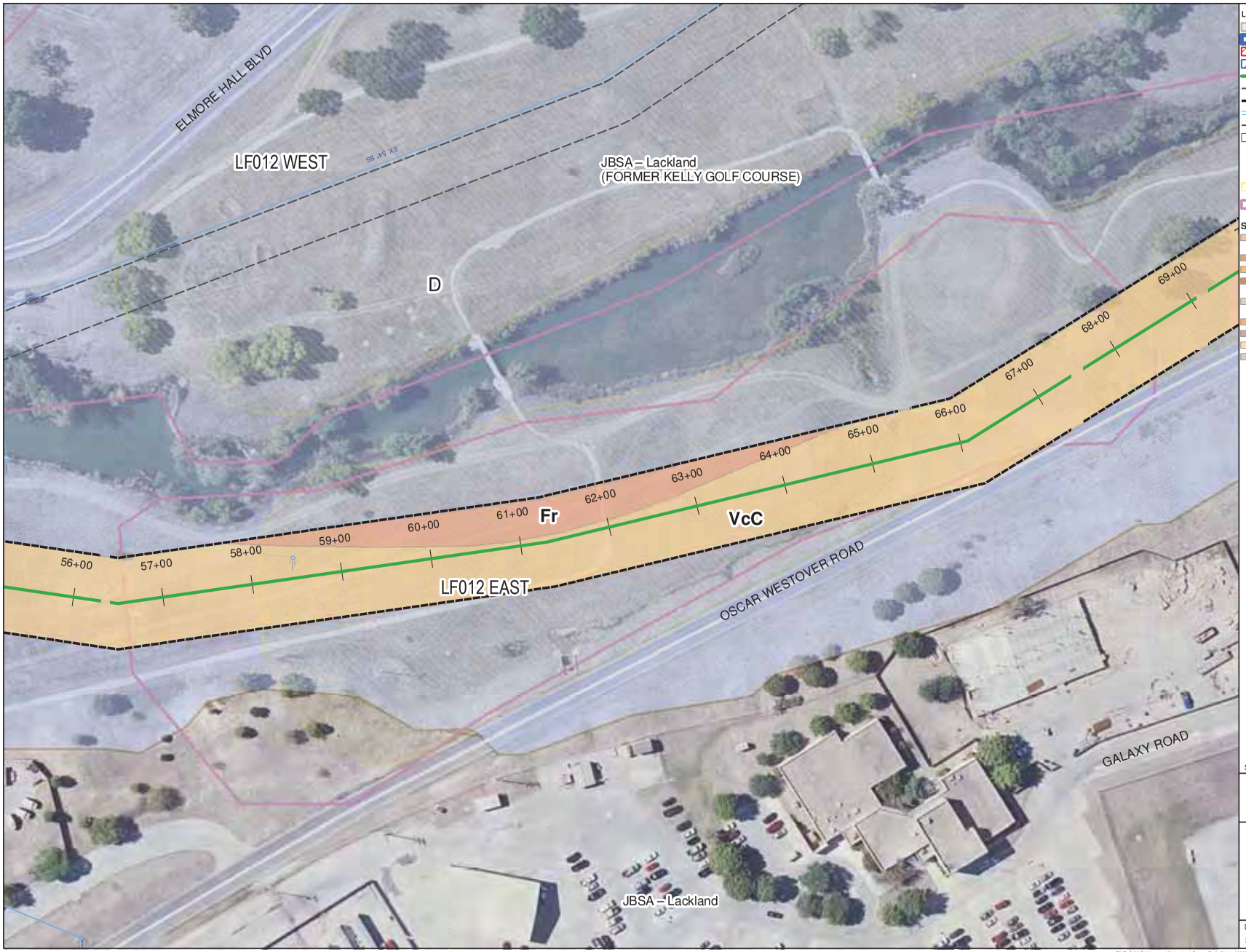
SOURCE:CITY OF SAN ANTONIO, TX

FIGURE 3-2 (SHEET 4 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 4 of 12).mxd 09/23/2013 nulur

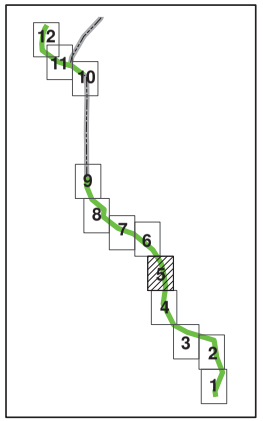


LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Trenchless Installation Area
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

DRAFT

0 100

Feet

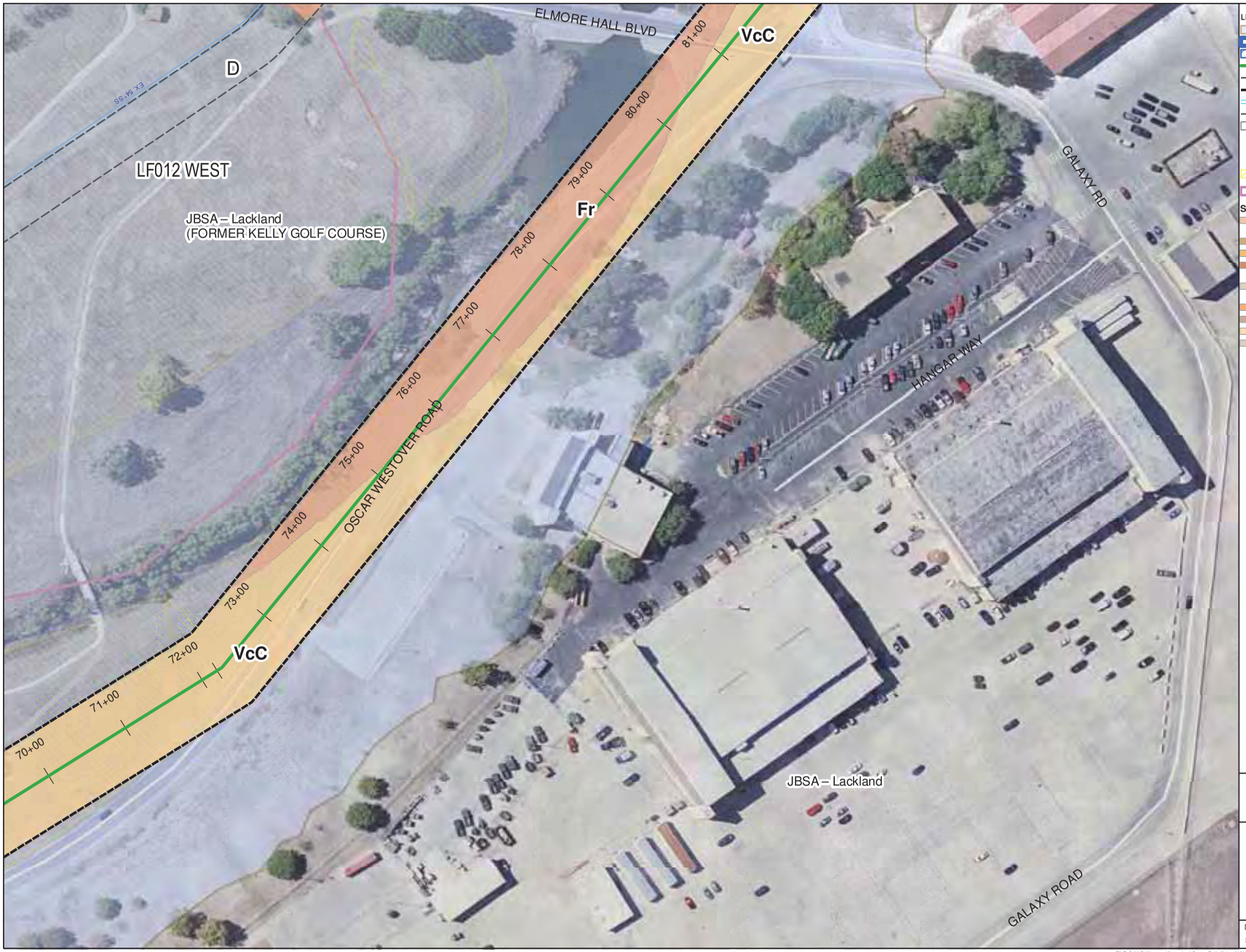
SOURCE:CITY OF SANANTONIO, TX

FIGURE 3-2 (SHEET 5 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 5 of 12).mxd 09/23/2013 nulur

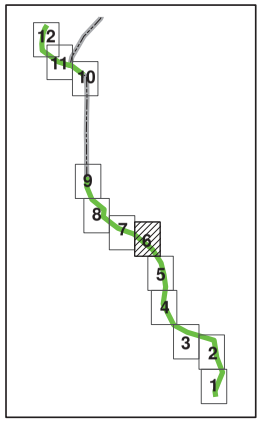


LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

DRAFT

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

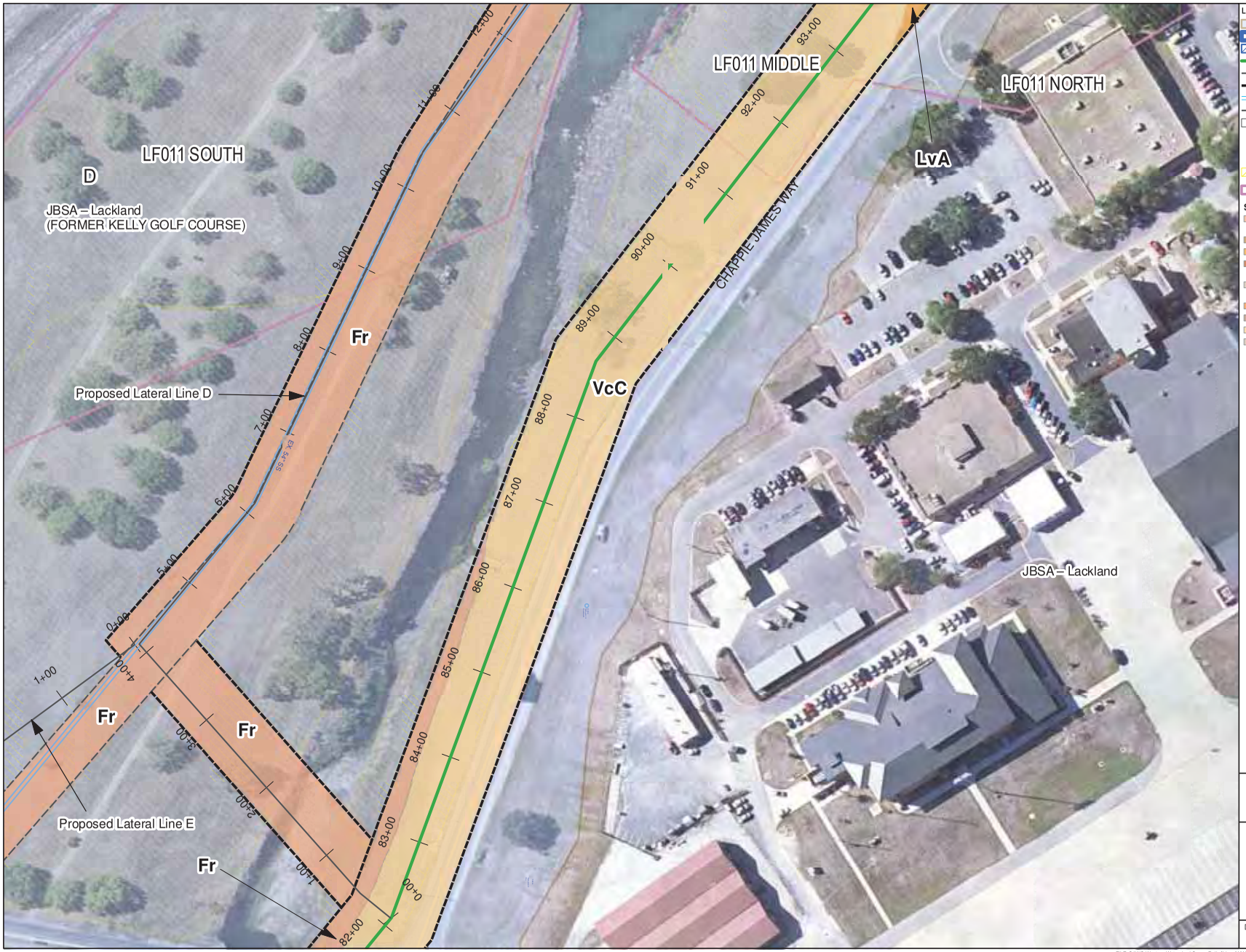
WESTON SOLUTIONS

FIGURE 3-2 (SHEET 6 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 6 of 12).mxd 09/23/2013 nulur

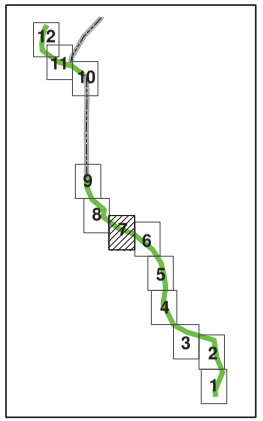


LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

DRAFT

0 400

Feet

SOURCE:CITY OF SAN ANTONIO, TX

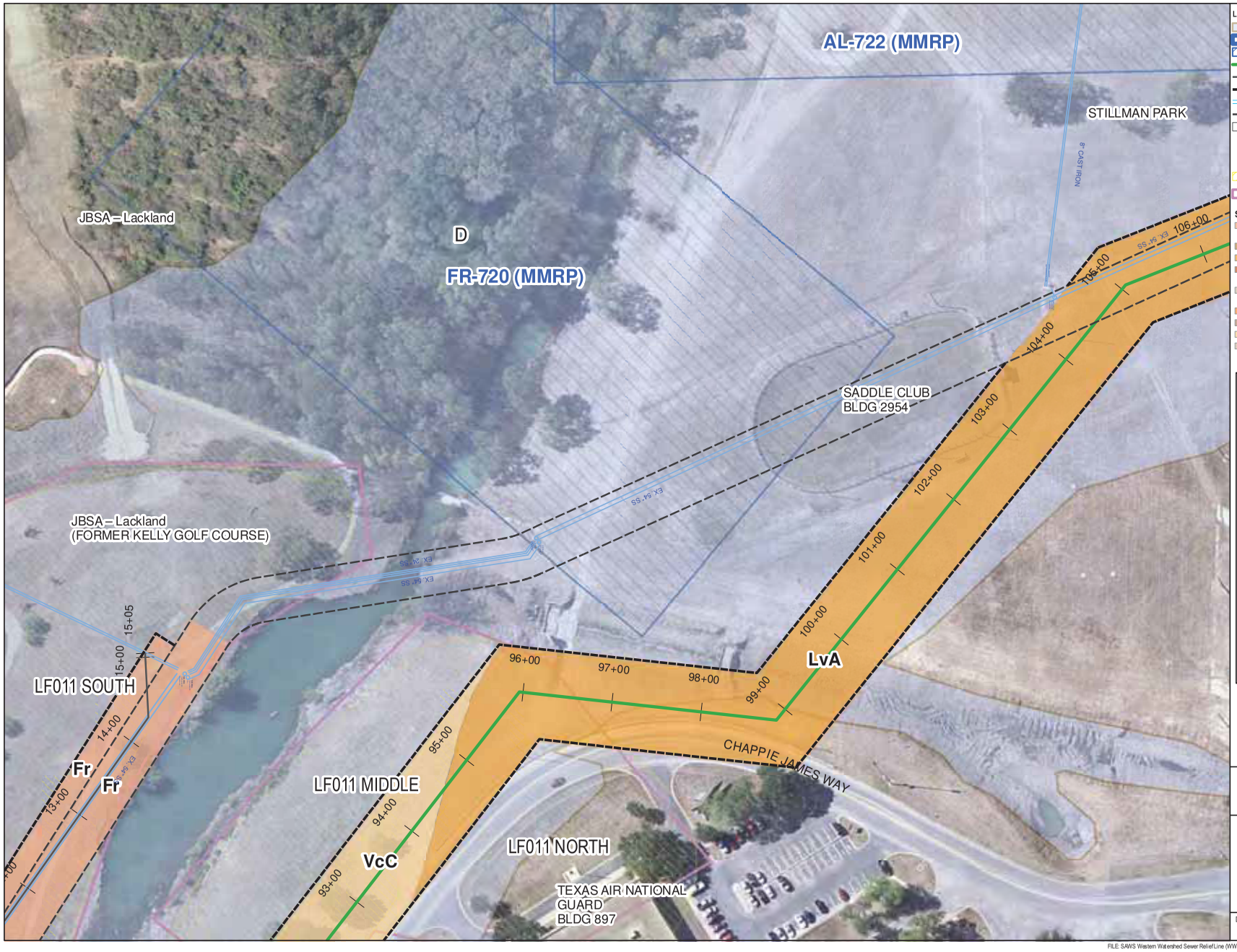
WESTON SOLUTIONS

FIGURE 3-2 (SHEET 7 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
OCTOBER 2013	10412.017.001.7080	AS SHOWN

FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 7 of 12).mxd 10/04/2013 nular

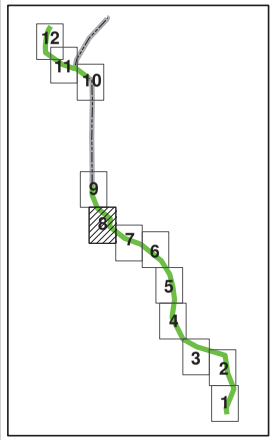


LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

DRAFT

0 100

Feet

SOURCE: CITY OF SAN ANTONIO, TX

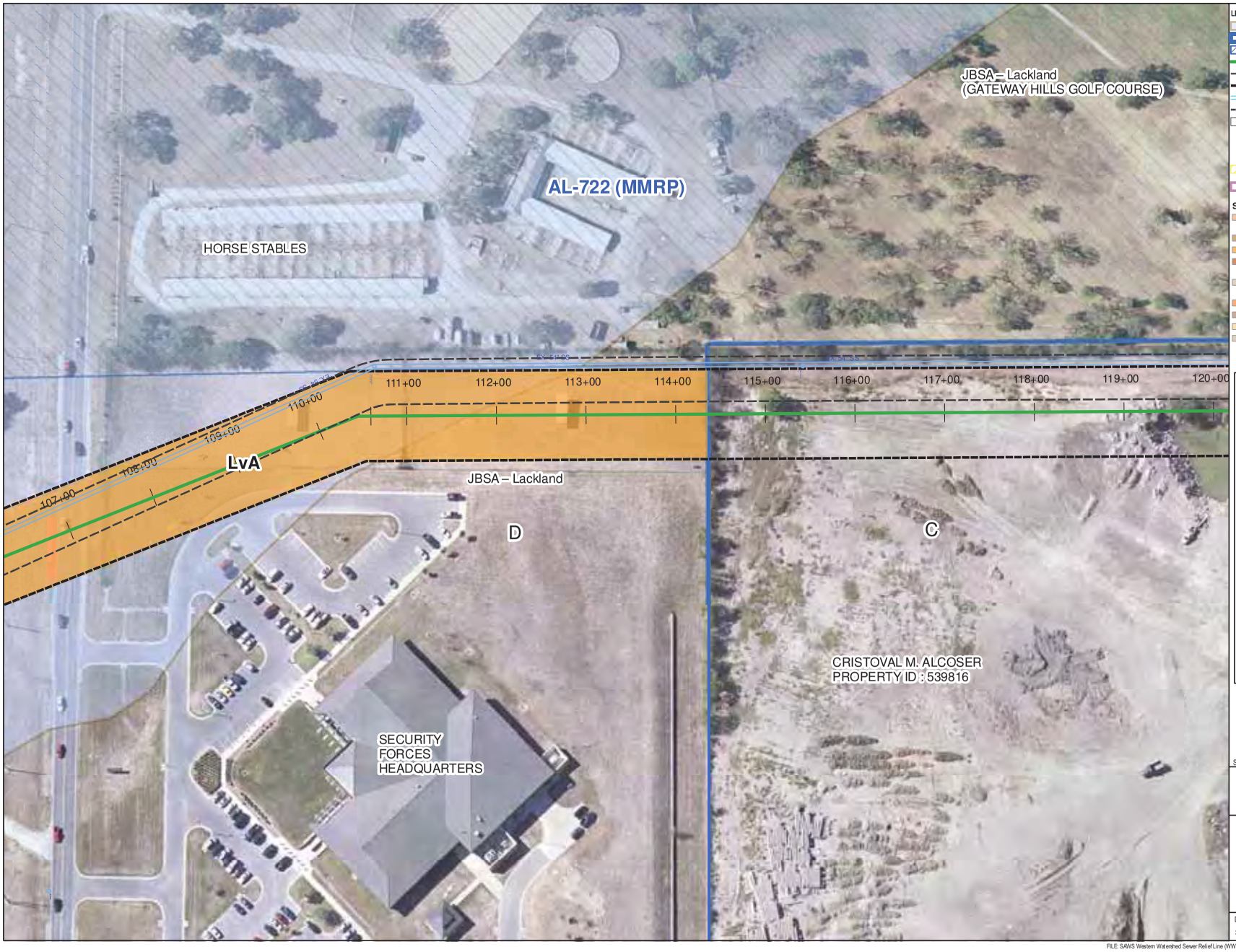
WESTON SOLUTIONS

FIGURE 3-2 (SHEET 8 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
OCTOBER 2013	10412.017.001.7080	AS SHOWN

FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 8 of 12).mxd 10/04/2013 nulur

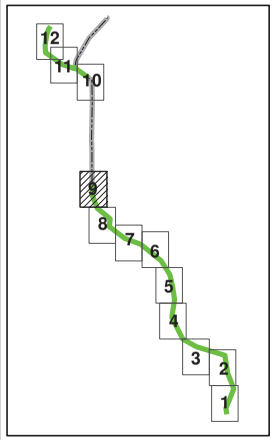


LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

0 100

Feet

DRAFT

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

FIGURE 3-2 (SHEET 9 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

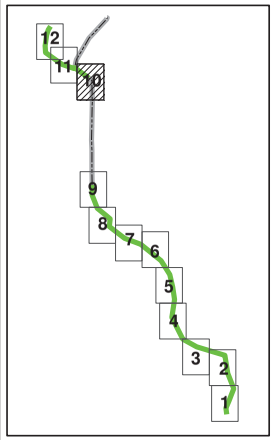
FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 9 of 12).mxd 09/23/2013 nulur

LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

DRAFT

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

FIGURE 3-2 (SHEET 10 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

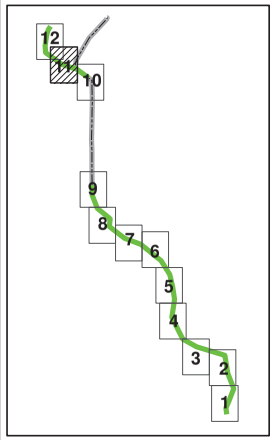
FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 10 of 12).mxd 09/23/2013 nulur

LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

0 100 Feet

DRAFT

SOURCE:CITY OF SAN ANTONIO,TX

WESTON SOLUTIONS

FIGURE 3-2 (SHEET 11 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

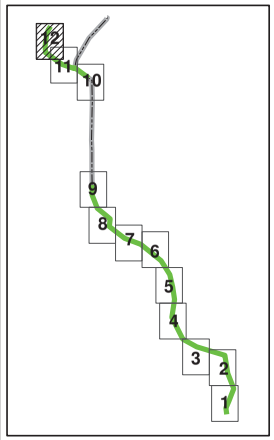
FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 11 of 12).mxd 09/23/2013 nulur

LEGEND

- 100-year Floodplain
- Joint Base San Antonio (JBSA) – Lackland Boundary
- Military Munitions Response Program (MMRP) Site
- Proposed WWRL
- Laterals
- 100 - Foot Easement
- Existing Sanitary Sewer
- Existing 50-foot Easement
- Property Line
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = JBSA – Lackland
- JBSA – Lackland Landfill Site Investigation Area
- JBSA – Lackland Landfill Metes and Bounds Survey Area (RRS Closure Limits)

Soil Series

- Fr - Loire clay loam, 0 to 2 percent slopes, occasionally flooded
- Pt - Pits and Quarries, 1 to 90 percent slopes
- LvA - Lewisville silty clay, 0 to 1 percent slopes
- PaB - Patrick Soils, 1 to 3 percent slopes, rarely flooded
- PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
- VcA - Sunev clay loam, 0 to 1 percent slopes
- VcB - Sunev clay loam, 1-3 percent slopes
- VcC - Sunev clay loam, 3-5 percent slopes
- HuD - Houston Black gravelly clay, 5 to 8 percent slopes



N

0 100

Feet

DRAFT

SOURCE:CITY OF SAN ANTONIO, TX

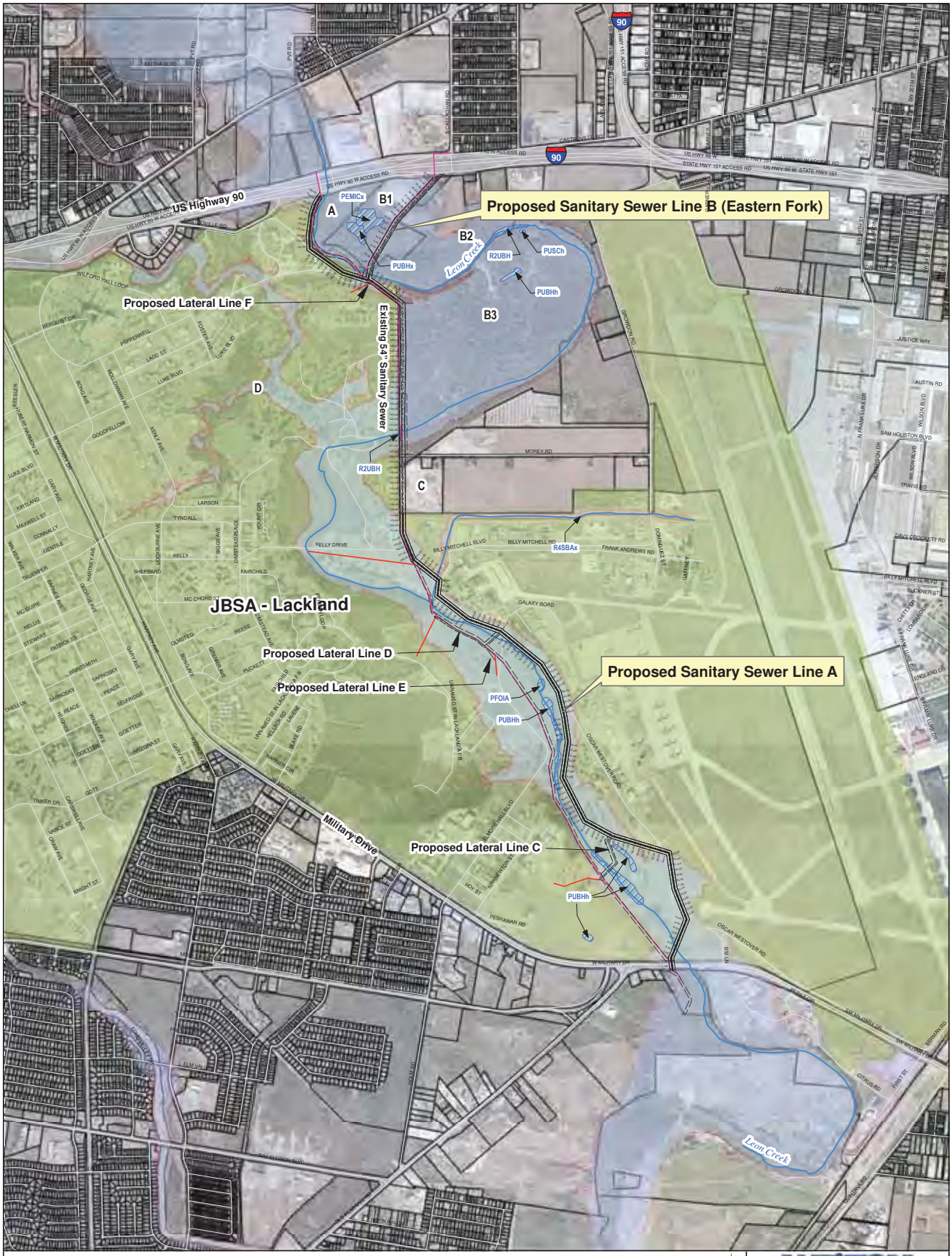
WESTON SOLUTIONS

FIGURE 3-2 (SHEET 12 OF 12)

Soils Map
Western Watershed Sewer Relief Line
San Antonio Water Systems

DATE	PROJECT NO	SCALE
SEPTEMBER 2013	10412.017.001.7080	AS SHOWN

FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-2(Sheet 12 of 12).mxd 09/23/2013 nulur



LEGEND

- JBSA - Lackland AFB
- Property Line
- Proposed Sanitary Sewer Line
- 100 Yr Floodplain
- Laterals
- Easement
- Existing 50-foot Easement
- Leon Creek
- Existing SS Line
- Existing SS Lateral Line

SOURCE: Virtural Earth, Microsoft Corp, 2009

PROPERTY OWNERS

A = DOROTHY SINGLETON
B1, B2, B3 = CITY OF SAN ANTONIO
C = CRISTOVAL ALCOSER
D = LACKLAND AFB

0 500 1,000
Feet

N

Wetland types as identified by the National Wetland Inventory

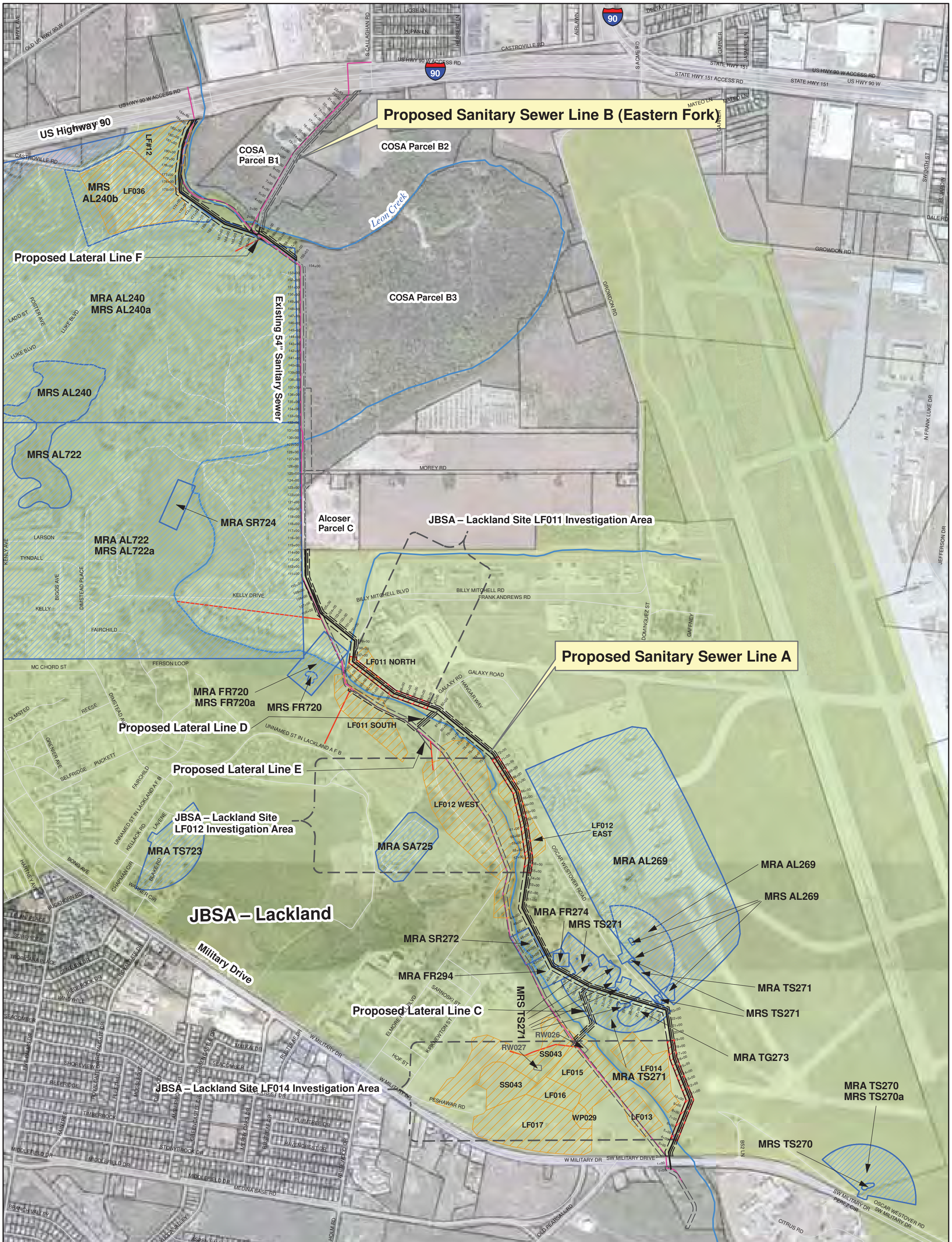
PFOIA - Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded
PUBHx - Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
R2UBH - Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded
PUSCh - Palustrine, Unconsolidated Shore, Seasonally Flooded, Diked/Impounded
PUBHh - Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded
R4SBAx - Riverine, Intermittent, Streambed, Temporary Flooded, Excavated
PEMICx - Palustrine, Emergent Persistent Seasonably Flood, Excavated

WESTON SOLUTIONS

FIGURE 3-3
WETLAND LOCATION MAP
ENVIRONMENTAL BASELINE SURVEY
FOR WESTERN WATERSHED
SEWER RELIEF LINE
SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
OCTOBER 2013	10412.017.001.2090	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130923-GIS-EBS_Edits\Figure 3-3.mxd 10/04/2013 nulur



LEGEND

- JBSA - Lackland AFB
- Property Line
- Investigation Area
- Proposed Sanitary Sewer Relief Line
- Existing SS Line
- Existing SS Lateral Line
- Leon Creek
- Proposed 75-foot Permanent Easement
- Proposed 25-foot Temporary Easement
- Military Munitions Response Program (MMRP) Site
- Landfills
- Existing 50-foot Easement

MRA : Munitions Response Area.
MRS : Munitions Response Site.

SOURCE: Virtual Earth, Microsoft Corp, 2009

WESTON SOLUTIONS

FIGURE 3-4

ERP LOCATION MAP
WESTERN WATERSHED
SEWER RELIEF LINE
SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
OCTOBER 2013	10412.017.001.8020	AS SHOWN

FILE: \\SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130926-GIS-SAWS EA figure revisions\Figure 3-4.mxd 10/03/2013 nulur

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

4.1 Summary of Impacts Determinations

This chapter describes the potential environmental consequences that are likely to occur as a result of implementation of the Proposed Action or No-action Alternative. The No-action Alternative provides a baseline against which the impacts of the Proposed Action can be compared. Discussion of mitigation measures and best management practices are included, as necessary. If the actions result in irreversible or irretrievable results, it is noted within the sections below. Criteria and assumptions used to evaluate potential impacts are discussed at the beginning of each section.

The activities associated with implementation of the Proposed Action would not change the current mission of the installation. Issuance of a temporary and permanent utility easement to SAWS would continue to support the current and future mission of the installation and the DoD.

4.2 Air Quality

The following factors were considered in evaluating air quality: (1) the short- and long-term air emissions generated from excavation and wastewater infrastructure installation activities; (2) the type of emissions generated; and (3) the potential for emissions to result in ambient air concentrations that exceed one of the NAAQS or SIP requirements. Impacts to air quality would be considered significant if emissions exceeded major source thresholds, required an EPA Title V permit, or an EPA Prevention of Significant Deterioration (PSD). A General Conformity analysis is not required if the emissions of NO_x and VOC are emitted in quantities less than the corresponding *de minimis* level.

4.2.1 Proposed Action

Air Quality Standards and Regulations

The Proposed Action would temporarily increase emissions from the project area as a result of construction activities, such as excavation, wastewater infrastructure installation, and grading. No long-term emissions are expected with the implementation of the Proposed Action. Air pollutant emissions for the Proposed Action were estimated and are summarized in Table 4-1. Detailed calculations can be found in Appendix D.

Activities associated with the Proposed Action would produce a minor and temporary increase in emissions. However, when compared to regional emissions, such as those from the San Antonio MSA reported in 2002, presented in Table 4-1, they are minimal. All emissions would fall well below 10 percent of the regional level and would be considered regionally insignificant by the EPA.

Table 4-1
Expected Emissions per Construction Year

Emissions Scenario	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_2
Proposed Action (tpy)	2.3	16.9	18.6	76.6	14.2	5.7
Percent Regional [a]	0.03e-01	0.02	0.04e-01	0.70	0.09	0.01
2002 San Antonio MSA (tpy)[b]	73,201	81,631	451,768	109,980	15,737	38,175

Notes:
[a] Percent Proposed Action Emissions of 2002 San Antonio MSA Emissions.
[b] Includes emissions from point, area, on-road, non-road mobile sources, and biogenic sources. San Antonio MSA consists of Bexar, Comal, Guadalupe, and Wilson Counties. Source: AIRData 2009; Emissions come from an extract of EPA National Emission Inventory (NEI) and/or National Emission Trends (NET) database. NEI superseded NET in 2002. Data for year 2002 were extracted from the NEI final version 10 January 2009. NEI is an emissions database developed by EPA. 2002 is the latest year of emissions available.
CO = carbon monoxide
EPA = U.S. Environmental Protection Agency
MSA = Metropolitan Statistical Area
NEI = National Emission Inventory
NET = National Emission Trends
NO_x = nitrogen oxides
PM_{10} = particulate matter equal or less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter
SO_2 = sulfur dioxide
tpy = tons per year
VOC = volatile organic compound

The General Conformity rule is set forth in CFR, 40 CFR 51 Subpart W – Determining Conformity of General Federal Action to State and Federal Implementation Plans. According to 40 CFR 51.853(b), federal actions require a conformity determination for each pollutant where the total of direct and indirect emissions in a nonattainment or maintenance area caused by a federal action would equal or exceed any of the rates in paragraphs 40 CFR 51.853(b)1 or 2. The emission calculations used in this General Conformity applicability determination are provided in Appendix D.

The Proposed Action would be located in Bexar County, which is designated basic nonattainment area for ozone (O_3). All other criteria pollutants are in attainment. The O_3 precursor (NO_x and VOC) emissions are subject to General Conformity requirements. In accordance with the requirements of 40 CFR 51.853(b)1, the *de minimis* threshold set for basic O_3 nonattainment areas is 100 tons per year for O_3 precursors VOC and NO_x.

The annual emission increases associated with the Proposed Action compared to the *de minimis* thresholds are presented in Table 4-2. Table 4-2 shows that the annual emissions of NO_x and VOCs expected to result from the Proposed Action would be less than *de minimis* thresholds; therefore, no further General Conformity analysis is required.

Table 4-2
Comparison of Emissions to *De Minimis* Thresholds

Pollutants	Proposed Action Emissions (tpy)	*De Minimis* Threshold (tpy)
NO_x	16.9	100
VOC	2.3	100

Notes:
NO_x = nitrogen oxides
tpy = tons per year
VOC = volatile organic compound

Little impact to local and regional air quality would be expected from the Proposed Action; therefore, no mitigation would be required. BMPs would include watering the disturbed area of the construction, covering dirt and aggregate trucks and/or piles, prevention of dirt carryover to paved roads, use of erosion barriers and wind breaks, and the use of low sulfur and bio-diesel fuel in construction/transport vehicles.

Greenhouse Gases

It is anticipated that the Proposed Action would result in approximately 683 metric tons of CO_2e emission based on calculations presented in Appendix D. This represents less than 0.00001 percent of the 2009 U.S. anthropogenic emissions of CO_2e (EPA, 2011). This is a limited amount of emissions that would not contribute significantly to global warming, but any emission of GHGs represents an incremental increase in global GHG concentrations. The USAF is poised to support climate-changing initiatives globally, while preserving military operations, sustainability, and readiness by working, where possible, to reduce GHG emissions (AFCEE, 2007).

Activities associated with the Proposed Action are not subject to the requirements of the EPA National Greenhouse Gas Reporting Rule. The Proposed Action does not include the construction of new facilities, renovation, or repair and alteration of facilities that might be subject to requirements under Executive Order (EO) 13514. The construction and transport vehicles used under the Proposed Action would not be considered in GHG target reductions under EO 13514.

4.2.2 No-Action Alternative

There would be no added emissions associated with the No-action Alternative; therefore, conditions would be the same as described in the baseline conditions presented in Subsection 3.2.

4.2.3 Measures to Reduce Impacts

No mitigation measures would be necessary. BMPs would include watering the disturbed construction area, covering soil and aggregate trucks and/or piles, keeping paved roads clear of soil, using erosion barriers and wind breaks, and using low sulfur and bio-diesel fuel in construction/transport vehicles.

4.3 Noise

The following factors were considered in evaluating potential noise impacts: (1) the degree to which noise levels generated by construction activities were higher than the ambient noise levels; (2) the degree to which there is annoyance and/or interference with activity; and (3) the proximity of noise-sensitive receptors to the noise source. Impacts to noise would be considered significant if noise levels exceeded the AICUZ contour in the project area.

Noise naturally dissipates by atmospheric attenuation as it travels through the air. Factors that can affect the amount of attenuation are ground surface, foliage, topography, and humidity. Assuming that noise from the construction equipment radiates equally in all directions, the sound intensity would diminish inversely as the square of the distance from the source. Therefore, in a free field (no reflections of sound), the sound pressure level decreases 6 dB with each doubling of the distance from the source. Under most conditions, reflected sound would reduce the attenuation owing to distance. Therefore, doubling the distance may only result in decrease of 4 to 5 dB (AIHA, 1986). Table 3-1 presents the anticipated noise levels at a distance of 50 feet for miscellaneous heavy equipment.

4.3.1 Proposed Action

Noise levels would temporarily increase in the area due to construction associated with the Proposed Action. Areas adjacent to ongoing construction would temporarily experience outside noise levels similar to those noted in Table 3-1. The closest noise-sensitive receptors are those adjacent to the construction site including Camargo Park, Stillman Park, and the Gateway Hills Golf Course. Visitors to these noise-sensitive areas would experience construction noise levels between 80 dBA and 95 dBA. This noise would last only as long as construction was occurring in those areas, and the noise would return to normal levels as construction activities moved away from the site. These three sites are considered recreation areas and therefore are not a site of permanent residents. Visitors to these sites are intermittent and would only be exposed to elevated noise levels during their visit to the sites. In order to reduce noise exposure to visitors, signage could be posted at each site during construction in the area, warning of elevated noise levels.

Other close noise-sensitive receptors include the residences to the northeast (600 feet), Levi Strauss Park (0.2 mile) and residences to the northwest (0.5 mile). The residences to the northeast are separated from the proposed project site by U.S. Highway 90. According to TXDOT, approximately 79,000 vehicles travel daily along U.S. Highway 90 at the north end of the project area near Callaghan Road (TXDOT, 2008). This traffic results in additional noise generated in the area; however, no known traffic noise studies had been conducted at the time of publication of this EA, so it is unknown what noise level is generated as a result of the traffic in the area. Due to distance from the site, peak noise levels from construction activities would decrease to approximately 74 dBA at the nearest residences to the northeast. Additionally, interior noise levels at the residences would be reduced by 18 to 27 dBA due to the noise level reduction properties of the building construction materials. Therefore, interior noise levels from construction would be reduced to 47 dBA to 56 dBA, well below the levels which cause hearing

loss and annoyance. These residences are also located within the 65 dBA to 70 dBA DNL noise contours at the Kelly Field Annex.

Both Levi Strauss Park and the residences to the northwest are at a distance away from the construction area that would allow noise from construction equipment to naturally attenuate to normal levels. Additionally, sound levels within the Medical Center would be even lower due to the further distance from the source, as well as sound transmission loss through building walls and windows. The amount of attenuation provided by the building is dependent on the type of construction and whether the windows are open or closed. The approximate national average attenuation factors are 15 dBs for open windows and 25 dBs for closed windows. Twenty dBA is conservatively used to estimate attenuation for a typical dwelling unit (EPA, 1974).

Construction activities would be expected to occur between 7:00 a.m. and 7:00 p.m. and would therefore not be subjected to any additional nighttime noise. The construction footprint is located near the AICUZ 65 dBA and 70 dBA DNL contour meaning that receptors in the area already experience intermittent noise resulting from aircraft operations. Noise from construction activities would also be intermittent. Because construction activities are temporary and the land use would not change, no long-term impacts from noise would occur.

4.3.2 No-Action Alternative

There would be no added noise with the No-action Alternative; therefore, conditions would be the same as described in the baseline conditions presented in Subsection 3.3.

4.3.3 Measures to Reduce Impacts

Noise levels would temporarily increase from the construction associated with the Proposed Action; however, mitigation measures would not be required for the Proposed Action. Although mitigation is not required, BMPs would be implemented to reduce impacts. Noise-generating heavy equipment at the project site should be equipped with the manufacturer's standard noise control devices (i.e., mufflers, baffling, and/or engine enclosures). All equipment should be properly maintained to ensure that no additional noise from worn or improperly maintained equipment parts is generated. Construction activities would occur between 7:00 a.m. and 7:00 p.m. and would be conducted according to OSHA regulations 29 CFR 1910.95 and 29 CFR 1926.52. Occupational exposure to the noise from heavy equipment could be reduced by requiring workers to wear appropriate hearing protection. Hearing protective devices such as ear plugs or ear muffs should be worn at all locations where workers may be exposed to high noise levels.

4.4 Land Use

Impacts to land use would be considered significant is the Proposed Action resulted in long-term changes to land use allocations that are inconsistent with JBSA-Lackland planning efforts.

4.4.1 Proposed Action

Under the Proposed Action, no long-term changes to land use allocations would be expected. After construction of the WWRL-Upper Segment Project is completed, land use allocations within the existing and proposed easement would remain as identified in Table 3-6 (Subsection 3.4). Future construction of structures would be restricted within the proposed easement; however, no construction of structures is currently planned within the proposed project area. Therefore, this restriction on construction is not considered a significant impact to land use.

4.4.2 No action Alternative

No long-term changes to the baseline land use allocations within the existing or proposed easement, as described in Section 3.4, are expected as a result of the No-action Alternative. As discussed in Section 2.5, no additional easement would be established.

4.5 Earth Resources

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential impacts of the Proposed Action on earth resources. Generally, impacts can be avoided or minimized if proper land conservation and erosion control measures are incorporated into project development. Analysis of potential impacts on earth resources typically includes identification and description of resources that could potentially be affected, examination of the Proposed Action and the potential effects it may have on the resource, and provision of mitigation measures in the event that potentially adverse impacts are identified. Effects on geology and soils could be significant if they alter the lithology, stratigraphy, and geological structures or change the soil composition, structure, or function within the environment.

4.5.1 Proposed Action

The Proposed Action would have the potential to impact surface soils and geology from the excavation activities for the installation of the proposed sewer line by open-cut construction and trenchless/jack and bore or tunneling methods. Short-term impacts to the surface soils and to the upper portion of the underlying alluvial sediments are possible from surface disturbance, along with windblown and sheet flow erosion associated with excavation activities. In excavated areas, short-term loss of vegetation and possibly subsequent erosion of loose fine-grained soil materials may occur, such as down-gradient of paved areas. Areas with clayey soils would be less susceptible to erosion. The impervious surfaces of paved areas impede erosion of soils directly beneath, but may increase erosion of soils down-grade of the paved areas if adequate drainage controls, such as drainage system BMPs, are not implemented. The short-term impacts would be manageable through the incorporation of BMPs for dust control and erosion barriers during excavation activities, as described in Subsection 4.5.3.

The increase in surface disturbance as a result of the Proposed Action would be expected to be *de minimis*. Open-cut construction of the Proposed Action would include excavating a trench, installing the pipeline, and backfilling to grade. At select locations where open-cut construction

is not feasible due to road/water crossings and/or depth limitations of open-cut methods, bore pit excavations would be required. However, trenchless methods allow for long stretches of pipe to be installed without disturbing the ground surface except at the entrance and exit bore pits. After pipe installation, the ground surface would be restored to pre-existing conditions, as practical.

Long-term impact to soils and geology are not anticipated from the operation of the gravity sanitary sewer line. No changes in surface topography are anticipated following installation and backfilling operations, therefore impacts would not be significant as they do not alter the lithology, stratigraphy, and geological structures or change the soil composition, structure, or function within the environment.

4.5.2 No-Action Alternative

No development or replacement is proposed under the No-action Alternative; therefore, no impacts to earth resources are anticipated. However, should the existing sewer system remain in use, it would be in poor operational and structural condition, and have inadequate capacity. The potential exists for impacts to soil and geology should a disastrous blowout or cave in occur, resulting in the need to address the spill or perform repair activities.

4.5.3 Measures to Reduce Impacts

Construction impacts for the Proposed Action are anticipated to be temporary in nature. Under this action, haul roads would be utilized to access the construction sites. Construction contractors should utilize watering trucks to minimize dust pollution on any non-paved haul roads.

Under the Proposed Action, a TPDES general construction permit would be required. While excavating trenches, the construction contractor would be required to implement sediment, erosion, and pollution prevention control measures. The applicable local sediment and erosion control plans of the project TPDES permit would allow for use of temporary control measures (i.e., sediment control fences, rock filter dams, and soil retention blankets) to preclude any changes to the soil composition, structure, or function within the environment.

4.6 Water Resources

The following factors were considered in evaluating potential impacts to water resources from proposed project activities: (1) changes in discharge flows and pollutant loads that may affect water quality of surface waters, (2) alterations of the floodplain, and (3) increases in groundwater interaction allowing for exposure or contamination. Impacts to surface water would be considered significant if discharge flows or pollutant loads from the project area were increased, affecting aquatic habitat or water quality. Impacts to the floodplain would be considered significant if proposed changes to elevations or topography in the project area altered the floodplain. Impacts to groundwater would be considered significant if groundwater interaction was increased in the project area, allowing for exposure or contamination.

4.6.1 Proposed Action

Surface Water

As further supported in Subsections 4.10.1 (Stormwater) and 4.10.3 (Wastewater), no significant increases in discharge flows or pollutant loads would be expected as a result of the Proposed Action. During construction, minor and temporary impacts to surface water from erosion and sedimentation would be minimized with the implementation of a SWPPP and associated BMPs as required by the TPDES Construction General Permit (TXR150000). The proposed action crosses through Former Kelly AFB Zones 1 and 5. Groundwater within these zones is subject to the Kelly AFB RCRA Permit and Compliance Plan. Contingencies would be developed prior to construction for management and characterization of groundwater wastes, if encountered, prior to permitted discharge to surface water or to off-site disposal. All improvements would be designed, reviewed, and implemented according to applicable Municipal, State, and federal codes, criteria, standards, and specifications and would correct illicit wastewater discharges that are currently causing increased flows and pollutant loads in surface waters. For these reasons, no significant adverse impacts to surface water would be expected.

Floodplain

As a result of the Proposed Action, construction would occur within the 100-year floodplain, parallel to the existing wastewater alignment. Previous feasibility studies were conducted to reroute the alignment outside of the 100-year floodplain; however, significant deviation of the route to the east and west outside of the floodplain would results in extreme depths which would be difficult, unsafe, and costly to construct. In addition, significant rerouting of the existing local collection system laterals would be required to connect to the new pipeline.

All proposed infrastructure associated with the project would be installed below grade and no permanent changes to elevations or topography would be anticipated. All improvements and modifications associated with the proposed project would be designed, reviewed, and constructed according to applicable Municipal, State, and federal codes, criteria, standards, and specifications, including those associated with FEMA. Final engineering design within the floodplain would be reviewed by a State of Texas licensed engineer to certify that the site plan meets all flood zone criteria. In addition, prior to completion of construction, the project area would be restored to previously existing conditions. For these reasons, no significant adverse impacts to the floodplain would be expected.

Groundwater

Construction associated with the Proposed Action may result in an increase in groundwater interaction. To prepare for this possibility, contingencies would be developed prior to construction for management of groundwater and for protection of construction workers from groundwater COCs. A permit, either TPDES permit or SAWS industrial discharge permit, would be necessary for discharge of contaminated groundwater generated during construction. The Proposed Action is within Former Kelly AFB Zones 1 and 5 and all groundwater is subject to the Kelly AFB RCRA Permit and Compliance Plan.

In addition, minor and temporary impacts to groundwater from construction erosion and sedimentation would be minimized with the implementation of a SWPPP and associated BMPs as required by the TPDES Construction General Permit (TXR150000). A dewatering plan would also be implemented to remove ponding water from construction trenches. All improvements and modifications associated with the proposed project would be designed, reviewed, and constructed according to applicable Municipal, State, and federal codes, criteria, standards, and specifications and would correct illicit wastewater discharges that are currently releasing pollutant loads into groundwater.

4.6.2 No-action Alternative

Implementation of the No-action Alternative would allow for increases in wastewater discharge flows and pollutant loads from the proposed project area and could be detrimental to surface and groundwater quality. The existing wastewater infrastructure is undersized and has failed structurally. If not replaced, it would continue to overflow and release wastewater that would discharge to surface water and groundwater. The increase in discharge flows and pollutants loads would have significant adverse impacts on the quality of all receiving surface waters.

4.6.3 Measures to Reduce Impacts

No mitigation measures would be necessary to minimize impacts to surface water and the floodplain. A construction-specific SWPPP would be implemented as required by the TPDES General Construction Permit (TXR150000) and a FEMA Floodplain Development Permit. The construction SWPPP would be compliant with applicable requirements of Federal, State, and local erosion and sedimentation control plans and regulations. Temporary control measures and BMPs would be implemented and maintained during construction activities to assure erosion and sedimentation of surface water and groundwater is minimized. A pre-approved Construction Project Waste Management Plan and Contingency Plan would be implemented to protect construction workers from COCs and to properly manage groundwater wastes generated if groundwater were encountered during construction.

4.7 Biological Resources

Impacts to biological resources would be considered significant if the Proposed Action or the No-action Alternative resulted in:

- An adverse effect to any federal, state, or regionally sensitive species of concern;
- An adverse effect to endangered, threatened or candidate species or if it adversely modified or destroyed their critical habitat under ESA;
- An impact to federally protected wetlands as promulgated under Section 404 of the CWA through direct removal, filling, changes in hydrology, or other means; or
- Adverse effects on birds protected by the MBTA

4.7.1 Proposed Action

Vegetation

The Proposed Action is located primarily within Semi-Improved areas dominated by non-native Bermuda grass with minimal decorative trees. While, the Proposed Action would temporarily disturb these areas during construction, these Semi-Improved areas would remain dominated by non-native Bermuda grass. Construction of the proposed sewer line would require removal of trees located within the direct alignment of the proposed trenched line, as well as some trees located within the 75-foot permanent easement. No trees would be removed from the 25-foot temporary construction easement.

The proposed crossings of Leon Creek (on Sewer Line A, Lateral Line C, and Lateral Line D) are located in Unimproved areas consisting of deciduous shrub/scrub and woodlands vegetation, however, all of these crossings would be conducted using trenchless methods described in Subsection 2.4.1; and would therefore avoid disturbing these unimproved areas. Additionally the section of the proposed Sewer Line A from approximately STA 72+50 to 82+00 would also be installed via trenchless methods. These areas would continue to be considered Unimproved areas with deciduous shrub/scrub vegetation.

Additional unimproved areas consisting of deciduous shrub/scrub and woodlands vegetation are located on the northern portion of the proposed Sewer Line A on JBSA-Lackland from approximately STA 155+00 to 175+50 (approximately 250 LF). However, from approximately STA 165+00 to 175+50; the proposed Sewer Line A would be installed using trenchless methods described in Subsection 2.4.1; and would therefore avoid disturbing 150 LF of shrub/scrub woodlands. The approximately 100 LF of shrub/scrub habitat would be permanently converted to herbaceous ground cover within the 75-foot permanent easement (approximately 0.2 acres). This conversation of vegetation in the Unimproved area is < 1percent of shrub/scrub vegetation in the project area, and is not considered a significant impact to vegetation.

Wildlife

Wildlife in the project area would be temporarily displaced during construction activities. These short-term disturbances to wildlife from noise and construction activities would not be significant. Long-term impacts to wildlife could also occur due to conversion loss of shrub/scrub habitat to herbaceous vegetation. However as described above in the Vegetation Subsection, these impacts would not be significant due to the minimal loss of shrub/scrub habitat and the availability of more suitable habitat adjacent to the project area off of JBSA-Lackland.

Wetlands

The proposed sewer line and its associated laterals are located adjacent to Leon Creek a R2UBH classified wetlands, with PFO1a and PUBHh components. Additionally, the Proposed Action would cross Leon Creek on the proposed Sewer Line A (approximately at STA 4+00 to 5+00), Lateral Line C (approximately at STA 7+00 to 8+00), and Lateral Line D (approximately at STA 1+25 to 2+00). The proposed Sewer Line A, at approximately STA 99+00 to 100+75, also

crosses an unnamed ditch that is classified as a R4SBAx wetlands. However, as described in Subsection 2.4.1, Leon Creek and the unnamed ditch would be crossed using trenchless methods, thereby avoiding any direct impacts to Leon Creek and its associated wetlands.

As described in Subsection 3.7.4, three other wetlands have been identified by USFWS on JBSA-Lackland associated with golf course water features within the project area. However, the Proposed Action would have no direct effect on these features as they are located outside of the proposed alignment and easement areas.

Increased sedimentation from ground disturbances and pollutants from construction activities could indirectly impact wetlands. Adherence to an Erosion and Sediment Control Plan (ESCP) and Stormwater Pollution Prevention Plan (SWPPP) would minimize these indirect impacts and prevent surface water degradation. Additionally during construction, the JBSA-Lackland Spill Prevention, Control, and Countermeasure Plan (SPCCP) should be followed. As no long-term impacts are anticipated to wetlands, and temporarily disturbances would be indirect, the Proposed Action would have no significant impacts to wetlands on JBSA-Lackland.

Protected Species

As identified in Table 3-9, four Federal or state-listed threatened or endangered avian species could be possible migrants or transient species over the project area, including: Peregrine Falcon (*Falco peregrinus),* Whooping Crane, (*Grus Americana*), Wood Stork (*Mycteria Americana*), and Zone-tailed Hawk (Buteo albonotatus). Additionally, four state-listed threatened reptile species could be found within the project area, as the Texas horned lizard (*Phrynosoma cornutum*) is a known resident on JBSA-Lackland, and the Texas indigo snake (*Drymarchon melanurus erebennus*), Texas tortoise (*Gopherus berlandieri*), and Timber/canebrake rattlesnake (*Crotalus horridus*) could be possible residents due to the presence of suitable habitat on JBSA-Lackland. The USFWS has determined that there are no federally-listed threatened or endangered species on JBSA-Lackland (LAFB, 2010a). Critical habitat is not designated in the project area for any of the potentially occurring federally-listed species (USFWS, 2013c); therefore, there would be no impact to critical habitat as a result of the Proposed Action.

It is anticipated that impacts to these protected species due to the Proposed Action would be similar to those described above for wildlife in general. The majority of the project area is Semi-improved lands that are routinely maintained, with little undisturbed native habitat. Therefore, suitable habitat for these species is minimal. These species would be temporarily displaced during construction and these short-term disturbances from noise and construction activities would not be considered significant. Minor long-term impacts to these species may occur due to conversion of shrub/scrub habitat to herbaceous vegetation. However as described above in the Vegetation Subsection, these impacts would not be significant since the conversion of habitat would be negligible and more suitable habitat is available adjacent to the project area off of JBSA-Lackland.

It should be noted that while a number of karst species are federally-listed as threatened or endangered and occur in Bexar County, suitable karst habitat is not located on JBSA-Lackland or within the project area. Additionally, while JBSA-Lackland's use of water from the Edwards

Aquifer has been evaluated by the USFWS within a Biological Opinion for JBSA (USFWS, 2008 and USFWS, 2012); the Proposed Action would have no effect on the JBSA water consumption or water withdrawal from the Edward's Aquifer.

Although both the Bald Eagle and the Golden Eagle are species protected by the MBTA and Bald and Golden Eagle Protection Act, it is unlikely that either would occur in the project area as negligible suitable habitat is present. Therefore, the Proposed Action would not be expected to significantly impact either of these species.

Although the project area has only negligible undeveloped habitat, several migratory bird species could utilize installation structures and/or landscaping, or adjacent areas off of JBSA-Lackland for nesting or roosting. Therefore migratory species could be impacted by the Proposed Action if construction activities, especially vegetation clearing or removal, were to occur during the breeding season (typically March through August). If installation of the WWRL-Upper Segment were to occur during the nesting season, it is possible that the Proposed Action could result in an incidental take of migratory bird nests or individual. These impacts would not be considered significant with the implementation of BMPs discussed below in Subsection 4.7.3.

4.7.2 No-action Alternative

Under the No-action Alternative, there would be no construction related to the installation of a new sewer line or the abandonment of the existing line described under the Proposed Action. Therefore, there would be no direct change in the baseline conditions described in Subsection 3.7. However, under the No-action Alternative, the existing aged and deteriorating system would remain in use and it would be anticipated that spills or over-flow events could occur. In the event of a sewage spill, biological resources on and around JBSA-Lackland would be negatively affected. While specifics regarding the chemical composition or physical extent of these potential spills are unknown, if a spill were to occur it would be anticipated to be significant and would have detrimental effects on biological resources.

4.7.3 Measures to Reduce Impacts

To minimize potential impacts to biological resources, the removal of trees within the 75-foot easement would be held to a minimum, to all extents practicable. All areas cleared of vegetation would be revegetated with similar non-native grasses. Any vegetation clearing associated with installation and abandonment activities should be conducted during the non-breeding season for most migratory birds (August through February) to ensure compliance with the MBTA. If these construction activities were to begin during the active breeding season, a site-specific survey for nesting migratory birds should be conducted at least two weeks prior to any vegetation clearing. If nests are found during the survey that contains eggs or young, construction should be postponed until the birds have left the nest, or another migratory bird depredation permit would be required for the WWRL-Upper Segment project.

During installation and demolition activities, there is also the potential for the spread and proliferation of invasive or noxious species. Therefore, only non-invasive species of vegetation would be utilized for revegetation. Additionally, the WWRL-Upper Segment would implement

the JBSA-Lackland Invasive Species Management and Control Plan to control and/or limit the potential spread of these species (USAF, 2011).

Standard construction BMPs (e.g., rock filter dams/silt fences, drip pans under construction vehicles, hazardous waste/spill response plan, daily collection of human trash, portable toilets) for runoff control and hazardous material spill control and clean up, as detailed in project-specific SWPPP and the JBSA-Lackland SPCCP, would also be implemented to prevent adverse impacts to wildlife habitat and waterways.

4.8 Cultural Resources

Impacts to cultural resources would be considered significant if the Proposed Action or the No-action Alternative resulted in impacts to any site recommended eligible for inclusion in the NRHP.

4.8.1 Proposed Action

Five cultural sites have been identified within a mile of the proposed project, however only two of these sites (41BX1108 and 41BX1066) has been recommended eligible for inclusion in the NRHP. The boundaries of Sites 41BX1108 and 41BX1066 do not extend into the current proposed project easement and would not be impacted by the Proposed Action. Additionally, none of the three additional cultural sites, including those whose eligibility of NRHP has not yet been determined, are located within the proposed easement of the Proposed Action. Consultation with THC has also indicated that there is no need to conduct surface, or deep trenching, surveys as previous disturbances have sustainably decreased the chances of undiscovered cultural resources within the project area and proposed trenchless construction methods would also minimize any potential affects (THC, 2013). Therefore, no historic properties would be affected by the construction of the proposed replacement line.

4.8.2 No-action Alternative

Under the No-action Alternative, there would be no impacts to historic properties and therefore, no change to baseline conditions, as described in Subsection 3.8.

4.8.3 Measures to Reduce Impacts

Since no historic properties would be impacted by the proposed construction, no mitigation measures or BMPs would be necessary.

4.9 Hazardous Materials and Substances

The degree to which the proposed excavation and construction of gravity sewer lines could affect the existing environmental management practices was considered in evaluating potential impacts to hazardous materials and wastes, including ERP and MMRP sites. Significant impacts could result if non-hazardous/regulated and hazardous substances were collected, stored and /or disposed of improperly.

4.9.1 Proposed Action

Hazardous Materials

The use of hazardous materials during the implementation of the Proposed Action is expected to be limited to construction vehicle maintenance (fuel, oils, and lubricants) and construction activities (adhesives, sealants, etc.). The materials would be required to be properly contained, manifested, and managed according to all federal, state, and local regulations, AFIs, and DoD Directives. JBSA-Lackland 802 CES/Civil Engineering Asset Management – Natural Resources – Restoration (CEANR) should be notified of the use and amounts of hazardous materials for the Proposed Action. Therefore, impacts associated with hazardous materials and wastes are expected to be short-term and would not be considered significant. All hazardous materials and wastes would be managed according to established plans and state and federal regulations. Prior to the construction of the WWRL-Upper Segment project, the contractor would be required to prepare a site/project specific SPCCP to guide construction activities. The SPCCP would require TCEQ approval before work commences. No significant impacts are expected with the implementation of an approved SPCCP and the proper use and handling of hazardous materials.

Asbestos

The potential to encounter ACM during the Proposed Action is minimal; therefore no significant impacts are anticipated. While there are no structures that would be affected by the placement of the new WWRL-Upper Segment project that are suspected of having ACM, ACM could be present in landfills known to contain construction debris and demolition waste (LF011 and LF012 – East), as described in the Phase I EBS provided in Attachment D. If any ACM is encountered during the Proposed Action, contractors would be responsible for managing the waste according to the Lackland AFB Asbestos Management and Operations Plans (LAFB, 2012a).

Lead-Based Paint

The potential to encounter LBP during the Proposed Action is not expected; therefore, no significant impacts are anticipated. While there are no structures that would be affected by the placement of the new sewer line that are suspected of having LBP, LBP could be present in landfills known to contain construction debris and demolition waste (LF011 and LF012 – East), as described in the Phase I EBS provided in Attachment D. If any LBP is encountered, the contractors would be responsible for managing the waste according to the Lackland AFB Lead-Based Paint Management and Operations Plans (LAFB 2012b).

Pesticides

Currently, the JBSA-Lackland Pest Management Plan applies only to commercially available pesticides. JBSA-Lackland records indicate the historical applications of several pesticides that are no longer approved for use. Although these pesticides were used in accordance with manufacturers' guidance and directions, the potential exists for residual concentrations in the soil underlying on-base facilities. Construction on the WWRL-Upper Segment project and the

Proposed Action would entail installing the Proposed Sewer Line A, a portion of Sewer Line B and the four associated laterals using both trenching and trenchless methods, as discussed in Subsection 2.4. It is anticipated that trenched soils would be replaced in the original location following installation of the pipeline. Therefore, any temporary impacts related to pesticides would be not significant. If it becomes necessary to remove soils for off-site disposal, a limited number of random samples would be collected to assess the presence or absence of pesticides in soil, and to properly categorize the soil for hazardous constituents and classify for appropriate disposal, per applicable state and federal regulations. Any long-term impacts from the Proposed Action, would be the beneficial removal of pesticide-contaminated soils, if it is determined that soils need to be disposed offsite. Therefore, it is anticipated that Proposed Action impacts related to pesticides would not be significant.

Hazardous Waste

Regulated wastes are not expected to be generated as a result of the excavation and construction of the new WWRL-Upper Segment project. As discussed above, a limited number of soil samples would be collected to determine the presence or absence of COCs so that excess soils may be disposed of per applicable state and federal regulations. No hazardous wastes are expected, but could be encountered during the excavation through the ERP sites. As described in Table 3-10, landfills crossed by the proposed WWRL-Upper Segment project, LF011-North and LF012-East collected mostly construction debris and general waste. Contaminants of concern (COC) exceedences of regulatory thresholds for the JBSA-Lackland Zone 1 landfill sites have been previously addressed through TCEQ approved corrective actions and closures. The Phase II investigations, finalized in 2014 and included in Appendix F, found evidence of what are suspected to be naturally occurring hydrocarbons at the top of the Navarro Clay formation in the area south of LF012-East; however, no organic constituent results exceeded either the Texas Risk Reduction Program (TRRP) Residential Assessment Levels (RALs) or TCEQ's RRS (Risk Reduction Standard) medium-specific concentration (MSC). Therefore, no further assessment of these areas is warranted (WESTON, 2014). The proposed WWRL-Upper Segment project would incorporate appropriate protective measures for hydrocarbons to protect on-site workers from site COCs and to properly manage any soil or groundwater wastes generated. The Kelly AFB Permit and Compliance Plan No. 50310

Contingencies would be provided to the contractor prior to construction for management and disposal of contaminated soil, landfill debris, and groundwater encountered and generated as waste during project construction. Contingencies would be described to reduce the potential for contaminants to be released into the environment or that could alter the migration of the existing contaminant plumes. The Phase II EBS investigation suggested that trench soils in the area of MSW LF#12 may need to be managed as Class I non-hazardous waste due to TPH concentrations exceeding 1,500 mg/kg. Although soil and groundwater exceedances of TRRP RALs and RRS MSCs identified during the EBS investigations are not considered to present a threat to human health or the environment under current land uses, appropriate measures would need to be taken during construction of the WWRL-Upper Segment to protect on-site workers from site COCs and to ensure proper management of soil and groundwater wastes (WESTON, 2014). As no hazardous wastes are expected to be generated by the Proposed Action, any impacts would not be significant.

Environmental Restoration Program

As described in Subsection 3.9, there are 12 ERP sites that have been identified within the proposed easement of the new WWRL-Upper Segment project, and could potentially be impacted by the Proposed Action. The landfill sites (LF011–North, Middle and South; LF012-East; LF015/RW026; SS043 and LF036) have achieved regulatory closure and would therefore require coordination with JBSA-Lackland environmental personnel before excavation activities commence. Coordination with TCEQ would also be required, as four of the sites (LF011-North and Middle, LF012-East, LF015 and SS043 – Part of Zone 1 Landfills) are subject to the active Kelly AFB Permit and Compliance Plan No. 50310. LF036 and MSW LF#12 have a completed/approved Record of Decision, which would require TCEQ coordination prior to construction. The other ERP sites that may be impacted are Military Munitions Response Program sites, and are currently undergoing Remedial Action.

When the Proposed Action is complete, it is anticipated that trenched soils would be replaced in the original location following installation of the pipeline. If any soil or debris must be removed for off-site disposal, the contractor would follow the procedures for waste characterization, manifesting, and disposal. Site restoration would be conducted to meet the specifications of the appropriate remedy in place for each landfill. The integrity of the landfill cap would also meet the requirements prescribed in the *Final Corrective Measures Implementation Report: Environmental Restoration of Zone 1 Sites* (Weston, 2010). Any long-term impacts from the Proposed Action, would be the beneficial removal of waste debris removed from the landfills or contaminated soils, if it is determined that soils need to be disposed offsite. Therefore, it is anticipated that Proposed Action impacts related to ERP sites would not be significant.

Groundwater is expected to be encountered during the trenching and trenchless construction phases of the Proposed Action activities. There are known contaminants of potential concern in the groundwater associated with the Zone 1 Landfill sites including LF011–South, -North, and -Middle, LF012-East, LF015, and SS043; and MSW LF#12. The Phase I and Phase II EBS discuss in further detail the historical and current contaminants of concern. The results of the Phase II EBS groundwater sampling found metal constituents antimony, arsenic, beryllium, cadmium, chromium, and lead concentrations exceeded TRRP RALs and RRS MSCs in temporarywells. A follow-up sampling event conducted in September 2012 at permanent wells indicated no metals concentrations exceeding TRRP RALs and RRS MSCs. Groundwater COC exceedances at the temporary wells were therefore believed to be related to the nature of the sample collection process (i.e., relatively high turbidity and open bore hole grab samples) rather than presence of these COCs at levels above TRRP RALs and RRS MSCs in the shallow aquifer.

All uncontaminated groundwater that is encountered during the Proposed Action would be discharged under a TPDES Construction General Permit TXR150000. Groundwater that is encountered within Zones 1 and 5 is subject to the Kelly AFB RCRA Permit and Compliance Plan and will be managed accordingly. Contaminated groundwater will be properly managed and disposed of either off-site or in accordance to a TPDES permit and/or SAWS industrial discharge permit.

There are groundwater monitoring and recovery systems associated with the landfills that have the potential to be impacted by the Proposed Action. During the activities, monitoring and recovery wells must be protected. In addition to the groundwater monitoring and recovery wells, some landfill sites have irrigation systems in place. Though not anticipated to occur during construction, if irrigations lines or groundwater systems are disturbed, they would be repaired to original working conditions.

Although no unacceptable risks from radiological sources are considered to be present in the historical assessment and removal action area for RW026 (site located within the boundaries of LF015), the documented discovery of radiological waste, contaminated soils, and radioactive sources at the site and its proximity to the planned alignment of WWRL Lateral C call for minor precautions when conducting intrusive activities in this area, including:

1. Coordination with a radiological waste subject matter expert (SME) in development of a project Health and Safety Plan (HASP) that addresses the potential for radioactive materials to be encountered during excavation and soil handling;

2. Protocols within the project HASP to be exercised should monitoring indicate unacceptable conditions (e.g., ceasing operations if observed gamma radiation levels exceeding three times the level of background as measured in a non-impacted area, required PPE upgrades should this be observed);

3. Pre-mobilization worker training including the communication of RW026 conditions, planned radiological monitoring during WWRL construction, and basic radiation hazards/health effects with the appropriate indications that worker exposures to radioactive materials are not expected to occur; and,

4. Monitoring with a gamma survey meter (e.g., Ludlum model 19 microR meter) prior to and during all activities in which areas will be newly excavated (WESTON, 2014).

Due to the presence of known contamination at the landfills, as detailed in Section 3.9.1, an air monitoring program and worker safety program would be implemented in accordance with 29 CFR 1926.55. Even though contaminated soils are not anticipated to be encountered, vapors associated with contamination have a tendency to migrate within the soil. Due to possible vapors at or near landfill sites, workers located within trenches could be exposed to vapors exceeding threshold protective concentrations. In the event that hazardous waste or soils are encountered at a known ERP site, all work would be stopped and immediately notify JBSA-Lackland for coordination with TCEQ. TCEQ may also request encountered sites to be re-opened, and that JBSA-Lackland would conduct site closure activities again.

Seven MMRP sites (TG-273, TS-271, FR-294, SR-272, FR-720, and AL-240) would be impacted by the construction of the WWRL-Upper Segment project, including Line A and Lateral Lines C, D, E and F. Review of the CSE Phase II report and current assessment/corrective action status for these MMRP Sites indicate no impact to the planned WWRL alignment above levels requiring a corrective action response. However, excess soils generated during the construction of the WWRL in the areas of TG-273, TS-271, FR-294, SR-

272, and FR-720 should be managed for the potential of low-level lead contamination associated with these sites. Additionally, construction of the WWRL in the area of Sites AL-240, including adjacent MMRP site AL-722, would require special monitoring and screening for the presence of UXO (Weston, 2014). If any anomalies are detected, they should be investigated and cleared by the JBSA-Lackland Explosives Ordnance Disposal Squadron. If an anomaly is determined to be a UXO, the Explosives Ordnance Disposal Squadron personnel would dispose of the ordnance prior to any Proposed Action activities.

Though not anticipated, should the existing remedy be modified, a Class 3 modification to the TCEQ Kelly AFB Permit and Compliance Plan No. 50310 would be required. As no long-term impacts are anticipated and temporarily disturbances would be mitigated with the implementation of BMPs discussed below in Section 4.9.3, the Proposed Action would have no significant effect to ERP and MMRP sites.

4.9.2 No-action Alternative

Under the No-action Alternative, there would be the risk of continued structural failures in the existing main and lateral sewer lines. If structural failures continue, surrounding structures could be affected, to include landfill caps and monitoring and recovery systems at ERP sites on JBSA-Lackland.

4.9.3 Measures to Reduce Impact

BMPs to reduce impacts would include following the guidance detailed in the Construction Project Waste Management Plan and Contingency Plan, establishing an air monitoring program in the areas being trenched in and around the ERP sites in order to be protective of human health, establish radiation monitoring at the end of Lateral Line C (near site RW026), and performing UXO sweeps in the areas of MMRP sites AL-240 and AL-722 (as recommended by the Phase II EBS). No mitigation measures are required.

4.10 Utilities and Infrastructure

The following factors were considered in evaluating potential impacts to infrastructure and utilities: (1) the degree to which a utility service would have to alter operating practices and personnel requirements; (2) the degree to which the change in demands from implementation of the Proposed Action would impact the utility system's capacity; (3) the degree to which a transportation system would have to alter operating practices and personnel requirements to support the action; and (4) the degree to which the increased demands from the Proposed Action would reduce the reliability of transportation systems. Impacts to utilities could be considered significant if implementation of the Proposed Action resulted in a change in demand which exceeded the capacity of the utility providers. Impacts to transportation systems could be considered significant if implementation of the Proposed Action resulted in a decrease in the level of service provided by transportation systems such that additional development of the systems could not support the increased usage.

4.10.1 Proposed Action

Stormwater

There would be no permanent changes to stormwater flows or pollutant loads as a result of the Proposed Action. Construction associated with the Proposed Action would require compliance with the TPDES Construction General Permit TXR150000, previously discussed in Subsection 3.10.1 (Stormwater), which includes the integration of a SWPPP. The SWPPP would include temporary stormwater, erosion, and sedimentation controls amongst other BMPs for the duration of demolition or construction in order to minimize increases in stormwater flows and pollutant loads and comply with TPDES. For these reasons, the impact to stormwater resulting from demolition and construction associated with the Proposed Action is not considered to be significant.

Water

Changes to water demand as a result of the Proposed Action would be minor. As a result of the Proposed Action, there would be no permanent change to the population or existing operations. During construction associated with the Proposed Action, an increase in construction workforce and activities (e.g., dust control) could result in a temporary minor increase in water demand. Water used for dust control could be delivered to construction sites by truck or supplied by surface water, and personnel could use portable restroom facilities, minimizing the increase in water demand. Although the wastewater infrastructure associated with the Proposed Action would cross a water main in two locations, it would be installed at a depth of approximately 15 to 25 feet, well beneath the existing water main. No interruption in water service or impacts to water utilities would be expected. For these reasons, the impact to water supply and infrastructure resulting from the Proposed Action would not be considered significant.

Wastewater

Changes to wastewater load as a result of the Proposed Action would be temporary and minor. During construction there would be no disruption in wastewater service. Construction personnel could use portable restroom facilities managed by a qualified contractor, which would include off-site disposal of wastewater and thereby minimize potential increases in wastewater load. As a result of the Proposed Action, there would be no expected permanent change to the population; therefore, the wastewater load would remain the same. In addition, SAWS owns and operates the wastewater treatment plants that receive wastewater from the WWRL and will ensure they have plenty of capacity for increased wastewater loads. For these reasons, the impact to the wastewater load resulting from the Proposed Action would not be considered significant.

The Proposed Action would be expected to result in major beneficial changes to wastewater infrastructure considering the age and poor condition of the existing wastewater infrastructure. If carried forward, all improvements would be designed, reviewed, and constructed according to applicable Municipal, State, and federal codes, criteria, standards, and specifications. The wastewater infrastructure associated with the Proposed Action would be constructed from FRPM pipe. The main segment of the WWRL would be upgraded to a larger diameter and the eastern

fork would be replaced with the same diameter. This would allow for greater capacity within the main segment resulting in fewer overflows and fewer required repairs on the WWRL as a whole. After installation, the maximum flow rate of the main segment would range from 180 to 215 MGD, varying with pipe diameter and slope, increasing capacity by over 90 percent throughout. The eastern fork would have a maximum flow rate of approximately 73 MGD, either matching or exceeding the existing capacity. Manholes would be completed with water-tight bolted manhole covers to prevent inflow when constructed in the 100-year floodplain, per 30 Texas Administrative Code (TAC) §217 requirements and the San Antonio Water System Specifications for Water and Sanitary Sewer Construction. The increase in capacity and improvement in condition resulting from the Proposed Action would be long-term and anticipated to be beneficial.

Electricity and Natural Gas

The Proposed Action could result in a temporary minor increase in electricity and natural gas demand. No interruption in electricity or natural gas service would be expected. Electricity and natural used for construction activities could be supplied by portable sources, including generators, minimizing the increase in electricity and natural gas supplied by CPS Energy. The proposed wastewater infrastructure would cross existing overhead electric lines and a natural gas line; however construction would occur well below the existing infrastructure at approximately 15 to 25 feet deep. Prior to construction, utilities would be located and marked and construction crews would use caution in digging and operating machinery under and around utilities to prevent and damage to existing infrastructure. For these reasons, the impact to electricity and natural gas resulting from construction associated with the Proposed Action would not be considered significant.

Telecommunications

The Proposed Action would have no effect on telecommunications demand and no interruption in service would be expected. Telecommunications used for construction activities could be supplied by portable devices such as mobile phones and GPS units. There is potential that the proposed wastewater infrastructure would cross existing underground fiber optic lines; however construction would occur well below the existing infrastructure at approximately 15 to 25 feet deep. Prior to construction, utilities would be located and marked and construction crews would use caution in digging and operating machinery under and around utilities to prevent and damage to existing infrastructure. For these reasons, the impact to telecommunications resulting from construction associated with the Proposed Action would not be considered significant.

Transportation

Changes to traffic as a result of the Proposed Action are expected to be temporary and minor. As a result of the Proposed Action, there would be no permanent change to the population and traffic levels would remain consistent with existing conditions. During construction associated with the Proposed Action, an increase in construction workforce and activities could result in a temporary increase in traffic. To minimize increased traffic, a pre-approved Traffic Control Plan would be prepared and access agreements would be coordinated by SAWS with JBSA-Lackland

prior to commencing construction activities. In addition, potential access routes to the project area, including traffic impacts, have been considered in detail in the remainder of this section of this EA.

The portions of the proposed site that are on JBSA-Lackland property would be accessed through roads and gates determined by JBSA-Lackland in coordination with SAWS prior to construction. Potential access routes would be through the Growden Gate on Acme Road/Growden Road. Contractors would then travel on Billy Mitchell Boulevard to the proposed easement. From there, the contractors would travel along the easement to access any portion of the main segment of the project area located on JBSA-Lackland from STA 00+00 to STA 112+00 (See Figure 2-1, Sheets 1 through 9). All personal and construction POVs would remain on the easement. Contractors may utilize portions of Westover Road which are adjacent to the project site; however, there would be no road closures associated with construction activities. Construction activities would result in a short-term increase in traffic on U.S. Highway 90 access road, near Callaghan Road, as well as a short-term increase in traffic on Acme Road/Growden Road as POVs travel to and from the construction site. There would be an increase in traffic at the Growden Gate on JBSA-Lackland. The increase would be approximately 15 personal POVs per day travelling to and from the project site, and approximately 15 construction POVs arriving at and departing from the site throughout the day. The increase would last only as long as the construction crews were accessing the portion of the construction site located on JBSA-Lackland, which is estimated to be approximately 24 months.

Construction activities occurring where the proposed wastewater infrastructure crosses established roads on JBSA-Lackland would not be expected to result in any road closures. In areas where trenching would intersect a road, construction crews would utilize flagging operations and would constrict traffic to one lane. It is not expected that the impacts to traffic would last more than a few days at each crossing. At more critical road crossings such as Elmore Hall Boulevard, construction crews would utilize trenchless construction to prevent an impact to traffic along those routes. Construction activities occurring where the proposed wastewater infrastructure is adjacent to established roads (Chappie James Way and Oscar Westover Road) would not result in any road closures but could require the use of flagging operations or trenchless boring to minimize impacts to traffic on the adjacent roads. Detours would be established during construction at places where the proposed wastewater infrastructure would intersect with unimproved roads and paths.

Solid Waste

Changes to solid waste as a result of the Proposed Action would be minor and temporary. As a result of the Proposed Action, there would be no permanent change to the population; therefore, no permanent increases in solid waste generation would be expected. Construction associated with the Proposed Action would result in a temporary increase in solid waste generation. All additional waste produced during these activities would be disposed of in compliance with applicable Municipal, State, and federal codes and regulations. If groundwater is encountered during construction, it would be removed and filtered prior to discharge to surface water and filtered solids would be properly disposed off-site at an approved landfill. Spoils such as debris and soil removed from construction trenches that cannot be used as fill material would be

characterized to determine appropriate procedures and landfills for disposal. The total waste generated by construction activities would be negligible compared to the maximum 7,300,000 cubic yards of waste accepted annually by the Covel Gardens Landfill. For these reasons, impacts to solid waste resulting from the Proposed Action would not be considered significant.

4.10.2 No-action Alternative

Under the No-action Alternative, additional structural failures, cave-ins, wastewater overflows, and costly spot repairs would continue. The existing wastewater infrastructure would remain in poor operational and structural condition and have inadequate capacity. The potential exists for a water quality violation, disruptions in wastewater service, and high repair and maintenance costs, as well as costs to restore the surrounding environment should a spill occur. The threat of a potential cave-in of failed wastewater infrastructure could also present a dangerous threat to human safety. Disruption of wastewater service to JBSA-Lackland could interfere with military Base operations. These impacts would be long-term.

The No-action Alternative would have no impacts on water, electricity and natural gas, telecommunications, transportation, or solid waste.

4.10.3 Measures to Reduce Impacts

No mitigation measures would be necessary to minimize impacts to infrastructure and utilities. As previously discussed in Section 4.6.3 a construction-specific SWPPP would be implemented as required by the TPDES General Construction Permit (TXR150000) to assure erosion and sedimentation of stormwater is minimized. As previously discussed in Section 4.6 Water Resources and Section 4.9 Hazardous Materials and Substances, if groundwater is encountered, the contractor would properly characterize for disposal. Groundwater is subject to the RCRA Permit and Compliance Plan for construction within former Kelly AFB Zones 1 and 5. Contaminated groundwater will be disposed of either off-site or in accordance to a TPDES permit and/or SAWS industrial discharge permit. Prior to construction, underground and overhead utilities would be located and marked and construction crews would use caution in digging and operating machinery under and around utilities to prevent and damage to existing infrastructure. A pre-approved Traffic Control Plan would be developed to minimize traffic and ensure appropriate control devices would be in place during construction.

4.11 Ground Safety

The potential to increase or decrease safety risks to the public, the military, and property were analyzed in this section. Measures to reduce risk potential are also addressed. Naturally occurring and man-made hazards may exist for personnel and are considered in this section. The Proposed Action has the potential to increase the risk for accidental death, serious bodily injury, illness or property damage. Analysis of construction safety considered health and safety of personnel for physical hazards, proper techniques, and PPE, and best practices for construction site cleanliness. Significant impacts to ground safety would occur if there is an increase in the number and severity of incidents in the project area.

4.11.1 Proposed Action

Short-term, minor increases in safety hazards could potentially be expected due to the temporary increase in construction activities on the installation. Construction contractors would establish and maintain safety programs that would provide protection to their workers and limit the exposure of Base personnel to construction hazards. There would be a short-term increase in traffic due to construction/excavation related activities. This includes both the trucks to bring in heavy equipment for excavation activities as well as trucks to haul off unused spoils from the excavation. Furthermore, construction activities may require temporary pedestrian and traffic detours. Effective communication to the installation personnel regarding changes to traffic activities and unsafe areas would be necessary in order to minimize day-to-day pedestrian traffic hazards such that they would not result in a substantial increase in the potential for death, serious bodily injury or illness, or property damage. Additionally, construction crews would utilize use signage and flaggers to direct traffic. Upon completion of the construction activities, traffic would resume back to pre-construction patterns and flows, therefore these temporary disturbances would not be considered significant.

4.11.2 No-action Alternative

Under the No-action Alternative, there would be the risk of continued structural failures in the existing main and lateral sewer lines. If the existing sewer lines are not upgraded or replaced, potential damage to surrounding ERP sites (landfill caps, monitoring and recovery systems) would be expected at JBSA-Lackland, and would increase the safety risk to recreational users of the area and to workers repairs the unstable and broken line.

4.11.3 Measures to Reduce Impact

No mitigation measures would be required for implementation of the Proposed Action; however, construction contractors would be required to develop and implement site specific Health and Safety Plans. Potential hazards would be minimized through the use of engineering controls, administrative controls, and through use of PPE.

4.12 Socioeconomics

As discussed in Section 3.12, this analysis focuses on the regional population and economic activity for the greater COSA region, rather than just JBSA-Lackland, due to the broad nature of the project and its purpose. The proposed project would result in no permanent change to population on JBSA-Lackland and would have no effect on socioeconomic resources at JBSA-Lackland. Therefore, impacts to socioeconomic resources discussed in this EA are focused at the City and County level. Impacts to the population of the proposed project area would be considered significant if an action resulted in a long-term change to the population of the City or County population. Impacts to the local economy would be considered significant if an action resulted in the long-term closure, displacement, or addition of a major revenue source within the proposed project area.

4.12.1 Proposed Action

No change to population as a result of the Proposed Action Alternative would be expected. However, independent of the Proposed Action the population of the City of San Antonio and Bexar County would likely continue to grow based on current growth trends. The Proposed Action would therefore provide needed infrastructure to support the increasing population.

Under the Proposed Action, temporary impacts to the regional economy would be expected as a result of construction activities. According to the 2009 WWRL-Upper Segment Project PER, the approximate project cost is $42,810,000, based on a low bidding environment (SAWS, 2009a). Assuming construction personnel, equipment, and materials are provided by local vendors, a portion of this cost may contribute to the local revenue. These impacts are not expected to remain after construction of the line is completed and are not considered significant.

4.12.2 No-action Alternative

No change to population as a result of the No-action Alternative would be expected. Under the No-action Alternative, regional population growth would continue in the San Antonio and Bexar County areas. The existing WWRL would experience additional load due to the increased population. Impacts to utilities and infrastructure under the No-action Alternative are fully described in Section 4.10.2.

Under the No-action Alternative, no significant impacts to the regional economy would be expected. Based on the current condition of the existing line, future repeated repairs to the existing line may be necessary. SAWS would be responsible for incurring the cost associated with these continued repairs. In addition, there may be potential for local businesses to provide materials for future repair of the deteriorating line. However, the occurrence and extent of repairs would vary and these impacts and would likely be minimal.

4.13 Environmental Justice

In order to comply with EO 12898, ethnicity and poverty status in the proposed project area has also been analyzed. Additionally, to comply with EO 13045, environmental health and safety risks have been identified to determine if children could be disproportionately affected by the Proposed Action. Environmental justice impacts would be considered significant if there are disproportionate and adverse impacts to children or minority or low-income populations as a result of the Proposed Action.

4.13.1 Proposed Action

Impacts from the construction of the line and issuance of the easement would not disproportionately and adversely affect any population. Therefore, no significant impact to environmental justice populations would be expected under the Proposed Action.

4.13.2 No-action Alternative

The No-action Alternative is not expected to result in adverse impacts related to environmental justice populations, as there would be no change to the surrounding community.

4.14 Cumulative Effects

There would not be any incremental significant adverse impacts to land use, cultural resources socioeconomic resources, or environmental justice from the Proposed Action and reasonably foreseeable future actions. Cumulative effects from other resource areas are described below.

Air Quality

Air emissions generated from activities associated with the Proposed Action would be temporary and minor. Air emissions generated from other anticipated future actions in the vicinity, such as the middle and lower segments of the WWRL, would occur prior to the Proposed Action. Therefore, no significant cumulative impacts to air quality would be expected as a result of the Proposed Action and other reasonably foreseeable future actions.

Noise

Noise generated from construction/excavation activities associated with the Proposed Action would be temporary and minor. Noise generated from other anticipated future actions in the vicinity, such as the middle and lower segments of the WWRL, would occur prior to the Proposed Action. Therefore, no significant cumulative impacts to noise would be expected as a result of the Proposed Action and other reasonably foreseeable future actions.

Earth Resources

The Proposed Action would result in temporary and/or minor adverse impacts to earth resources within the project area. Impacts resulting from other anticipated future actions in the area, such as the middle and lower segments of the WWRL, would not affect earth resources at the same time as the Proposed Action. Therefore, no significant cumulative impacts to earth resources would be expected as a result of the Proposed Action and other reasonably foreseeable future actions.

Water Resources

The Proposed Action would result in temporary and/or minor adverse impacts or beneficial impacts to surface water and groundwater within the project area. Impacts resulting from other anticipated future actions in the vicinity, such as the middle and lower segments of the WWRL, would not affect water resources at the same time as the Proposed Action. Therefore, no significant cumulative impacts to water resources would be expected as a result of the Proposed Action and other reasonably foreseeable future actions.

Biological Resources

The Proposed Action would result in negligible long-term adverse effects to wildlife and vegetation due to the conversion of Unimproved areas (0.2 acres) to Semi-Improved on JBSA-Lackland and temporary disturbances during construction. With implementation of the ACC, Installation Development, TSA Canine Academy, 36th Street and DLIELC/IAAFA projects, there would be minimal long-term adverse cumulative impacts to wildlife habitats since the majority of lands containing these projects are currently developed, landscaped, and maintained. Additional long-term habitat losses are probable with construction of the Growdon Gate, MWD Campus, and SAWS-Upper Segment (portions located off of JBSA-Lackland) projects. With the Growdon Gate project approximately 232 acres would be acquired. Of this land, the gate project will impact approximately 80 acres of developed lands and agriculture lands. About 12-acres of the 80-acre parcel to be developed contains marginal wildlife habitat and construction will have minimal impacts on wildlife habitat. Long-term future development of the remaining 152 acres could have long-term adverse impacts on wildlife habitat and wildlife if the remaining lands along the northern edge of this property become developed. Under the MWD Project, approximately 36 acres of native habitat would be developed for training activities. With the SAWS WWRL-Upper Segment, approximately another 14 acres of easement would be needed on property outside of JBSA-Lackland, which is comprised of undeveloped areas. Therefore conversion of habitat, similar to that of the Proposed Action would occur throughout the 14 acres. It is reasonable to assume that minor incremental loss of even low-quality habitat such as within the proposed project footprint may contribute to regional development trends within JBSA and COSA and could have an adverse cumulative effect on habitats and foraging areas within the county. However, this effect is insignificant compared to the total acreage of undeveloped habitats across the state. Additionally, as the Proposed Action would not impact wetlands; it would also not contribute to cumulative effects to wetlands.

No federally listed endangered or threatened species occur on JBSA-Lackland so there would be no impacts on federally-listed species on JBSA-LMB or JBSA-LTA. As the Proposed Action would not affect JBSA-Lackland water withdrawal from Edwards Aquifer, it would not contribute to cumulative effects on protected karst species. Cumulatively, all of the projects have the potential to have short-term adverse impacts to nesting migratory birds, if demolition or construction activities occur during the migratory bird nesting season. Implementation measures to avoid these impacts are discussed in Section 4.7.3.

Hazardous Materials and Substances

While the Proposed Action would contribute to an increased amount of waste being shipped to an off-site disposal facility during the construction activities, these increases would not be significant and would not result in any incremental significant adverse impacts to the hazardous materials and substances resources from the Proposed Action and reasonably foreseeable future actions.

Utilities and Infrastructure

The Proposed Action would result in temporary and/or minor adverse impacts or beneficial impacts to surface water and groundwater within the project area. In addition, impacts resulting from other anticipated future actions in the vicinity, such as the middle and lower segments of the WWRL, would not affect water resources at the same time as the Proposed Action. Therefore, no significant cumulative impacts to water resources are expected as a result of the Proposed Action and other reasonably foreseeable future actions.

Ground Safety

All projects will need increased safety and controls in place during the construction activities; however, there would not be any incremental significant adverse impacts to the ground safety resources from the Proposed Action and reasonably foreseeable future actions.

CHAPTER 5: List of Preparers

This EA has been prepared under the direction of Mr. Andrew Riley of JBSA-Lackland. Additional individuals, from associated federal agencies and from Weston Solutions, Inc., who contributed to the preparation of this document, are listed below in Tables 5-1 and 5-2, respectively.

Table 5-1
Agency Participation in NEPA Preparation

Affiliation	Contact	Role
JBSA-Lackland	Andrew Riley	NEPA/ EIAP Program Manager
SAWS	Robert Villarreal, P.E.	SAWS Project Manager
AFLOA/JAC-FSE	Capt. Timothy Griswold	NEPA Reviewer
AFLOA/JAC-FSE	Leslie Brown	NEPA Reviewer
AFLOA/JAC-FSE	Maj. R. Jeremy Anderson	NEPA Reviewer

Table 5-2
WESTON Participation in NEPA Preparation

Name	Role/Specialty	Years of Experience
Erin Johnson	NEPA Manager and Resource Specialist, Biological Resources	9
Ashley Naber	Resource Specialist, Cultural Resources	2
Colin Meneilly	Resource Specialist, Hazardous Materials and Substances, Ground Safety	14
Audrey Abbott, E.I.T.	Resource Specialist, Water Resources and Utilities and Infrastructure	6
Kevin Wooster, P.G.	Resource Specialist, Earth Resources	26
Lori Kalich	Resource Specialist, Land Use, Socioeconomic Resources, and Environmental Justice	6
Tamara Carroll	NEPA Senior Review	11
Adrian Dongell, P.E.	Project Engineer	8
Marc Olivier	Resource Specialist, Air and Noise Resources	6
Abdel Hamed, P.E.	Senior Project Manager	25
Phyllis Caldwell	Technical Editor	15
Venu Tirukkuluri	GIS Specialist	14

CHAPTER 6: Persons and Agencies Consulted

Additional individuals and agencies that were consulted during the preparation of this EA are detailed in Table 6-1.

Table 6-1
Persons and Agencies Consulted

Agency	Individual
Federal	
Federal Emergency Management Agency (FEMA)	Mr. Ross Richardson Federal Emergency Management Agency 800 North Loop 288 Denton, Texas 76209-3698
U.S. Army Corps of Engineers (USACE) – Fort Worth District	Mr. Stephen Brooks U.S. Army Corps of Engineers, Regulatory Branch, Permit Section Attn: CESWF-PER-R 819 Taylor Street, Room 3A37Fort Worth, Texas 76102-
U.S. Environmental Protection Agency (USEPA) – Region 6	Mr. Ron Curry Administrator USEPA Region 6 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202
U.S. Fish and Wildlife Service (USFWS) – Southwest Region	Mr. Adam Zerrenner Field Supervisor U.S. Fish and Wildlife Service 10711 Burnet Road, Suite 200 Austin, Texas 78758
State	
Texas Commission on Environmental Quality (TCEQ)	Mr. Brent Wade, Deputy Director Office of Waste, MC 123 Texas Commission on Environmental Quality 12100 Park 35 Circle Austin, Texas 78753
Texas Historical Commission (THC)	Mr. Mark Wolfe State Historic Preservation Officer Texas Historical Commission 1511 Colorado Street Austin, Texas 78701
Texas Parks and Wildlife Department (TPWD)	Mr. Tim Birdsong Chief, Ecosystem/Habitat Assessment Branch Texas Parks and Wildlife Department 4200 Smith School Road Austin, Texas 78744-3291
Texas Water Development Board (TWDB)	Mr. Michael Segner, CFM NFIP State Coordinator Texas Water Development Board 1700 North Congress Avenue Austin, Texas 78711

Agency	Individual
Native American Tribes	
Comanche Tribe	Mr. Wallace Coffey Chairman Comanche Tribe 584 NW Bingo Rd Lawton, Oklahoma 73507
Mescalero Apache and Affiliated Tribes	Mr. Danny Breuninger President Mescalero Apache and Affiliated Tribes 101 Central Ave Mescalero, New Mexico 88340
Tonkawa Tribe	Mr. Donald Patterson President Tonkawa Tribe 1 Rush Buffalo Road Tonkawa, Oklahoma 74653
Wichita and Affiliated Tribes	Ms. Terri Parton President Wichita and Affiliated Tribes 1 1/4 Miles North on Hwy 281 Anadarko, Oklahoma 73005
Local	
Alamo Area Council of Governments	Ms. Tiffany Harris Community Relations Coordinator Alamo Area Council of Governments 8700 Tesoro Drive, Suite 700 San Antonio, Texas 78217
Bexar County	Ms. Diane Bartlett, P.E. Floodplain Administrator Bexar County 233 North Pecos Street, Suite 420 San Antonio, Texas 78207
City of San Antonio	Mr. Anthony Chukwudolue Assistant Director of Public Works 114 W. Commerce Street San Antonio, Texas 78205
San Antonio Public Library	San Antonio Public Library Attn: Visiting Documents 600 Soledad Street San Antonio, Texas 78205
San Antonio River Authority (SARA)	Russell A. Persyn, P.E., Ph.D. Manager, Watershed Engr. Dept. San Antonio River Authority 100 East Gunther Street San Antonio, Texas 78204

CHAPTER 7: REFERENCES

AFCEE (Air Force Center for Engineering and the Environment). 2007. *PROACT Fact Sheet on Global Warming*. [Online] http://www.afcee.brooks.af.mil/PRO-ACT/fact/globwarm.asp. Accessed 31 August 2007.

AIHA 1986. *Noise and Hearing Conservation Manual*, 4th Ed. (Akron, AIHA), American Industrial Hygiene Association, 1986.

BEG (Bureau of Economic Geology). 1974. *Geologic Atlas of Texas, San Antonio Sheet. The University of Texas at Austin*.

BEG. *1996. Physiographic Map of Texas. UT Bureau of Economic Geology, The University of Texas at Austin*. Text by E.G. Wermund.

CDM (Camp Dresser & McKee Inc.). 2009. *San Antonio Water System Western Watershed Sewer Relief Line – Hwy 90 to SW Loop 410 Phase A Preliminary Engineering Report*. San Antonio, Texas. August 2009.

CERL (Construction Engineering Research Laboratory). 1978. *MicroBNOISE, A User's Manual, Technical Report, N-86/12*. U.S. Department of the Army, Construction Engineering Research Laboratory. June 1978.

COSA (City of San Antonio). 2013. 2010 Demographics, City of San Antonio, Department of Planning and Community Development. Accessed 22 August 2013.http://www.sanantonio.gov/planning/gis/pdf/Demographic_pdfs/Demographic_Web.pdf

Cowardin, Lewis. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* Reston, VA.

EDR (Environmental Data Resources, Inc.). 2013. *The EDR Radius May with Geocheck for SAWS WWRL*. Elmore Hall Blvd/Oscar Westover Rd, San Antonio, TX. 22 May 2013.

EPA (U.S. Environmental Protection Agency). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, Report EPA550/9-74-004*. U.S. Environmental Protection Agency, Office of Noise Abatement and Control. Washington, D.C.

EPA. 2004. Level III Ecoregions of the Continental United States. Revision of Omernik 1987.

EPA. 2005. *Climate Leaders Greenhouse Gas Inventory Protocol: Design Principles, EPA430-K-05-005*. May 2005.

EPA. 2009. *National Emission Inventory.* January 2009.

EPA. 2011. *Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009, EPA 430-R-11-005*. February 2011.

EPA. 2012. *Inventory of Greenhouse Gas Emissions and Sinks: 1990-2009.* July 2012. [Online] Accessed: Jul 2012. http://www.epa.gov/climatechange/emissions/usinventoryreport.html

FAA (Federal Aviation Administration). 1992. *Guidelines for the Sound Insulation of Residences Exposed to Aircraft Operations*. U.S. Department of Transportation. Washington, D.C. October 1992.

FEMA (Federal Emergency Management Agency). 2010a. *Flood Insurance Rate Map, Bexar County, Texas and Incorporated Areas, Map No. 48029C0390G.* 29 September 2010.

FEMA. 2010b. *Flood Insurance Rate Map, Bexar County, Texas and Incorporated Areas, Map No. 48029C0555F.* 29 September 2010.

FEMA. 2010c. *Flood Insurance Rate Map, Bexar County, Texas and Incorporated Areas, Map No. 48029C0370G.* 29 September 2010.

FEMA. 2010d. *Flood Insurance Rate Map, Bexar County, Texas and Incorporated Areas, Map No. 48029C0535F.* 29 September 2010.

FEMA. 2013. *Executive Order 11988: Flood Management*. [Online] Accessed: 23 August 2013. http://www.fema.gov/environmental-planning-and-historic-preservation-program/executive-order-11988-floodplain-management>

Griffith, G.E., Bryce, S.A., Omernik, J.M., and Rogers, A.C. 2007. *Ecoregions of Reston*, TCEQ, Austin Texas. 27 December 2007.

Gholkar, Tejal A. 2000. *Modeling the Effects of Low Flow Augmentation by Discharge from a Wastewater Treatment Plant on Dissolved Oxygen Concentration in Leon Creek, San Antonio, Texas.* December 2000. [Online] Accessed: 23 August 2013. <http://twri.tamu.edu/reports/2002/tr190/tr190.pdf>

Holmes, Erik. 2010. *Lackland Cited for Using Less Water*. Published by the Air Force Times. 10 December 2007. [Online] Accessed: 23 August 2013. <http://www.airforcetimes.com/article/20071210/NEWS/712100329/Lackland-cited-using-less-water>

Huhnke, M., C. Lintz, M. Prior, S. Allday, E. Burson, and M. Wurtz. 2006. *Archeological Eligibility Testing of 23 Sites on Lackland Air Force Base, Bexar County, Texas.* U.S. Air Force Air Education and Training Command Series, Reports of Investigations No. 13. Geo-Marine, Inc., Plano, Texas.

JBSA–Lackland (Joint Base San Antonio – Lackland). 2012. "Draft Environmental Assessment of Installation Development at Joint Base San Antonio – Lackland, Texas." 802d Mission Support Group, 802d Civil Engineering Squadron, Lackland AFB, Texas. November 2012.

KEMRON (Kemron Environmental Services). 2013a. KEMRON with Weston Solutions Inc. *Draft Final Response Action Completion Report for Munitions Response Sites TS271 and AL269*. JBSA-Lackland, Bexar County, Texas. July 2013.

LAFB (Lackland Air Force Base). 2002. *General Plan*. July 2002.

LAFB. 2005. *Entry Control Facility Security, Safety, and Capacity Traffic Engineering Study*. January 2005.

LAFB. 2006a. *Final Environmental Assessment for Installation Development a Lackland Air Force Base, Texas*. Prepared by Science Applications International Corporation (SAIC). 1 December 2006.

LAFB. 2006b. Defense Energy Support Center. Prepared by ENSAFE PCCI Petroleum Partners. *Spill, Prevention, Control, and Countermeasure Plan, Lackland Air Force Base, Texas*. February 2006.

LAFB. 2007a. *Integrated Natural Resources Management Plan*. 37th Training Wing, Lackland Air Force Base, Texas.

LAFB. 2007b. Lackland Air Force Base. *Hazardous Waste Management Plan for Headquarters Air Education and Training Command, Lackland Air Force Base, Texas*. October 2007.

LAFB. 2009a. *Phase II Storm Water Management Plan (SWMP)*. 37th Civil Engineering Squadron, 37th Mission Support Group, 37th Training Wing, LAFB, Texas. 20 February 2009.

LAFB. 2009b. *Draft Ambulatory Surgery Center Traffic Study*. 22 July 2009.

LAFB 2010a. *Final Environmental Assessment Addressing the Proposed Construction of an Ambulatory Care Center, Lackland Air Force Base, Texas.* Prepared by HDR Engineering, Inc.|engineering-environmental Management, Inc. (HDR|e^2M). July 2010.

LAFB 2010b. Lackland Air Force Base. *Pest Management Plan for Lackland Air Force Base, Texas.* April 2010.

LAFB. 2011a. *Lackland Air Force Base Bird/Wildlife Aircraft Strike Hazard (BASH) Plan 91-212*. 14 October 2011.

LAFB 2011b. Prepared by 802 CES/CEAN. Environmental Restoration Program Summary, Lackland Air Force Base, Texas. 14 March 2011.

LAFB 2012a. Review and Update of Asbestos Management and Operations Plans. Lackland Air Force Base, Texas. February 2012.

LAFB 2012b. Review and Update of Lead-Based Management and Operations Plans. Lackland Air Force Base, Texas. February 2012.

McMahan, C.A., R.G. Frye, and K.L. Brown. 1984. *The Vegetation Types of Texas (including Cropland) – an Illustrated Synopsis to Accompany the Map by* McMahan, C.A., R.G. Frye, and K.L. Brown. TPWD Bulletin 7000-120. [Online] Reviewed: Accessed 19 August 2013. http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bn_w7000_0120.pdf.

McNab, W.H. and P.E. Avers. 1996. *Ecological Subregions of the United States*. U.S. Forest Service [WO-WSA-5] Published 1994, Updates 30 October 1996 [Online] Reviewed: Accessed: 19 August 2013. http://www.fs.fed.us/land/pubs/ecoregions/index.html.

NISC (National Invasive Species Council). 2005. National Invasive Species Council. Five-Year Review of Executive Order 13112 on Invasive Species.

Nickles, D.L., D. W. Pease, and C. B. Bousman (with contributions by J. Durst, J. O. Jones, L. C. Nordt, G. R. Raymond, R. R. Rector, and J. A. Taylor). 1997. Archaeological Survey of Lackland Air Force Base, Bexar County, Texas. *Archaeological Survey Report, No. 248*. Center for Archaeological Research, the University of Texas at San Antonio.

NRCS (Natural Resources Conservation Service), 2013. Web Soil Survey. Map area of interest with identified soil map units. [Online] Accessed: http://websoilsurvey.nrcs.usda.gov/. Reviewed: August 2013.

Raymond, G. R. 1997. Appendix D: Wherry Housing (Letter Report) in: Archaeological Survey of Lackland Air Force Base, Bexar County, Texas. By D. L. Nickles, D. W. Pease, and C. B. Bousman, pp. 218-222. Archaeological Survey Report, No. 248. Center for Archaeological Research, the University of Texas at San Antonio.

Reagan, Jerry A. and Charles. A. Grant. 1977. *Highway Construction Noise: Measurement, Prediction, and Mitigation*. Federal Highway Administration Bulletin: 2 May 2.

RETL (Rock Engineering & Testing Laboratory Incorporated). 2011. *Subsurface Exploration, Laboratory Testing Program and Geotechnical Evaluaiton for the SAWS Western Watershed Sewer Relief Line Upper Segment.* 8 April 2011.

SARA (San Antonio River Authority). 2010. *San Antonio River Basin Stream Segments*. [Online] Accessed: 23 August 2013. <http://www.sara-tx.org/public_services/gis_information/maps_index/STREAM_SEG.jpg>

SAWS (San Antonio Water Supply). 2009a. *San Antonio Water System Western Watershed Sewer Relief Line – Hwy 90 to SW Loop 410 Phase A Preliminary Engineering Report*, Prepared by Camp Dresser & McKee Inc. for SAWS, San Antonio, Texas. August 2009.

SAWS. 2009b. *Construction Specification 812: Water Main Installation*. June 2009.

SAWS. 2013. *About the Edwards Aquifer*. [Online] Accessed: 23 August 2013 <http://www.saws.org/Your_Water/aquifer/AboutAquifer.cfm>

Schomer, Paul. 2001. *A White Paper: Assessment of Noise Annoyance*. Schomer and Associates, Inc. Champaign, Illinois

Shackelford, C.E., E.R. Rozenburg, W.C. Hunter, and M. W. Lockwood. 2005. *Migration and Migratory Birds of Texas: Who They Are and Where They Are Going*, Fourth edition: Published November 2005. [Online]. Reviewed: Accessed June 2012. http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0511.pdf.

Shaw (Shaw Environmental & Infrastructure, Inc.). 2012. *Semiannual Compliance Plan Report, July through December 2011* (SWR No. 31750), Former Kelly AFB, San Antonio, Texas. January 2012.

Snavely, R., M. Greco, and A. A. Fox. 1984. *Archaeological Assessments for the San Antonio 201 Wastewater Treatment Project: Surveys of Five Pipeline Routes and Testing at Site 41BX333. Archaeological Survey Report, No. 131*. Center for Archaeological Research, the University of Texas at San Antonio.

TCEQ (Texas Commission of Environmental Quality). 2007. TPDES General Permit TXR040000 for Small Municipal Separate Storm Sewer Systems. [Online] Accessed: 23 August 2013. <http://www.tceq.texas.gov/assets/public/permitting/stormwater/txr040000.pdf

TCEQ. 2008. Permanent Rule Change: Rule Project No. 2006-044-217-PR, Repeal of 30 TAC Chapter 317 and Proposal of 30 TAC Chapter 217, Design Criteria for Sewerage Systems, Chapter 217, Design Criteria for Domestic Wastewater Systems, Subchapters A, B, C, D, E, F, G, H, J, K, L, M. Effective: 28 August 2008

TCEQ. 2011. *TPDES General Permit No. TXR050000*. 22 July 2011. [Online] Accessed: 23 August 2013 http://www.tceq.state.tx.us/assets/public/permitting/waterquality/attachments/stormwater/txr050000.pdf

TCEQ. 2012a. *Evaluating the Fish Consumption Use: A Risk Assessment for Lower Leon Creek.* October 2012 [Online] Accessed: 19 August 2013 <http://www.tceq.texas.gov/assets/public/waterquality/tmdl/73leonpcb/73-leonpcb-po.pdf>

TCEQ. 2012b. *Improving Water Quality in the Lower Leon Creek: A TMDL Project for Bacteria and Dissolved Oxygen.* October 2012. [Online] Accessed: 19 August 2013 <http://www.tceq.texas.gov/assets/public/waterquality/tmdl/84lowerleoncreekbacdo/84-lowerleonbactdo.pdf>

TCEQ. 2013a. *2012 Texas Integrated Report of Surface Water Quality for Clean Water Act Sections 305(b) and 303(d)*. 9 May 2013 [Online] Accessed: 19 August 2013 <http://www.tceq.texas.gov/waterquality/assessment/waterquality/assessment/12twqi/twqi12>

TCEQ. 2013b. *Lower Leon Creek: Fish Tissue Sampling Project* [Online] Accessed: 19 August 2013 <http://www.tceq.texas.gov/waterquality/tmdl/73-leoncreekpcbs.html>

TCEQ. 2013c. *Lower Leon Creek: A Project to Assess Bacteria and Dissolved Oxygen* [Online] Accessed: 19 August 2013 <http://www.tceq.texas.gov/waterquality/tmdl/84-lowerleonbactdo.html>

TCEQ. 2013d. *General Permit for Phase IIs (Small) MS4s*. [Online] Accessed: 23 August 2013. <http://www.tceq.texas.gov/permitting/stormwater/WQ_ms4_small_TXRO4.html>

THC (Texas Historical Commission). 2013. Correspondence between Geo-Marine Inc. and Mark Denton (THC), *Proposed Western Watershed Sewer Relief Line Section 106 Review Responses* via mail. Tracking Number: 201305480. Concurrence signed by Mark Wolfe (THC, Director) 25 March 2013.

TPWD (Texas Parks and Wildlife Department). 2012. Threatened Species. Rare, Threatened, and Endangered Species of Texas by County [Bexar County, 2 October 2012]. [Online] Reviewed: http://www.tpwd.state.tx.us/landwater/land/maps/gis/ ris/endangered_species/. Accessed: 19 August 2013.

TPWD. 2013. Texas Natural Diversity Database (TXNDD) data review for 1 mile buffer of project route. Received: 1 June 2013.

TWDB (Texas Water Development Board). 2011. *Water Well Data*. http://wiid.twdb.state.tx.us/ims/wwm_drl/viewer.htm?TITLE=BEXAR%20County&DISCL=0&APPNO=1&Box=1629733:7248991:1644739:7258620

TXDOT (Texas Department of Transportation). 2008. *2007 San Antonio District Traffic Map*. Transportation Planning and Programming Division.

URS. 2011. *Final Report Comprehensive Site Evaluation Phase II. Lackland Air Force Base, Texas*. January 2011.

USAF (US Air Force). 2007. *United States Air Force. Lackland Air Force Base Integrated Cultural Resources Management Plan*. Lackland Air Force Base, Texas.

USAF. 2008. *Air Installation Compatible Use Zone Study Public Information Brochure, Kelly Field Annex at Lackland Air Force Base, Texas*. August 2008.

USAF. 2011. *Lackland Air Force Base Training Annex Wildlife Habitat – Final Study Report*. Prepared by Geo-Marine, Inc. July 2011

USCB (US Census Bureau). 2013a. State and County QuickFacts, City of San Antonio. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, County Business Patterns, Economic Census, Survey of Business Owners, Building Permits, Census of Governments. Revised 27 June 2013. [Online]. Accessed 21 August 2013. http://quickfacts.census.gov/qfd/states/48/4865000.html.

USCB. 2013b. U.S. Census Bureau: State and County QuickFacts, Bexar County. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, County Business Patterns, Economic Census, Survey of Business Owners, Building Permits, Census of Governments. Revised 27 June 2013. [Online]. Accessed 21 August 2013. http://quickfacts.census.gov/qfd/states/48/48029.html

USCB. 2013c. U.S. Census Bureau: State and County QuickFacts, State of Texas. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, County Business Patterns, Economic Census, Survey of Business Owners, Building Permits, Census of Governments. Revised 27 June 2013. [Online]. Accessed 21 August 2013. http://quickfacts.census.gov/qfd/states/48000.html

USCB. 2013d. U.S. Census Bureau, Selected Economic Characteristics, City of San Antonio, 2007-2011 American Community Survey 5-Year Estimates. [Online]. Accessed 22 August 2013. http://factfinder2.census.gov/rest/dnldController/deliver?_ts=395227117199

USCB. 2013e. U.S. Census Bureau, Selected Economic Characteristics, Bexar County, 2007-2011 American Community Survey 5-Year Estimates. [Online]. Accessed 22 August 2013. http://factfinder2.census.gov/rest/dnldController/deliver?_ts=395229447100

USCB. 2013f. U.S. Census Bureau, Selected Economic Characteristics, State of Texas, 2007-2011 American Community Survey 5-Year Estimates. [Online]. Accessed 22 August 2013. http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_5YR_DP03

USFWS (U.S. Fish and Wildlife Service). 2008. U.S. Fish and Wildlife Service. Biological Opinion for Department of Defense: Consultation Number: 21450-2007-F-0056. 11 January 2008.

USFWS. 2012. National Wetlands Inventory, Wetlands Data [Updated: 1 October 2012]. [Online]. Reviewed: Accessed: 19 August 2013. http://www.fws.gov/wetlands/Data/Google-Earth.html.

USFWS. 2013a. Migratory Bird Treaty Act (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989). [Online]. Reviewed: Accessed: 19 August 2013. http://alaska.fws.gov/ambcc/ambcc/treaty_act.htm.

USFWS. 2013b. Review of listed species by county for Texas: Bexar County [Updated: 10 July 2013]. [Online]. Reviewed: Accessed: 19 August 2013. http://www.fws.gov/southwest/es/EndangeredSpecies/EndangeredSpecies_Lists/EndangeredSpecies_ListSpecies.cfm.

USFWS. 2013c. Environmental Conservation Online System: Critical Habitat Data. [Online]. Reviewed: Accessed: 19 August 2013. http://criticalhabitat.fws.gov/.

USGS (United States Geologic Survey). 1992. *Terrell Wells, Texas.* 7.5' topographic quadrangle map

USGS. 1993a. *Culebra Hills, Texas*. 7.5' topographic quadrangle map.

USGS. 1993b. *San Antonio West, Texas.* 7.5' topographic quadrangle map

Virtual Earth. 2009. Aerial Imagery, Microsoft Corp.

WM (Waste Management). 2013. *Covel Gardens Landfill*. [Online] Accessed: 23 August 2013 <http://covelgardenslandfill.wm.com/facility/site-plan.jsp>

WESTON (Weston Solutions, Inc.). 2008. *Final Corrective Measures Implementation Work Plan, Lackland Air Force Base, Texas*. October 2008.

WESTON. 2010. *Final Corrective Measures Implementation Report. Environmental Restoration of Zone 1 Sites. Lackland Air Force Base, Texas*. June 2010.

WESTON. 2014. "Final Phase II Environmental Baseline Survey. Property Lease for the Western Watershed Sever Relief Line (Upper Segment)." Joint Base San Antonio-Lackland Parcel D. April 2014.

APPENDIX A

INTERAGENCY/INTERGOVERNMENTAL COORDINATION AND PUBLIC PARTICIPATION

SUMMARY of IICEP CORRESPONDENCE
on the Draft DOPAA

ORGANIZATION/AGENCY	CERTIFIED LETTER MAIL DATE	CONFIRMATION RECEIVED	COMMENTS RECEIVED *(list date, form of communication [telephone, email, letter, etc.])*
Ms. Lisa P. Jackson, Administrator USEPA Region 6 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202	6/29/2011	6/5/2011	*none*
Mr. David C. Frederick Field Supervisor U.S. Fish and Wildlife Service 10711 Burnet Road, Suite 200 Austin, Texas 78758	6/29/2011	7/6/2011	07/14/2011 - Email - From Patrick Conner to Frances Martinez. Assigned consultation number 21450-2011-I-0244 and attached first page of IICEP letter with "No Action" stamp. 06/20/2011 - Copy of IICEP Letter received with "No Action" stamp dated 07-13-2011 and approved by Adam Zerrenner, Field Supervisor
Mr. Wayne Lea U.S. Army Corps of Engineers Regulatory Branch, Permit Section Attn: CESWF-PER-R P.O. Box 17300 Fort Worth, Texas 78612-0300	6/29/2011	7/5/2011	07/20/211 - Letter from Stephen L. Brooks, Chief - Regulatory Branch assigning Ms. Elisha Bradshaw as the regulatory project manager for the project and a project number. 08/12/2011 - Letter from Stephen L. Brooks, Chief - Regulatory Branch requesting additional information/details that will allow them to continue their evaluation of the proposed project. 09/23/2011 - Letter to Stephen L. Brooks addressing comments. 1/22/2013 - Request for project status to keep file open.
Mr. Richard A. Hyde, Deputy Director Office of Permitting and Registration Texas Commission on Environmental Quality MC 122 P.O. Box 13087 Austin, Texas 78711-3087	6/29/2011	7/1/2011	07/26/2011 - E-mail - Attached two letters: (1) Receipt of IICEP letter; (2) TCEQ letter addressed to Ms. Julie Ferguson including project comments that the EA should include measure to prevent surface and ground water contamination.
Mr. F. Lawrence Oaks State Historic Preservation Office Texas Historical Commission P.O. Box 12276 Austin, Texas 78111-2276	8/6/2011	8/3/2011	06/08/2011 - Letter to SHPO requesting no surveys 08/03/2011 - Letter from Mark Denton/Mark Wolf requiring a Secretary of the Interior qualified professional archeologist to mechanically test various locations. 04/17/2012 - response to SHPO request for mechanical testing. 05/02/2012 - SHPO continued request for mechanical testing. 02/21/2013 - Response to SHPO request requesting exemptions to mechanical testing. 03/25/2013 - Mark Denton concurrence that no historic properties would be affected by the proposed action

SUMMARY of IICEP CORRESPONDENCE
on the Draft DOPAA

ORGANIZATION/AGENCY	CERTIFIED LETTER MAIL DATE	CONFIRMATION RECEIVED	COMMENTS RECEIVED *(list date, form of communication [telephone, email, letter, etc.])*
Ms. Denise S. Francis TRACs-Single Point of Contact P.O. Box 12428 Room 441-A Austin, Texas 78711-2428	6/29/2011		*none*
Ms. Kyle Mills Federal Emergency Management Agency 800 North Loop 288 Denton, Texas 76209	6/29/2011	7/11/2011	*none*
Ms. Tiffany Pickens Alamo Area Council of Governments Community Relations Coordinator 8700 Tesoro Drive, Suite 700 San Antonio, Texas 78217	6/29/2011	7/1/2011	7/12/2011 - Phone call - From Joe Ramos to Ms. Julie Ferguson. Mr. Ramos will comment when full (draft EA) is sent
Dr. David Sager Texas Parks and Wildlife Department Chief, Ecosystem/Habitat Assessment Branch 4200 Smith School Road Austin, Texas 78744-3291	6/29/2011	7/1/2011	*none*
San Antonio Public Library Attn: Government Documents, 2nd Floor 600 Soledad Street San Antonio, Texas 78205	6/29/2011	7/6/2011	*none*
Mr. Wallace Coffee Chairman Comanche Tribe PO Box 908 Lawton, Oklahoma 73502	6/29/2011	7/6/2011	*none*
Mr. Mark Chino President Mescalero Apache and Affiliated Tribes PO Box 227 Mescalero, New Mexico 88340	6/29/2011	7/6/2011	*none*

SUMMARY of IICEP CORRESPONDENCE
on the Draft DOPAA

ORGANIZATION/AGENCY	CERTIFIED LETTER MAIL DATE	CONFIRMATION RECEIVED	COMMENTS RECEIVED *(list date, form of communication [telephone, email, letter, etc.])*
Mr. Gary McAdams President Wichita and Affiliated Tribes PO Box 729 Andarko, Oklahoma 73005	6/29/2011	7/5/2011	*none*
Mr. Donald Patterson President Tonkawa Tribe 1 Rush Buffalo Road Tonkawa, Oklahoma 74653	6/29/2011	7/13/2011	*none*

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Lisa P. Jackson
USEPA Region 6
1445 Ross Ave., Suite 1200
Dallas, TX 75202

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X EPA REGION 6 ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

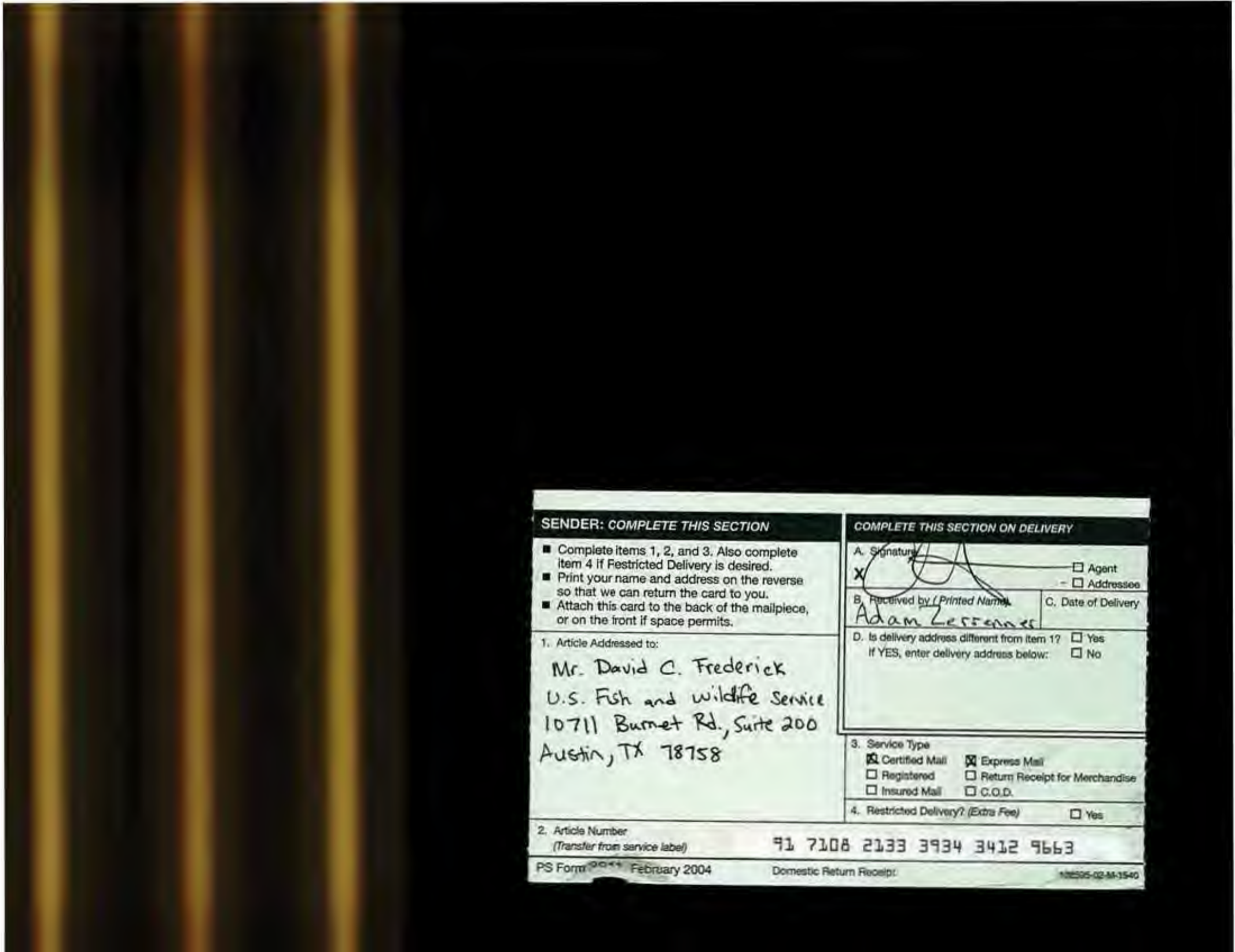
JUN 05 2011

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 91 7108 2133 3934 3412 9656

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540



SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. David C. Frederick
U.S. Fish and Wildlife Service
10711 Burnet Rd., Suite 200
Austin, TX 78758

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by (*Printed Name*) Adam Zerfoss

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 91 7108 2133 3934 3412 9663

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Wayne Lea
Regulatory Branch, Permit Section
Attn: CESWF-PER-R
P.O. Box 17300
Fort Worth, TX 76102-0300

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X D. Munn ☐ Agent ☐ Addressee

B. Received by (Printed Name) D Munn C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 91 7108 2133 3934 3412 9670

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Richard Hyde
Office of Permitting and Registration
Texas Commission on Environmental Quality
MC 122
P.O. Box 13087
Austin, TX 78711-3087

JUL 05 2011

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

TPASSCPA
JUL 01 2011

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 91 7108 2133 3934 3412 9687

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Kyle Mills
Federal Emergency Management Agency
800 North Loop 288
Denton, TX 76209

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number
(Transfer from service label) 91 7108 2133 3934 3412 9700

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Tiffany Pickens
Alamo Area Council of Governments
8700 Tesoro Dr, Suite 700
San Antonio, TX 78217

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) ERIC S FOWLER | C. Date of Delivery 7/1/11

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 91 7108 2133 3934 3412 9724

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Dr. David Sager
Texas Parks and Wildlife Dept.
4200 Smith School Rd.
Austin, TX 78744-3291

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Ron Buck ☒ Agent ☐ Addressee

B. Received by (Printed Name) RON BUCK
C. Date of Delivery 7-1-11

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 91 7108 2133 3934 3412 9731

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

San Antonio Public Library
Government Documents, 2nd Floor
600 Soledad Street
San Antonio, TX 78205

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Frances Martinez ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) FRANCES MARTINEZ
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (*Extra Fee*) ☐ Yes

2. Article Number
(*Transfer from service label*) 91 7108 2133 3934 3412 9748

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Wallace Coffee
Comanche Tribe
P.O. Box 908
Lawton, Oklahoma 73502

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) [illegible] C. Date of Delivery 11 16

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 91 7108 2133 3934 3412 9755

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Mark Chino
P.O. Box 227
Mescalero, NM 88340

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) | C. Date of Delivery: 7.6.11

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (*Extra Fee*) ☐ Yes

2. Article Number
(*Transfer from service label*) 91 7108 2133 3934 3412 9762

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Donald Patterson
1 Rush Buffalo Rd.
Tonkawa, Oklahoma 74653

COMPLETE THIS SECTION ON DELIVERY

A. Signature
x Michelle Hockert ☐ Agent ☐ Addressee

B. Received by (Printed Name) Michelle Hockert
C. Date of Delivery 7-8-11

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 91 7108 2133 3934 3412 9786

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Gary McAdams
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, Oklahoma 73005

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Barbara Blanchard ☐ Agent ☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery 7-5-11

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☒ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 91 7108 2133 3934 3412 9779

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

21450-2011-I-0244

San Antonio Water System

20 June 2011

CERTIFIED MAIL

NO ACTION
Date: 13 JULY 2011
Consultation #: 21450-2011-I-0244
Approved by _____
for Adam Zerrenner, Field Supervisor
U.S. FISH & WILDLIFE SERVICE, AUSTIN, TEXAS

FWES
FS
APS
ALL
Maya S
PAT
5 Jul 2011
OAS
FILE
NO.
DUE

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

RE: Interagency/ Intergovernmental Coordination for Environmental Planning
Western Watershed Sewer Relief Line (WWRL) C – Upper Segment
SAWS Job No. 09-2515

Dear Mr. Frederick,

On behalf of the San Antonio Water System (SAWS), Weston Solutions, Inc. (WESTON) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). SAWS is proposing to request an easement with a term of 75 years to perpetuity for construction and maintenance of a new 21,100-foot long, 84- and 90-inch diameter sanitary sewer pipeline that would cross Lackland Air Force Base (AFB) along its eastern boundary and along Westover Road. The purpose of the new pipeline is to replace an existing 54-inch diameter sanitary sewer pipeline that has exceeded its service life and requires additional capacity to service Lackland AFB and other customers.

The proposed pipeline would be constructed by open-cut trench methods, jack and bore or tunneling methods at select road crossings, creek crossings, and deeper segments where open-cut methods are not feasible. The alignment of the proposed relief line parallels the existing line in most cases. The proposed sewer is mostly within the 100-year floodplain and would cross Leon Creek at three locations. The existing sewer line would be abandoned in-place upon completion of construction of the new proposed sewer line.

As required by NEPA, the EA will also consider taking no action. With the No Action Alternative, there will remain a high risk of a collapse in the existing sewer main, resulting in a wastewater spill. Alternative strategies developed for the sanitary sewer improvements, including the No Action Alternative, will be assessed in the EA.

For your reference and comment, Chapter 1 – Purpose and Need for Action and Chapter 2 – Description of Proposed Action and Alternatives (DOPAA) of the Draft EA are enclosed. We request your participation early in the process, and solicit any particular concerns or recommendations you may have in the area of this project including those regarding resources that may be of special interest to you. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effects. Please send your environmental comments by 1 August 2011 to:

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

January 22, 2013

Planning, Environmental, and Regulatory Division
Regulatory Branch

SUBJECT: Project Number SWF-2011-00341, Western Watershed Sewer Relief Line (WWRL) C – Upper Segment

Mr. Kerry Averyt
San Antonio Water System (SAWS)
2800 US Highway 281 North
P.O. Box 2449
San Antonio, Texas 78298-2449

Dear Mr. Averyt:

This letter is in response to the information received July 5, 2011 and subsequent information received October 3, 2011, concerning a proposal by San Antonio Water System (SAWS) to construct a pipeline, located in the city of San Antonio, Bexar County, Texas. This project has been assigned Project Number SWF-2011-00341. Please include this number in all future correspondence concerning this project. Failure to reference the project number may result in a delay.

On August 12, 2011 we requested additional information necessary to consider your application complete. SAWS sent a letter, dated September 23, 2011, stating that the design review was only 60 percent complete and that a more detailed submittal of water crossings and impacts would be submitted at a later date.

Please provide information concerning the status of the proposed project including any work in waters of the United States. If we do not receive the requested information within 30 days of the date of this letter, we will consider your application administratively withdrawn. If withdrawn, you may re-open your application at a later date by submitting the requested information.

Thank you for your interest in our nation's water resources. If you have any questions concerning our regulatory program, please refer to our website at http://www.swf.usace.army.mil/missions/regulatory.aspx or contact Ms. Elisha Bradshaw at the address above or telephone 817-886-1738.

Please help the Regulatory Program improve its service by completing the survey on the following website: http://per2.nwp.usace.army.mil/survey.html.

Sincerely,

for Stephen L Brooks
Chief, Regulatory Branch

Copy Furnished:

Frances Martinez, P.E.
Weston Solutions, Inc.
70 N.E. Loop 410, Suite 600
San Antonio, Texas 78216-5842

San Antonio Water System

23 September 2011

Mr. Stephen Brooks
U.S. Army Corps of Engineers
Regulatory Branch
P.O. Box 17300
Fort Worth, Texas 78612-0300

Re: Interagency/ Intergovernmental Coordination for Environmental Planning
Western Watershed Sewer Relief Line (WWRL) – Upper Segment
Project Number SWF-2011-00341
SAWS Job No. 09-2515

Dear Mr. Brooks,

SAWS received your comments letter dated 12 August 2011 requesting additional information for the project. This coordination and response to your letter is specifically related to the ongoing Environmental Assessment (EA), and is not a jurisdictional determination request or permit submittal.

At this time, the pipeline's engineered design has not progressed enough to specifically detail the exact length of the crossing, amount of dredge or fill material, acreage of impacts or a cross section profile of the crossings. We anticipate that additional coordination with your office will be required pursuant to Section 404 of the Clean Water Act. All required permits will be obtained prior to any construction activities.

For your reference we have provided the following information in response to your request for additional information:

- Figure 1 – Project Route Map
- Figure 2 – Aerial Map
- Figure 3 – USGS Quadrangle Map
- Figure 4 – National Wetland Inventory Map
- Figure 5 – Soil Survey Map

The five proposed utility crossings are marked on the figures and are described in the table below. All the utility crossings will be bored/tunneled except at location 4, where the pipeline will be installed by open-cut construction methods. Please note that the project is currently under 60 percent design review and engineering and environmental surveys have not yet been completed.

SITE SPECIFIC INFORMATION	UTILITY CROSSING				
	1	2	3	4	5
USGS QUADRANGLE MAP NAME	Terrell Wells Quadrangle	Terrell Wells Quadrangle	San Antonio West Quadrangle	San Antonio West Quadrangle	San Antonio West Quadrangle
UTM COORDINATES	X: 540138.2129 Y: 3248653.0743 Zone: 14 Hemisphere: N	X: 539839.1939 Y: 3249008.3538 Zone: 14 Hemisphere: N	X: 539035.4313 Y: 3250491.0590 Zone: 14 Hemisphere: N	X: 538532.8535 Y: 3251632.9111 Zone: 14 Hemisphere: N	X: 538427.7347 Y: 3252529.3747 Zone: 14 Hemisphere: N
COUNTY	Bexar County	Bexar County	Bexar County	Bexar County	Bexar County
WATERWAY NAME	Leon Creek	Leon Creek	Leon Creek	Leon Creek	Leon Creek
NATIONAL WETLAND INVENTORY CLASSIFICATION	R2UBH	R2UBH	R2UBH	R2UBH	R2UBH
SOIL SERIES	Loire Clay Loam	Loire Clay Loam	Loire Clay Loam	Loire Clay Loam	Loire Clay Loam
DISTANCE BETWEEN ORDINARY HIGH WATER MARKS	Not Assessed - Trenchless Crossing	Not Assessed - Trenchless Crossing	Not Assessed - Trenchless Crossing	Approximately 35 feet	Not Assessed - Trenchless Crossing
PROPOSED METHOD OF CROSSING	Trenchless	Trenchless	Trenchless	Open-Cut	Trenchless

To facilitate final design and preparation of the EA, we request your participation early in the process. Please send your environmental comments by 21 October 2011 to:

Weston Solutions, Inc.
ATTN: Frances Martinez, P.E.
70 N.E. Loop 410, Suite 600
San Antonio, TX 78216-5842
Phone: (210) 308-6350
Fax: (210) 308-4329
Email: Frances.Martinez@WestonSolutions.com

Thank you for your assistance in this matter. Please forward any requests for additional information or applicable comments to the SAWS Project Engineer, Julie Ferguson, P.E. at (210) 233-3489.

Sincerely,

Kerry Averyt, P.E.
Manager
Replacements and Improvements Division

Attachments (6)

cc: Frances Plocek, P.E., Director, SAWS
Julie A. Ferguson, P.E., Project Manager, SAWS
Abdel Hamed, P.E., Project Manager, WESTON

ATTACHMENT A

U.S. Army Corps of Engineers Comments Letter, dated 12 August 2011

LEGEND

- Proposed Sanitary Sewer Lateral Line
- Proposed Sanitary Sewer Line
- 100 - Foot Easement
- Streams
- Lackland AFB
- Property Line
- (1) Leon Creek Utility Crossing

0 500 1,000
Feet

N

SOURCE: Virtual Earth, Microsoft Corp, 2009

WESTON SOLUTIONS

FIGURE 1
PROJECT ROUTE MAP
WESTERN WATERSHED SEWER RELIEF LINE
HWY 90 TO MILITARY DR PROJECT
(UPPER SEGMENT)
SAN ANTONIO WATER SYSTEM
LACKLAND AFB, TEXAS

DATE	PROJECT NO.	SCALE
SEPTEMBER 2011	10412.017.001.2110	AS SHOWN

LEGEND

- Proposed Sanitary Sewer Lateral Line
- Proposed Sanitary Sewer Line
- 100 - Foot Easement
- (1) Leon Creek Utility Crossing

0 500 1,000

Feet

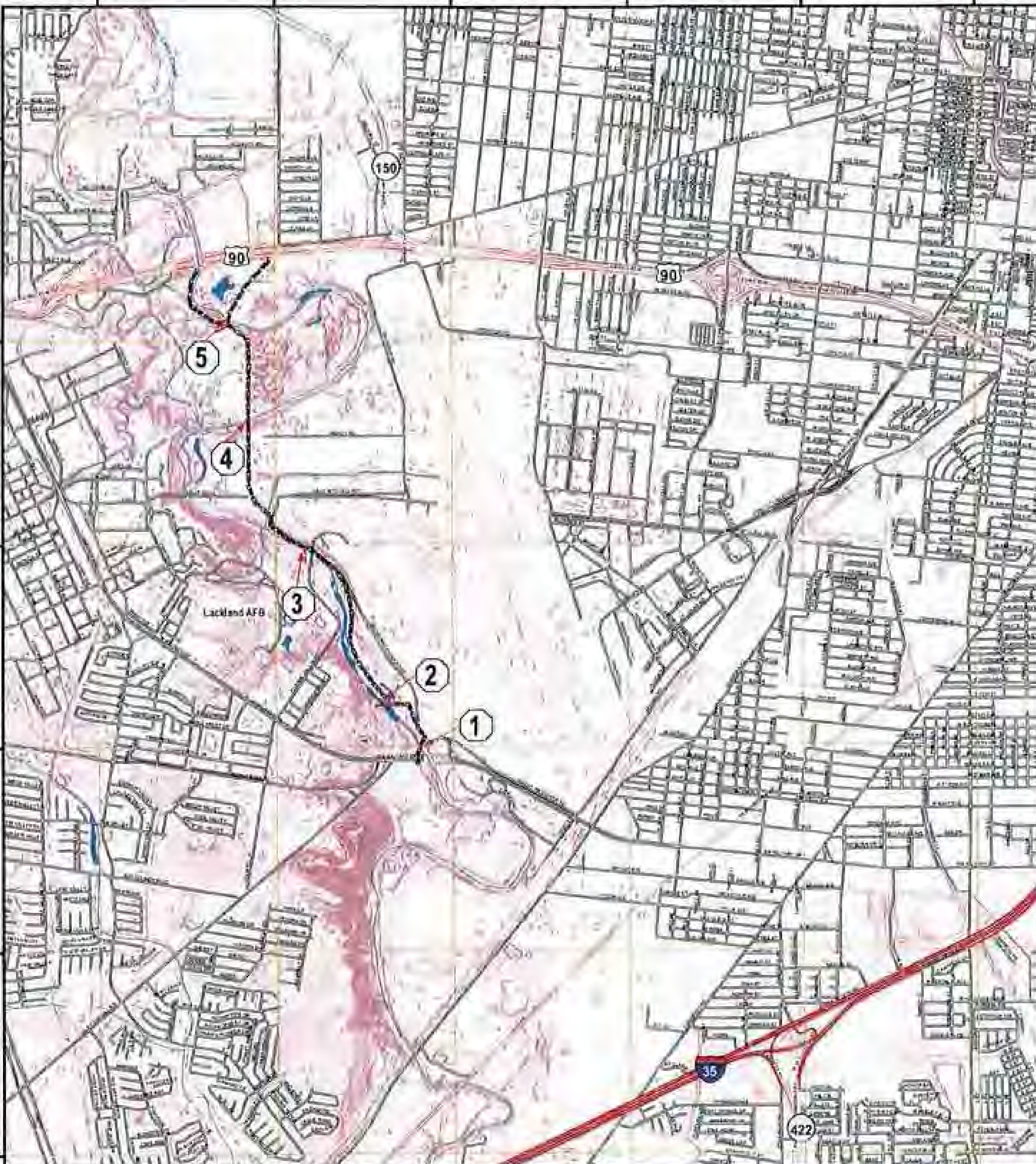
N

SOURCE: Virtual Earth, Microsoft Corp. 2009

WESTON SOLUTIONS

FIGURE 2
AERIAL MAP
WESTERN WATERSHED SEWER RELIEF LINE
HWY 90 TO MILITARY DR PROJECT
(UPPER SEGMENT)
SAN ANTONIO WATER SYSTEM
LACKLAND AFB, TEXAS

DATE	PROJECT NO.	SCALE
SEPTEMBER 2011	10412.017.001.2110	AS SHOWN



LEGEND

Proposed Sanitary Sewer Lateral Line	(1) Leon Creek Utility Crossing
Proposed Sanitary Sewer Line	Streams
100 - Foot Easement	NWI Mapped Wetlands
Local Road	Contours
Inter State HighWay	
State Route	
US Route	

0 500 1,000 1,500

Meters

N

SOURCE: Virtual Earth, Microsoft Corp, 2009

WESTON SOLUTIONS

FIGURE 3

USGS QUADRANGLE MAP
WESTERN WATERSHED SEWER RELIEF LINE
HWY 90 TO MILITARY DR PROJECT
(UPPER SEGMENT)
SAN ANTONIO WATER SYSTEM
LACKLAND AFB, TEXAS

DATE	PROJECT NO	SCALE
SEPTEMBER 2011	10412.017.001.2110	AS SHOWN

LEGEND
- Proposed Sanitary Sewer Lateral Line
- Proposed Sanitary Sewer Line
- 100 - Foot Easement
- 100 Yr Floodplain
- Wetlands
- Streams
- Property Line
- Lackland AFB
- (1) Leon Creek Utility Crossing

PROPERTY OWNERS
A = DOROTHY SINGLETON
B1, B2, B3 = CITY OF SAN ANTONIO
C = CRISTOVAL ALCOSER
D = LACKLAND AFB

0 500 1,000
Feet

N

Wetland types as identified by the National Wetland Inventory
PUBHx - Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
R2UBH - Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded
PUSCh - Palustrine, Unconsolidated Shore, Seasonally Flooded, Diked/Impounded
PUBHh - Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded
PEM1Cx - Palustrine, Emergent Persistent Seasonably Flood, Excavated
PFO1A - Palustrine, forested, broad-leaved deciduous, temporarily flooded

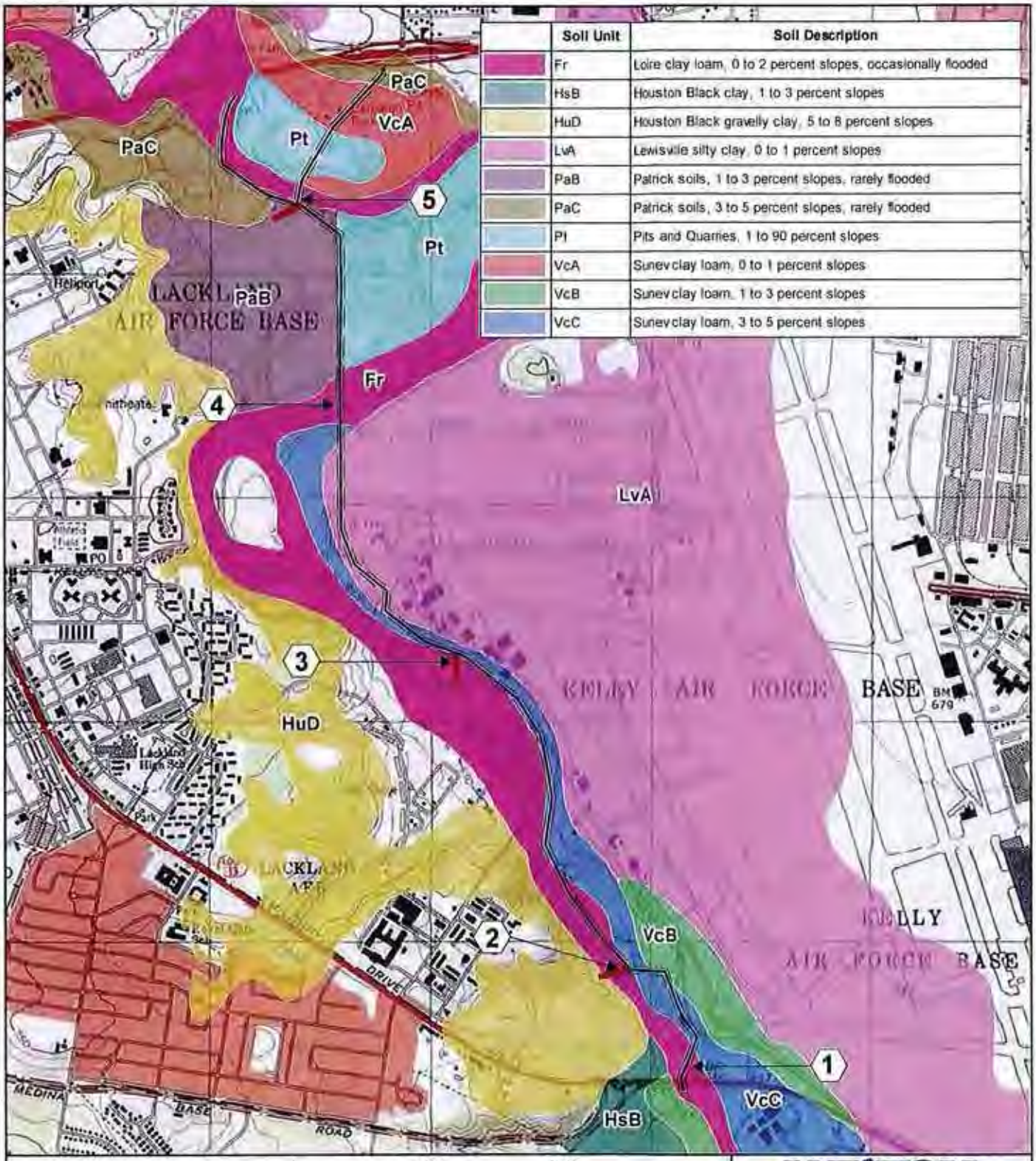
SOURCE: Visual Earth, Microsoft Corp. 2009

WESTON SOLUTIONS

FIGURE 4
NATIONAL WETLAND INVENTORY MAP
WESTERN WATERSHED SEWER RELIEF LINE
HWY 90 TO MILITARY DR PROJECT
(UPPER SEGMENT)
SAN ANTONIO WATER SYSTEM
LACKLAND AFB, TEXAS

DATE	PROJECT NO.	SCALE
SEPTEMBER 2011	10412.017.001.2110	AS SHOWN

REF: \\WWPL\...\Figure 4.mxd 09/2011



SOURCE:
1) U.S. Geological Survey, 7.5 Minute Topographic Quadrangle, San Antonio West, Bexar County, Texas, 1992.

2) U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), Soil Survey Geographic (SSURGO) Database, Bexar County, Texas, 2011.

WESTON SOLUTIONS

FIGURE 5
SOIL SURVEY MAP
WESTERN WATERSHED SEWER RELIEF LINE
HWY 90 TO MILITARY DR PROJECT
(UPPER SEGMENT)
SAN ANTONIO WATER SYSTEM
LACKLAND AFB, TEXAS

DATE	PROJECT NO	SCALE
SEPTEMBER, 2011	10402.017.001.2100	AS SHOWN

FILE: I:\GIS Project Files\AWS\10417\Western Watershed Relief Line\Soil_Map_WWRL_Easement.mxd 3:49:30 PM 9/6/2013 WILDER

ATTACHMENT A

U.S. Army Corps of Engineers Comments Letter, dated 12 August 2011

REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

August 12, 2011

Planning, Environmental, and Regulatory Division
Regulatory Branch

SUBJECT: Project Number SWF-2011-00341, Western Watershed Sewer Relief Line (WWRL) C - Upper Segment

Mr. Kerry Averyt, P.E.
San Antonio Water System
2800 U.S. Hwy 281 North
P.O. Box 2449
San Antonio, Texas 78298-2449

Dear Mr. Averyt:

Thank you for your letter received July 5, 2011, concerning a proposal by San Antonio Water System (SAWS) to construct a pipeline that is mostly located within the 100-year floodplain and would cross Leon Creek at three locations in the City of San Antonio, Bexar County, Texas. This project has been assigned Project Number SWF-2011-00341. Please include this number in all future correspondence concerning this project. Failure to reference the project number may result in a delay.

We have reviewed this project in accordance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. Under Section 404, the U. S. Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the United States, including wetlands. Our responsibility under Section 10 is to regulate any work in, or affecting, navigable waters of the United States. Any such discharge or work requires Department of the Army authorization in the form of a permit. For more information on the USACE Regulatory Program, please reference the Fort Worth District Regulatory Branch homepage at www.swf.usace.army.mil/regulatory.

We are unable to determine from the information that you provided in your letter whether Department of the Army authorization will be required, and if so, in what form. The proposed construction activities may be authorized by a general permit, such as a regional general permit CESWF-05-RGP-2 for Utility Lines and Intake and Outfall Structures or a nationwide permit 12 for Utility Line Activities. We have enclosed a copy of these general permits for your reference as well as the nationwide permit 12 application form, which can also be accessed electronically at http://www.swf.usace.army.mil/pubdata/environ/regulatory/permitting/applicationforms/. If the

project does not meet the terms and conditions of a general permit, an individual permit would be required for authorization.

So that we may continue our evaluation of your proposed project, we request that you provide us with the following information:

1. A detailed project description.

2. A map (or maps) showing the entire route of the project.

3. The proposed route of the project on 8 ½ by 11-inch copies of 7.5-minute United States Geological Survey (USGS) quadrangle maps, national wetland inventory maps, published soil survey maps, scaled aerial photographs, and/or other suitable maps. Identify all base maps, (e.g. "Fort Worth, Texas" 7.5-minute USGS quadrangle, Natural Resources Conservation Service Tarrant County Soil Survey sheet 10). Clearly mark (such as by circling) and number the location of each proposed utility line crossing of a water of the United States and any appurtenant structure(s) in waters of the United States on the map. Waters of the United States include streams and rivers and most lakes, ponds, mudflats, sandflats, wetlands, sloughs, wet meadows, abandoned sand and gravel mining and construction pits, and similar areas.

4. For each potential utility line crossing or appurtenant structure in a water of the United States, include the following site specific information when applicable:

    a. 7.5-minute USGS quadrangle map name, universal transverse mercator (UTM) coordinates, county or parish, waterway name;

    b. a brief characterization of the crossing area (stream, forested wetland, non-forested wetland, etc.) including the National Wetland Inventory classification and soil series;

    c. distance between ordinary high water marks;

    d. proposed method of crossing (trench, bore, span, bridge, culvert etc.);

    e. length of proposed crossing;

    f. width of temporary and permanent rights-of-way;

    g. type and amount of dredged or fill material proposed to be discharged;

    h. acreage of proposed temporary and permanent adverse impacts to waters of the United States, including wetlands; and

    i. a typical cross-section.

Please refer to the enclosed guidance for Department of the Army submittals for additional details about what you should submit for this and future linear projects. Additional information, including more detailed jurisdictional determination data, may be needed to complete our evaluation of your project in some cases. We encourage you to consult with a qualified specialist (biologist, ecologist or other specialist qualified in preliminary jurisdictional determinations) who is familiar with the 1987 Corps of Engineers Wetlands Delineation Manual and the USACE Regulatory Program (33 CFR Parts 320-331).

Several endangered and threatened species, including the [unnamed] ground beetle (*Rhadine infernalis*), [unnamed] ground beetle (*Rhadine exilis*), black-capped Vireo (*Vireo atricapilla*), Braken Bat Cave Meshweaver (*Cicurina venii*), Cokendolpher Cave Harvestman (*Texella cokendopheri*), Comal Springs dryopid beetle (*Stygoparnus comalensis*), Comal Springs riffle beetle (*Heterelmis comalensis*), fountain darter (*Etheostoma fonticola*), golden-cheeked warbler (*Dendroica chrysoparia*), Government Canyon Bat Cave Meshweaver (*Cicurina vespera*), Government Canyon Bat Cave Spider (*Neoleptoneta microps*), Helotes mold beetle (*Batrisodes venyivi*), Madla's Cave Meshweaver (*Cicurina madla*), Peck's cave amphipod (*Stygobromus (=Stygonectes) peckl*), Robber Baron Cave Meshweaver (*Cicurina baronia*), San Marcos salamander (*Eurycea nana*), Texas blind salamander (*Typhlomolge rathbuni*), Texas wild rice (*Zizania texana*), and the whooping crane (*Grus Americana*) are known to occur in Bexar County. Please consider the potential effects of your proposed action on cultural resources and endangered species in your planning efforts. For additional information about endangered and threatened species, please contact the U. S. Fish and Wildlife Service.

We encourage you to avoid and minimize adverse impacts to streams, wetlands, and other waters of the United States in planning this project. Please forward your response to us as soon as possible so that we may continue our evaluation of your request. Please note that it is unlawful to start work without a Department of the Army permit when one is required.

Thank you for your interest in our nation's water resources. Please reference the Fort Worth District Regulatory Branch homepage at http://www.swf.usace.army.mil/regulatory, mitigation at http://www.usace.army.mil/CECW/Pages/final_cmr.aspx, and submittal guidance at http://www.swf.usace.army.mil/pubdata/environ/regulatory/introduction/submital.pdf to help you supplement your current request or prepare future requests.

If you have any questions concerning our regulatory program, please contact Ms. Elisha Bradshaw at the address above or telephone (817) 886-1738.

Sincerely,

for Stephen L Brooks
Chief, Regulatory Branch

Enclosures

Copies Furnished

Weston Solutions, Incorporated
ATTN: Frances Martinez, P.E.
70 N.E. Loop 410, Suite 600
San Antonio, Texas 78216-5842

Public Notice

US Army Corps of Engineers
Fort Worth District

Number: CESWF-05-RGP-2

Activity: Utility Lines and Intake and Outfall Structures

Date: November 28, 2005

REGIONAL GENERAL PERMIT

UTILITY LINES AND INTAKE AND OUTFALL STRUCTURES

Interested parties are hereby notified that, in accordance with 33 CFR 322.2(f), 323.2(h), and 325.2(e)(2) published in the Federal Register November 13, 1986, the Fort Worth, Albuquerque, and Tulsa districts of the U. S. Army Corps of Engineers (USACE) are issuing this regional general permit (RGP) to authorize the work described herein pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

The purpose of this RGP is to expedite authorization of recurring work that would have minimal adverse impact on the aquatic environment. This RGP contains provisions intended to protect the environment, including natural and cultural resources. Work that does not comply with these provisions may require an individual permit. However, compliance with the conditions contained in this RGP does not guarantee authorization of the work under this RGP. Work or structures that would have unacceptable impacts on the public interest are not authorized. Activities requiring Department of the Army authorization that are not specifically covered by this permit are prohibited unless authorized by a separate permit.

This RGP has been designated CESWF-05-RGP-2 in the Fort Worth District, TXG300011 in the Tulsa District, and 2005 00060 in the Albuquerque District, and would replace RGP SWF-99-RGP-2 in the Fort Worth District, TXG300011 in the Tulsa District, and TX-OYT-0491 in the Albuquerque District.

SCOPE OF WORK

Work authorized by this RGP is limited to the discharge of dredged or fill material into waters of the United States (U.S.), including wetlands, and the placement of structures and performance of work in, or affecting, navigable waters of the U.S., associated with the construction and maintenance, including the placement of backfill and bedding, and other dredged and fill material associated with utility lines and intake and outfall structures, provided there is no more than minimal adverse impact to the aquatic environment associated with the work, including any change in pre-construction contours or drainage patterns within affected waters of the U.S. The area of waters of the U.S. that is disturbed must be limited to the minimum amount necessary for construction of the utility line. Appropriate and practicable compensatory mitigation shall be required for unavoidable adverse impacts to waters of the U.S. This RGP does not authorize activities that would have more than minimal adverse impacts on the aquatic environment or cause more than minimal reduction in the reach of waters of the U.S.

A "utility line" is defined as any pipe or pipeline for the transportation of a gaseous, liquid, liquefiable, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone and telegraph messages, and radio and television communication. The term

"utility line" does not include activities or structures that drain a water of the U.S., such as drainage tile, however, it does apply to pipes conveying drainage from another area.

Intake and outfall structures are not required to be directly related to a utility line to be authorized by this permit. These structures shall be constructed so as to prevent erosion of the bank below and to the sides of the structure. The construction of temporary coffer dams, equipment ramps, roads, and similar structures necessary for the construction of intake and outfall structures are also authorized by this permit.

This RGP authorizes mechanized land clearing necessary for the installation of utility lines, provided the cleared area is kept to the minimum necessary and there is no more than minimal adverse impact associated with the activity.

Material resulting from trench excavation may be temporarily sidecast into waters of the U.S. for up to three months provided that the material is not placed in a manner that will allow it to be dispersed by currents or other forces. The USACE may extend the period of sidecasting to a period not to exceed 180 days, where appropriate. In wetlands, the top 6 to 12 inches of a trench should generally be backfilled with topsoil from the trench.

Materials to be placed into waters of the U.S. are restricted to clean native soils obtained at the site and concrete, sand, gravel, rock, and other coarse aggregate. All material used shall be of suitable quality and free of toxic pollutants in toxic quantities. Immediately upon completion of the construction of the utility line, all excess material and temporary structures must be removed to upland areas and any exposed slopes and stream banks must be stabilized.

The activities listed above are authorized by this RGP provided they meet all of the following criteria:

1. Adverse impacts to waters of the U.S., including wetlands, shall be avoided and minimized to the extent practicable through the use of alternatives that have less adverse impact on the aquatic environment. Projects shall be designed to pass low, normal, and expected high flows, to not interfere with the migration of aquatic organisms, avoid the creation of impoundments, and maintain the preconstruction conditions to the extent practicable.

2. All fills and structures above the existing ground elevation in waters of the U.S. shall be constructed and placed so as to minimize adverse impacts to local hydrology. Projects shall not promote the drainage of waters of the U.S. or cause unnecessary impoundment of water.

3. All soil-disturbing activities shall be conducted in a manner that will minimize the extent and duration of exposure of unprotected soils. Appropriate erosion and siltation controls shall be used and maintained in effective operating condition during and after construction until all exposed soil is permanently stabilized. Measures to control erosion and run-off, such as berms, silt screens, sedimentation basins, revegetation, mulching, and similar means, shall be implemented. All damage resulting from erosion and/or sedimentation shall be repaired.

4. The water velocity at any intake structure screen shall be no greater than 0.5 feet per second and the mesh size of the intake structure screen shall be no greater than 0.25 inch.

5. Compensatory mitigation shall be provided for unavoidable adverse impacts to waters of the U.S., including wetlands, when appropriate and practicable.

6. Preconstruction Notification (PCN): Prior to construction, a prospective permittee must notify the USACE of the proposed work in accordance with the requirements of the "Preconstruction Notifications" section below (see pages 6-10).

7. Permittees shall submit a written compliance report to the USACE within 120 days after completion of all work that includes the following:

a. a statement addressing whether the authorized work and mitigation required to date have been implemented in accordance with the USACE authorization, including all general and special conditions;

b. a summary of all construction and mitigation activities associated with the project that have occurred, including documentation of the completion of all work and compliance with all terms and conditions of the permit;

c. a comparison of the pre- and post-construction conditions of the project area;

d. a detailed description of all impacts that have occurred to waters of the U.S.;

e. a map showing the final configuration of restored, enhanced, created, and preserved waters of the U.S., including wetlands;

f. a presentation of the species of plants, number and acreage of vegetation planted, final topographic elevations of the project, and a map describing the location of the plantings;

g. a discussion about whether disturbed areas, such as stream banks, and temporary impact areas are revegetating adequately and not suffering erosion damage; and

h. photographs and maps as appropriate to illustrate the information presented.

The prospective permittee shall not begin any activity until notified in writing by the USACE that the activity is authorized under this RGP with any special conditions imposed by the USACE. The USACE will respond as promptly as practicable to all PCNs.

CONDITIONS OF THE RGP

In addition to the limitations in the scope of work, work authorized by this RGP is subject to the general conditions listed in Appendix A. References in the general conditions to "completion of construction" refer to completion of work within the permit area for the activity. Also, for projects requiring water quality certification, projects are subject to the conditions of the water quality certification that applies.

LOCATION OF WORK

The provisions of this RGP will be applicable to all waters of the U.S., including all navigable waters of the U.S., in the Fort Worth, Albuquerque, and Tulsa districts of the USACE, within the states of Texas and Louisiana (see Appendixes B and C), with the following exception:

From the Precinct Line Road crossing of the West Fork Trinity River in Tarrant County, Texas, to the State Highway 34 crossing of the Trinity River in Kaufman County, Texas, dredged material cannot be used for cofferdams, equipment ramps, or similar structures. Dredged material may only be used for backfill in those projects where the trench has been completely de-watered. In such cases, dredged material can only be used to within two feet of the top of the trench and must be covered by two feet of

clean fill material. Material excavated from these sections of the river must be properly disposed of at an upland site and covered to prevent re-entry into the river or contamination of surface or ground water. The location of all disposal sites must be included in the application for authorization.

The Fort Worth District includes the Sabine River watershed in Sabine, De Soto, and Caddo Parishes in the State of Louisiana.

WATER QUALITY CERTIFICATION

The Texas Commission on Environmental Quality (TCEQ) has certified pursuant to Section 401 of the CWA and Title 30, Texas Administrative Code, Chapter 279, for the activities for which it is responsible, that activities conducted under this RGP should not result in a violation of established Texas Water Quality Standards provided reasonable best management practices are included and followed (See General Condition 32 in Appendix A and Appendix E).

The Railroad Commission of Texas (RRC) has granted certification pursuant to Section 401 of the CWA, for the activities associated with the exploration, development, and production, including pipeline transportation, of oil, gas, or geothermal resources that may result in a discharge to waters of the United States, that activities conducted under this RGP comply with applicable water quality laws conditional on the addition of language to the permit that 1) activities that are not water dependent are presumed to have a practicable alternative and 2) compensatory mitigation is not considered an alternative. The specified language has hereby been added relative to RRC water quality certification (see special condition 33 in Appendix A and Appendix E).

The Louisiana Department of Environmental Quality (LDEQ) has stated that the LDEQ has no objections for the renewal of this RGP under Water Quality Certification JP 050121-05/AI# 101986/CER20050001 (see Appendix E).

AUTHORIZATION FROM OTHER AGENCIES

This RGP does not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law. The permittee is responsible for obtaining any additional federal, state, or local permits or approvals that may be required, including, but not limited to:

1. When streambed materials such as sand, shell, gravel and marl would be disturbed or removed from state-owned waters in Texas, the permittee may be required to obtain a permit from the Texas Parks and Wildlife Department (TPWD), 4200 Smith School Road, Austin, Texas 78744. All activities occurring on lands owned or managed by the TPWD require a signed agreement from that agency prior to commencing operations.

2. All activities in Texas located on lands under the jurisdiction of the Texas General Land Office (GLO), 1700 North Congress Avenue, Austin, Texas 78701-1495, must have prior approval from that office. The placement of structures onto state-owned streambeds, state-owned uplands, or coastal state-owned lands in Texas may require the issuance of a lease or easement from the GLO.

3. Any work that would be conducted on lands or in waters under the jurisdiction of any river authority or other operating agency may require a permit from that agency.

4. Projects involving government property at USACE reservoirs require submission of detailed design information to the reservoir manager and USACE approval for the proposed activity to occur on government property, including a real estate consent to easement.

5. Activities within a 100-year floodplain may require a floodplain development permit from the local floodplain administrator or, in Texas, the TCEQ Flood Management Unit, (512) 239-4771 (see Appendix A, general condition 31). In addition, evidence that the project meets non-encroachment restrictions in regulatory floodways may be required.

6. In accordance with the federal Clean Water Act and Texas statute, a point source discharge of pollutants from an outfall structure associated with activities other than oil and gas exploration, development, and production must be authorized, conditionally authorized, or specifically exempted from regulation under the terms of the Texas Pollutant Discharge Elimination System (TPDES) program through the TCEQ, Water Quality Division (MC-150), P. O. Box 13087, Austin, Texas 78711-3087. In accordance with the federal Clean Water Act and Texas Statute, a point source discharge of pollutants from an outfall structure associated with oil and gas exploration, development, and production must be authorized, conditionally authorized, or specifically exempted from regulation by the U. S. Environmental Protection Agency (EPA), Region 6, Water Quality Protection Division (6WQ), 1445 Ross Avenue, Dallas, Texas 75202, and the Railroad Commission of Texas, Oil and Gas Division, 1701 North Congress Avenue, P. O. Box 12967, Austin, Texas 78711-2967, respectively.

7. Activities such as clearing, grading, and excavation that would disturb one or more acres of land may require a National Pollutant Discharge Elimination System (NPDES) storm water management permit from the U.S. Environmental Protection Agency (EPA), Region 6, Water Quality Protection Division (6WQ), 1445 Ross Avenue, Dallas Texas 75202 or a TPDES storm water management permit from the TCEQ, Water Quality Division (MC-150), P. O. Box 13087, Austin, Texas 78711-3087.

8. The use of scrap tires for bank stabilization and erosion control requires notification of the TCEQ Waste Tire Recycling Program, P. O. Box 13087, Austin, Texas 78711-3087.

9. Activities associated with the exploration, development, or production of oil, gas, or geothermal resources, including the transportation of oil or gas prior to the refining of such oil or the use of such gas in manufacturing or as a fuel, as described in Texas Natural Resource Code Annotated §91.101, may require authorization from the Railroad Commission of Texas, P.O. Box 12967, Austin, Texas 78711-2967, the Federal Energy Regulatory Commission, 3125 Presidential Parkway, Suite 300, Atlanta, Georgia 30340, and/or the Texas General Land Office, 1700 North Congress Avenue, Austin, Texas 78701-1495.

10. The construction, operation, maintenance, or connection of facilities at the borders of the U.S. are subject to Executive control and must be authorized by the President, Secretary of State, or other delegated official. Activities that would require such authorization and would affect an international water in Texas, including the Rio Grande, Amistad Reservoir, Falcon Lake, and all tributaries of the Rio Grande, may require authorization from the International Boundary and Water Commission, The Commons, Building C, Suite 310, 4171 North Mesa Street, El Paso, Texas 79902.

11. Activities outside the USACE permit area that may affect a federally-listed endangered or threatened species or its critical habitat could require permits from the U.S. Fish and Wildlife Service (FWS) to prevent a violation of the Endangered Species Act under Section 9. For further information, contact the U. S. Fish and Wildlife Service in Arlington: Stadium Centre Building, 711 Stadium Drive East, Suite 252, Arlington, Texas 76011, (817) 277-1100, http://www.fws.gov/southwest/es/arlingtontexas/; Austin: Compass Bank Building, 10711 Burnet Road, Suite 200, Austin, Texas 78758, (512) 490-0057, http://www.fws.gov/southwest/es/austintexas/; Corpus Christi: TAMU-CC, Campus Box 338, 6300 Ocean Drive, Corpus Christi, Texas 78412, (512) 994-9005, http://www.fws.gov/southwest/es/CorpusChristiTexas/; Clear Lake: 17629 El Camino Real, Suite 211,

Houston, Texas 77058, (281) 286-8282, http://www.fws.gov/southwest/es/clearlake/texas/; or Lafayette: 646 Cajundome Boulevard, Suite 400, Lafayette, Louisiana 70506, (337) 291-3100, http://www.fws.gov/lafayette/.

12. Activities may affect state-listed rare, threatened, or endangered species. For a rare, threatened, and endangered species review in the State of Texas, submit projects to: Wildlife Habitat Assessment, Texas Parks and Wildlife Department, 3000 South IH 35, Suite 100, Austin, Texas 78704.

13. Activities in the recharge zone of the Edwards Aquifer require and activities in the contributing zone of the Edwards Aquifer that disturb more than 5 acres of land under Edwards Aquifer rules a Water Pollution Abatement Plan. For further information contact the Edwards Aquifer Authority, 1615 North St. Mary's Street, San Antonio, Texas 78215

PRECONSTRUCTION NOTIFICATIONS

Preconstruction notifications (PCNs) requesting verification from the USACE of authorization under this RGP must be in writing and include a description of the project, proposed construction schedule, and the name, address and telephone number of a point of contact who can be reached during normal business hours. The information may be assembled and submitted in a format convenient to the applicant. All pages, including maps, drawings, figures, sheets, etc., must be on 8 ½ by 11-inch paper or fold easily to 8 ½ x 11-inch dimensions. The detail of the information should be commensurate with the size and environmental impact of the project. The description of the project must include at least the following information:

1. The purpose of, and need for, the project.

2. A delineation, determination, and characterization of wetlands and other waters of the U.S. in the area that would be affected by the proposed work, and a description of the project's likely impact on the aquatic environment. Delineations of wetlands must be conducted using the "Corps of Engineers Wetland Delineation Manual", USACE Waterways Experiment Station Wetlands Research Program Technical Report Y-87-1, dated January 1987 (on-line edition available at (http://www.swf.usace.army.mil/pubdata/environ/regulatory/jurisdiction/wlman87.pdf), including all supplemental guidance (currently includes guidance dated October 7, 1991, and March 6, 1992). The supplemental guidance is included in the on-line version and may also be obtained from your USACE district office. In addition, include the width and depth of the water body and the waterward distance of any structures from the existing shoreline.

3. A vicinity map, or maps, on copies of 7.5-minute U. S. Geological Survey (USGS) quadrangle maps, county maps, scaled aerial photographs, or other suitable maps, clearly showing the location of all temporary and permanent elements of the project, including the entire route of the project for utility lines and any associated borrow pit(s), disposal site(s), staging area(s), etc. This map, or maps, or an additional map, or maps, must show the project area in relation to nearby highways and other roads, and other pertinent features. A ground survey is not required to obtain this information. Identify all base maps, e.g. Fort Worth, Texas 7.5-minute USGS quadrangle, etc. Clearly identify and number the location of each proposed utility line crossing of a water of the U.S. and any appurtenant structure(s) in waters of the U.S.

4. Plan, profile, and cross-section views of all work (fills, excavations, structures, etc.), both permanent and temporary, in, or adjacent to, waters of the U.S., including wetlands, and a description of the proposed activities and structures, such as the dimensions and/or locations of roads (both temporary and permanent), coffer dams, equipment ramps, borrow pits, disposal areas, staging areas, haul roads, and other project related areas within the USACE permit area(s). The permit area(s) includes all waters of the

U.S. affected by activities associated with the project, as well as any additional area of non-waters of the U.S. in the immediate vicinity of, directly associated with, and/or affected by, activities in waters of the U.S. The USACE permit area(s) includes associated borrow pits, disposal areas, staging areas, etc. in many cases. For each crossing or activity, such as of a utility line, in a water of the U.S. include the following site-specific information when applicable:

a. a brief characterization of the crossing area including type (stream, forested wetland, non-forested wetland, etc.), function, value;

b. distance between ordinary high water marks;

c. length, width, and area of waters of the U.S. affected (temporary and permanent);

d. width of temporary and permanent rights-of-way;

e. proposed method of crossing (bore, trench, etc.)

f. source, type, and volumes of dredged and/or fill material to be discharged;

5. A written discussion of the alternatives considered and the rationale for selecting the proposed alternative as the least environmentally damaging practicable alternative. Practicable alternatives that do not involve a discharge into a special aquatic site, such as wetlands, are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise. The application must also include documentation that the amount of area impacted is the minimum necessary to accomplish the project.

6. An assessment of the adverse and beneficial effects, both permanent and temporary, of the proposed work and documentation that the work would result in no more than a minimal adverse impact on the aquatic environment.

7. Documentation that the amount of area impacted is the minimum necessary to accomplish the project and, in cases where the activity would result in a change to pre-construction contours and/or drainage patterns, a description of the anticipated impacts of the changes, the reason(s) that the changes are necessary, and documentation that the changes would not result in more than minimal adverse impact on the aquatic environment.

8. A mitigation plan presenting appropriate and practicable measures planned: a) to avoid and minimize adverse impacts to the aquatic environment, particularly associated with temporary elements of the proposed project, and b) to compensate for the remaining unavoidable adverse impacts to the aquatic environment. If compensatory mitigation for unavoidable adverse impacts to the aquatic environment is not proposed, the application must include documentation that the proposed work would have minimal adverse impact on the aquatic environment without compensatory mitigation, why compensatory mitigation would be inappropriate and/or impracticable, and that compensatory mitigation should not be required. The mitigation plan must include a description of proposed appropriate and practicable actions that would restore, enhance, protect and/or replace the functions and values of the aquatic environment unavoidably lost in the permit area because of the proposed work. See Appendix D for more information.

9. An assessment documenting whether any species listed as endangered or threatened under the Endangered Species Act might be affected by, or found in the vicinity of, the USACE permit area(s) for the proposed project. Coordination with the FWS concerning the potential impact of the entire project on

endangered and threatened species is encouraged. See contact information, including website addresses, for FWS offices in "AUTHORIZATION FROM OTHER AGENCIES" section above.

10. A discussion documenting whether any cultural resources, particularly those historic properties listed, or eligible for listing, in the National Register of Historic Places (NRHP), would be affected by, or are in the vicinity of, the USACE permit area(s) for the proposed project.

11. The applicant should include any other relevant information, including information on hydrology and hydraulics.

Early coordination with the USACE, well before a final PCN is submitted, is beneficial in many cases.

Address PCNs and inquiries concerning proposed activities to the appropriate district office (see Appendix B for boundaries of district offices):

Fort Worth District: Regulatory Branch, U.S. Army Corps of Engineers, Fort Worth District, ATTN: CESWF-PER-R, P. O. Box 17300, Fort Worth, TX 76102-0300, telephone: (817) 886-1731, website address: http://www.swf.usace.army.mil/pubdata/environ/regulatory/index.asp

Albuquerque District: El Paso Regulatory Office, U.S. Army Corps of Engineers, Albuquerque District, ATTN: CESPA-OD-R, P. O. Box 6096, Fort Bliss, TX 79906-0096, telephone: (915) 568-1359, website address: http://www.spa.usace.army.mil/reg/

Tulsa District: Regulatory Branch, U. S. Army Corps of Engineers, Tulsa District, ATTN: CESWT-PE-R, 1645 South 101st East Avenue, Tulsa, OK 74128-4609, telephone: (918) 669-7400, website address: http://www.swt.usace.army.mil/permits/permits.cfm

EVALUATION AND VERIFICATION PROCEDURES

For all discharges within the habitat types or areas listed below, the USACE will coordinate with the resource agencies as specified in the Nationwide Permit (NWP) general condition on notification (currently General Condition 13(e), *Federal Register*, Vol. 67, No. 10, Tuesday, January 15, 2002, Vol. 67, No. 30, Wednesday, February 13, 2002, and Vol. 67, No. 37, Monday, February 25, 2002). The habitat types and areas are:

1. wetlands, typically referred to as pitcher plant bogs, that are characterized by an organic surface soil layer and include vegetation such as pitcher plants (*Sarracenia sp.*), sundews (*Drosera sp.*), and sphagnum moss (*Sphagnum* sp.);

2. baldcypress-tupelo swamps: wetlands comprised predominantly of baldcypress trees (*Taxodium distichum*), and water tupelo trees (*Nyssa aquatica*), that are occasionally or regularly flooded by fresh water. Common associates include red maple (*Acer rubrum*), swamp privet (*Forestiera acuminata*), green ash (*Fraxinus pennsylvanica*) and water elm (*Planera aquatica*). Associated herbaceous species include lizard's tail (*Saururus cernuus*), water mermaid weed (*Proserpinaca spp.*), buttonbush (*Cephalanthus occidentalis*) and smartweed (*Polygonum spp.*). (Eyre, F. H. Forest Cover Types of the U.S. and Canada. 1980. Society of American Foresters, 5400 Grosvenor Lane, Washington, D.C. 20014. Library of Congress Catalog Card No. 80-54185);

3. the area of Caddo Lake within Texas that is designated as a "Wetland of International Importance" under the Ramsar Convention;

4. the Comal River, the San Marcos River, the Pecos River, and Lake Casa Blanca; and

5. critical habitat for the Concho water snake (*Nerodia hateri paucimaculata*), including areas of the Concho and Colorado Rivers and Ivie (Stacy) Reservoir; Houston toad (*Bufo houstonensis*); Arkansas River shiner (*notropis girardi*); Devils River minnow (*Dionda diabolis*) – the Devils River and San Felipe Creek Watersheds in Val Verde County, Texas; Leon Springs pupfish (*Cyprinodon bovines*) – Leon Creek from the Diamond Y Spring to a point one mile northeast of the Texas Highway 18 crossing approximately 10 miles north of Fort Stockton, in Pecos County. (See also Appendix A, General Condition 15).

Construction may commence only upon written notification by the District Engineer, or his designee, that the project meets the terms and conditions of the RGP. In all cases, the USACE will notify the permit applicant whether the proposed project meets or does not meet the terms and conditions of this RGP. The USACE will respond as promptly as practicable to all PCNs.

It is the permit applicant's responsibility to ensure that all authorized structures and activities continue to meet the terms and conditions set forth herein; failure to abide by them will constitute a violation of the Clean Water Act and/or the Rivers and Harbors Act of 1899. Projects outside the scope of this RGP may be considered for authorization by individual permit.

This RGP shall become effective on the date of the signature of the District Engineers, or their authorized representative(s), and will automatically expire five years from that date unless the permit is modified, revoked, or extended before that date. Verifications by the USACE that an activity is authorized by this RGP are valid until the expiration date of this RGP unless this RGP is modified, revoked, or extended before that date. For activities that have been verified by the USACE as authorized under this RGP, and have commenced, i.e. are under construction, or are under contract to commence, by the verification expiration date, will remain authorized provided the activity is completed within twelve months of the date of expiration, modification, or revocation of the RGP, or by another date determined by the USACE

for the specific case, whichever is later, unless discretionary authority is exercised on a case-by-case basis to modify, suspend, or revoke the authorization.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:
FOR THE DISTRICT ENGINEERS:

Wayne A. Lea
28 November 2005

John R. Minahan
Colonel, Corps of Engineers
District Engineer
Fort Worth District

Miroslav P. Kurka
Colonel, Corps of Engineers
District Engineer
Tulsa District

Todd Wang
Lieutenant Colonel, Corps of Engineers
District Engineer
Albuquerque District

APPENDIX A

GENERAL CONDITIONS

REGIONAL GENERAL PERMIT CESWF-05-RGP-2

1. In verifying authorization under this regional general permit (RGP), the Department of the Army has relied in part on the information provided by the permittee. If, subsequent to verifying authorization, such information proves to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part.

2. Structures and activities authorized by this RGP shall comply with all terms and conditions herein. Failure to abide by such conditions invalidates the authorization and may result in a violation of the law, requiring restoration of the site or other remedial action.

3. This RGP is not an approval of the design features of any authorized project or an implication that such project is adequate for the intended purpose: a Department of the Army permit merely expresses the consent of the Federal Government to conduct the proposed work insofar as public rights are concerned. This RGP does not grant any property rights or exclusive privileges; does not authorize any injury to the property or rights of others; and does not authorize any damage to private property, invasion of private rights, or any infringement of federal, state or local laws or regulations. This RGP does not relieve the permittee from the requirement to obtain a local permit from the jurisdiction within which the project is located.

4. This RGP may be modified or suspended in whole or in part if it is determined that the individual or cumulative impacts of work that would be authorized using this procedure are contrary to the public interest. The authorization for individual projects may also be summarily modified, suspended, or revoked, in whole or in part, upon a finding by the District Engineer that such action would be in the public interest.

5. Modification, suspension or revocation of the District Engineer's authorization shall not be the basis for any claim for damages against the United States (U.S.).

6. This RGP does not authorize interference with any existing or proposed federal project, and does not entitle the permittee to compensation for damage or injury to the structures or activities authorized herein that may result from existing or future operations undertaken by the U.S. in the public interest.

7. No attempt shall be made by permittees to prevent the full and free public use of any navigable water of the U.S.

8. Permittees shall not cause any unreasonable interference with navigation.

9. Permittees shall make every reasonable effort to conduct the activities in a manner that will minimize any adverse impact of the work on water quality, fish and wildlife, and the natural environment, including adverse impacts to migratory waterfowl breeding areas, spawning areas, and trees, particularly hard-mast-producing trees such as oaks and hickories. Permittees shall normally maintain existing buffers around waters of the U.S. and create and/or expand buffers around waters of the U.S. when practicable. Compensatory mitigation plans for projects in, or near, streams, other open waters, or wetlands shall normally include provisions for the establishment, maintenance, and legal protection, e.g. deed restrictions, conservation easements, of vegetated buffers to those waters.

10. Permittees shall allow the District Engineer and his authorized representative(s) to make periodic inspections at any time deemed necessary to ensure that the activity is being performed in accordance with the terms and conditions of this RGP.

11. Permittees must evaluate the effect that the proposed work would have on historic properties listed, or eligible for listing, in the National Register of Historic Places (NRHP) prior to the initiation of work. Historic properties include prehistoric and historic archeological sites, and areas or structures of cultural interest that occur in the permit area. If a known historic property would be encountered, the permittee shall notify the USACE and shall not conduct any work in the permit area that would affect the property until the requirements of 33 CFR Part 325, Appendix C, and 36 CFR Part 800 have been satisfied. If a previously unknown historic property is encountered during work authorized by this RGP, the permittee shall immediately notify the USACE and avoid further impact to the site until the USACE has verified that the requirements of 33 CFR Part 325, Appendix C, and 36 CFR Part 800 have been satisfied.

12. Materials to be placed into waters of the U.S. are restricted to clean native soils and concrete, sand, gravel, rock, other coarse aggregate, and other suitable material. All material used shall be free of toxic pollutants in toxic quantities.

13. Permittees shall coordinate all construction activities in federally-maintained channels and/or waterways for required setback distances with the USACE prior to application for a permit.

14 Permittees shall place all heavy equipment working in wetlands on mats, or take other appropriate measures to minimize soil disturbance.

15. Activities that are likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Endangered Species Act, or that are likely to destroy or adversely modify the critical habitat of such species are not authorized. Permittees shall notify the District Engineer if any listed species or critical habitat might be affected by, or is in the vicinity of, the project and shall not begin work until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized.

16. Permittees shall use and maintain appropriate erosion and siltation controls in effective operating condition during construction, and permanently stabilize all exposed soil at the earliest practicable date using native vegetation to the maximum extent practicable. Permittees shall remove all excess material and temporary fill and structures placed in waters of the U.S., including wetlands, to upland areas and stabilize all exposed slopes and stream banks immediately upon completion of construction. Permittees shall return all areas affected by temporary fills and/or structures to preconstruction conditions or better, including revegetation with native vegetation, to the maximum extent practicable. All material removed must be placed at least 100 feet from any water of the U.S., including wetlands, and adequately contained to prevent the return to any water of the U.S., including wetlands.

17. Permittees shall not significantly disrupt the movement of those species of aquatic life indigenous to the water body or those species that normally migrate through the project area.

18. Permittees shall not permanently restrict or impede the passage of low, normal, or expected high flows unless the primary purpose of the activity is to temporarily impound water or for authorized detention ponds for stormwater management.

19. Permittees shall properly maintain all structures and fills to ensure public safety.

20. Permittees shall ensure that projects have no more than minimal adverse impacts on public water supply intakes.

21. Stream realignment is not authorized by this RGP.

22. Permittees shall design facilities to be stable against the forces of flowing water, wave action, and the wake of passing vessels.

23. Permittees are not authorized to discharge dredged or fill material into waters of the U.S. for purposes of disposal into, or reclamation of, an aquatic area, such as a wetland.

24. Permittees shall not use a jet barge or similar equipment for trench excavation.

25. Permittees shall mark structures and fills, particularly in navigable waters of the U.S., when appropriate, so that their presence will be known to boaters.

26. Permittees shall mark intake and/or outfall structures and other fills and structures in navigable waters, when appropriate, so that boaters will notice their presence.

27. This permit does not authorize work in a park, wildlife management area, refuge, sanctuary, or similar area administered by a federal, state or local agency without that agency's approval.

28. Permittees are responsible for compliance with all terms and conditions of this RGP for all activities within the Department of the Army permit area of a project authorized by this RGP, including those taken on behalf of the permittee by other entities such as contractors and subcontractors. Permittees assume all liabilities associated with fills and impacts that are incurred by individuals and/or organizations working under contracts with the permittee. Before beginning the work authorized herein, or directing a contractor to perform such work, permittees shall ensure that all parties read, understand and comply with the terms and conditions of this permit. The USACE strongly encourages preconstruction meetings with all construction activities of the project.

29. Permittees shall conduct dredging and excavation activities with land based equipment rather than from the water body whenever practicable.

30. Permittees must comply with Federal Emergency Management Agency (FEMA), or FEMA-approved local floodplain development requirements in the placement of any permanent above-grade fills in waters of the U.S., including wetlands, within the 100-year floodplain. The 100-year floodplain will be identified through FEMA's Flood Insurance Rate Maps or FEMA-approved local floodplain maps. A permanent above-grade fill is a discharge of dredged or fill material into waters of the U.S., including wetlands, that results in a substantial increase in ground elevation and permanently converts part or all of the water body to dry land. Structural fills authorized by nationwide permits 3, 25, 36, etc., are not included.

31. For all discharges proposed for authorization in Dallas, Denton, and Tarrant Counties that are within the study area of the "Final Regional Environmental Impact Statement (EIS), Trinity River and Tributaries" (May 1986), permittees shall meet the criteria and follow the guidelines specified in Section III of the Record of Decision for the Regional EIS, including the hydraulic impact requirements. A copy of these guidelines is available upon request from the Fort Worth District and at the District website at http://www.swf.usace.army.mil/pubdata/environ/regulatory/index.asp

3. To satisfy Texas Commission on Environmental Quality (TCEQ) water quality certification requirements for all projects to which Section 401 water quality certification by the TCEQ applies, the permittee must use at least one best management practice (BMP) from each of the first three categories of on-site water quality management and comply with item d. concerning contaminated dredged material below to satisfy TCEQ water quality certification requirements. Descriptions of the BMPs may be obtained from the TCEQ by calling (512) 239-5366, by calling one of the Corps district regulatory offices identified in the "PRECONSTRUCTION NOTIFICATIONS" section of this RGP, or from the USACE, Fort Worth District, web site at http://www.swf.usace.army.mil/pubdata/environ/regulatory/index.asp. The TCEQ-required BMPs are as follows:

a. Erosion Control

Disturbed areas must be stabilized to prevent the introduction of sediment to adjacent wetlands or water bodies during wet weather conditions (erosion). *At least one* of the following best management practices (BMPs) must be maintained and remain in place until the area has been stabilized.

- Temporary Vegetation
- Blankets/Matting
- Mulch
- Sod

b. Post-Construction TSS Control

After construction has been completed and the site is stabilized, total suspended solids (TSS) loadings shall be controlled by *at least one* of the following BMPs.

- Retention/Irrigation
- Extended Detention Basin
- Vegetative Filter Strips
- Constructed Wetlands
- Wet Basins

c. Sedimentation Control

The project area must be isolated from adjacent wetlands and water bodies by the use of BMPs to confine sediment. *At least one* of the following BMPs must be maintained and remain in place until project completion.

- ☐ Sand Bag Berm
- ☐ Silt Fence
- ☐ Triangular Filter Dike
- ☐ Rock Berm
- ☐ Hay Bale Dike

Dredged material shall be placed in such a manner that prevents sediment runoff into water in the state, including wetlands. Water bodies can be isolated by the use of one or more of the required BMPs identified for sedimentation control. These BMPs must be maintained and remain in place until the dredged material is stabilized.

Hydraulically dredged material shall be disposed of in contained disposal areas. Effluent from contained disposal areas shall not exceed a TSS concentration of 300 mg/l.

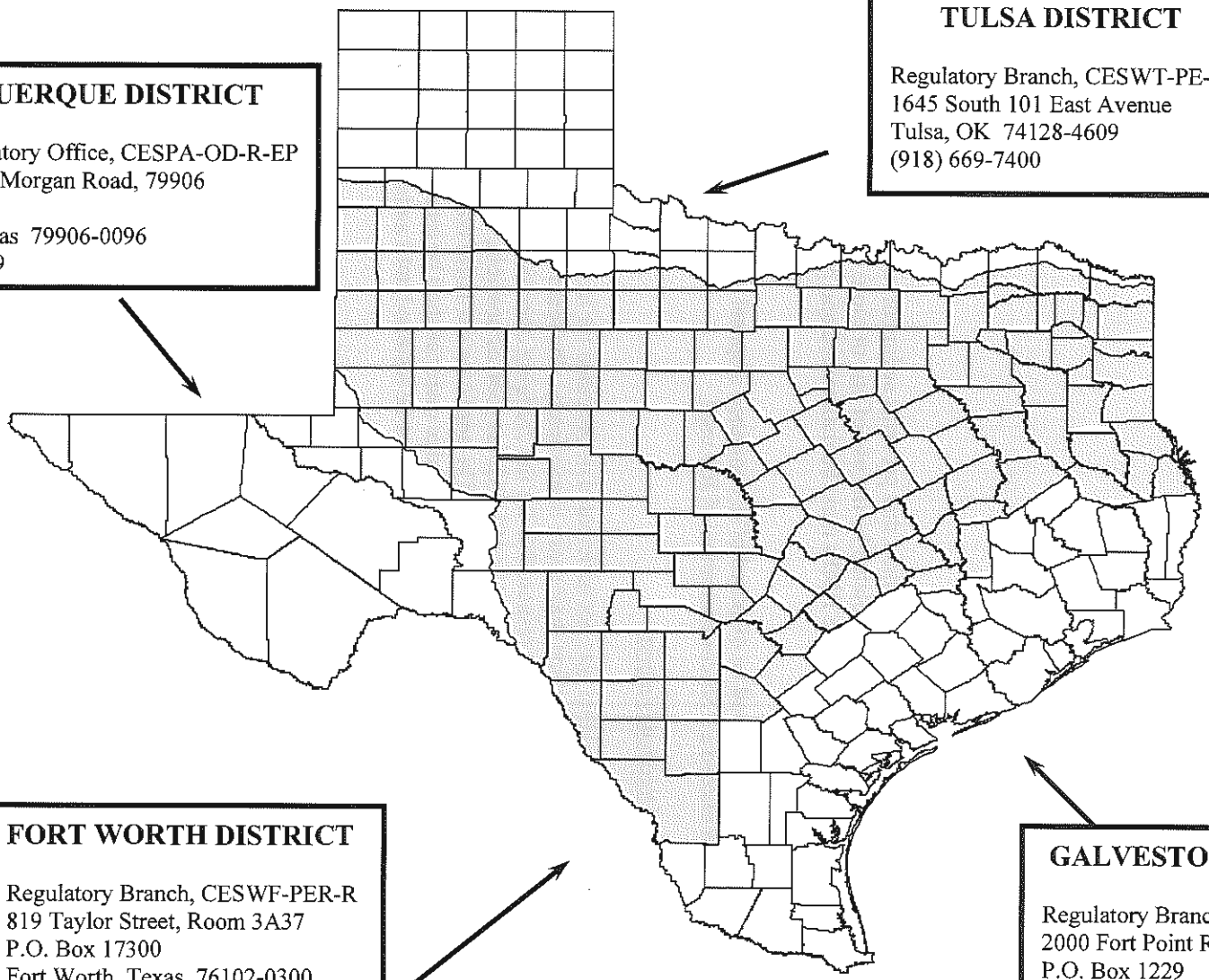
d. Contaminated Dredged Material

If contaminated dredge material that was not anticipated or provided for in the permit application is encountered during dredging, operations shall cease immediately. Pursuant to 26.039 (b) of the Texas Water Code, the individual operating or responsible for the dredging operations shall notify the commission's emergency response team at (512) 463-7727 as soon as possible, and not later than 24 hours after the discovery of the material. The applicant shall also notify the Corps that activities have been temporarily halted. Contaminated dredge material shall be remediated or disposed of in accordance with TCEQ rules. Dredging activities shall not be resumed until authorized in writing by the Commission.

Contaminated dredge material is defined as dredge material which has been chemically, physically, or biologically altered by man-made or man-induced contaminants which include, but are not limited to solid waste, hazardous waste and hazardous waste constituent as those terms are defined by 30 TAC Chapter 335, Pollutants as defined by Texas Water Code 26.001 and Hazardous Substances as defined in the Texas Health and Safety Code, 361.003.

33. To satisfy Railroad Commission of Texas (RRC) water quality certification requirements for all projects to which Section 401 water quality certification by the RRC applies, the permittee must demonstrate that activities that are not water dependent do not have a practicable alternative and may not consider compensatory mitigation an alternative.

APPENDIX B



ALBUQUERQUE DISTRICT

El Paso Regulatory Office, CESPA-OD-R-EP
Building 6380 Morgan Road, 79906
P.O. Box 6096
Fort Bliss, Texas 79906-0096
(915) 568-1359

TULSA DISTRICT

Regulatory Branch, CESWT-PE-R
1645 South 101 East Avenue
Tulsa, OK 74128-4609
(918) 669-7400

FORT WORTH DISTRICT

Regulatory Branch, CESWF-PER-R
819 Taylor Street, Room 3A37
P.O. Box 17300
Fort Worth, Texas 76102-0300
(817) 886-1731

GALVESTON DISTRICT

Regulatory Branch, CESWG-PE-R
2000 Fort Point Road
P.O. Box 1229
Galveston, Texas 77553-1229
(409) 766-3930

February 5, 2002

APPENDIX C

NAVIGABLE WATERS OF THE UNITED STATES

For purposes of Section 10 of the Rivers and Harbors Act of 1899, the following sections of rivers, including their lakes and other impoundments, are considered to be navigable waters of the United States (U. S.) that fall within the jurisdiction of the Fort Worth, Albuquerque, and Tulsa districts of the U. S. Army Corps of Engineers in the states of Texas and Louisiana.

ANGELINA RIVER: From the Sam Rayburn Dam in Jasper County upstream to U. S. Highway 59 in Nacogdoches and Angelina counties and all U. S. Army Corps of Engineers lands associated with B. A. Steinhagen Lake in Tyler and Jasper counties, Texas.

BIG CYPRESS BAYOU: From the Texas-Louisiana state line in Marion County, Texas, upstream to Ellison Creek Reservoir in Morris County, Texas.

BRAZOS RIVER: From the point of intersection of Grimes, Washington, and Waller counties upstream to Whitney Dam in Hill and Bosque counties, Texas.

COLORADO RIVER: From the Bastrop-Fayette county line upstream to Longhorn Dam in Travis County, Texas.

NECHES RIVER: U. S. Army Corps of Engineers lands associated with B. A. Steinhagen Lake in Jasper and Tyler counties, Texas.

RED RIVER: From Denison Dam on Lake Texoma upstream to Warrens Bend which is 7.25 miles northeast of Marysville, Texas, and from the U. S. Highway 71 bridge north of Texarkana, Texas, to the Oklahoma-Arkansas Border.

RIO GRANDE: From the Zapata-Webb county line upstream to the point of intersection of the Texas-New Mexico state line and Mexico.

SABINE RIVER: From the point of intersection of the Sabine-Vernon parish line in Louisiana with Newton County, Texas upstream to the Sabine River-Big Sandy Creek confluence in Upshur County, Texas.

SULPHUR RIVER: From the Texas-Arkansas state line upstream to Wright Patman Dam in Cass and Bowie counties, Texas.

TRINITY RIVER: From the point of intersection of Houston, Madison, and Walker counties upstream to Riverside Drive in Fort Worth, Tarrant County, Texas.

APPENDIX D

MITIGATING ADVERSE IMPACTS TO WATERS OF THE UNITED STATES

U.S. Army Corps of Engineers (USACE) evaluation of a project proposal submitted for authorization under this permit includes a determination of whether the applicant has taken sufficient measures to **mitigate** the project's likely adverse impacts to the aquatic ecosystem (See USACE Regulatory Guidance Letter 02-02 dated December 24, 2003, and USACE district websites for more detailed information.) Applicants should employ the following three-step sequence in mitigating likely adverse project impacts: 1) take appropriate and practicable measures to **avoid** potential adverse impacts to the aquatic ecosystem; 2) employ appropriate and practicable measures to **minimize** unavoidable adverse impacts to the aquatic ecosystem; and 3) undertake appropriate and practicable measures to **compensate** for adverse impacts to the aquatic ecosystem that cannot be reasonably avoided or minimized. **Compensatory mitigation**, then, is the restoration, enhancement, creation, or preservation of wetlands and other waters of the United States (U.S.) to compensate for adverse impacts to the aquatic ecosystem that cannot reasonably be avoided or minimized.

Compensatory mitigation should replace those aquatic system functions that would be lost or impaired because of the proposed activity. The appropriate type and amount of compensatory mitigation depends on the nature and extent of the project's likely adverse impact on those functions performed by the aquatic area(s) that would be impacted. These functions include, but are not limited to, flood storage and conveyance; providing habitat for fish, aquatic organisms, and other wildlife, including endangered species; sediment and erosion control; groundwater recharge; nutrient removal; water supply; production of food, fiber, and timber; and recreation. Compensatory mitigation should also be commensurate with the scope and degree of the anticipated impacts and be practicable in terms of cost, existing technology, and logistics, in light of the overall project purpose.

In general, in-kind compensatory mitigation is preferable to out-of-kind and should occur as close to the location of the adverse impacts as practicable, generally in the same watershed. However, environmentally preferable out-of-kind and/or off-site compensatory mitigation may be acceptable. Such mitigation options as mitigation banking and in-lieu fee mitigation may be appropriate when on-site or other off-site compensatory mitigation options are not available or not practicable. In some cases, it is appropriate to provide partial compensation at one location, such as the impact site, with the remainder occurring at an off-site location.

Normally, restoration or enhancement of wetland functions is preferable to wetland creation because the probability of successfully restoring or enhancing wetlands is greater than the probability of successfully creating new wetlands, and restoration and enhancement activities are less likely to impact upland and open water habitats. The preservation of existing wetlands is appropriate as compensatory mitigation only in exceptional situations.

Compensatory mitigation plans should include a thorough description of the proposed mitigation area; a description of all proposed work and structures such as grading, fills, excavation, plantings, and water level control structures; plan and cross-section drawings of pertinent work and structures; a statement explaining how adverse impacts to local hydrology will be minimized; and a proposal for monitoring the success of the proposed mitigation plan. Generally, monitoring should continue for at least five years after mitigation activities are completed, providing planting survival and ecological success requirements have been achieved. To achieve long-term success of a mitigation plan, an appropriate real estate arrangement, such as a deed restriction, may be required.

Attachment 1 - Dredge and Fill Certification
USACE Regional General Permit CESWF-05-RGP-2
June 21, 2005
Page 1 of 3

WORK DESCRIPTION: As described in the public notice dated February 22, 2005.

SPECIAL CONDITIONS: None

GENERAL: **This certification, issued pursuant to the requirements of Title 30, Texas Administrative Code, Chapter 279, is restricted to the work described in the application or joint public notice and shall expire five years from the date of issuance of the Corps of Engineers (COE) permit.** This certification may be extended to any minor revision of the COE permit when such change(s) would not result in an impact on water quality. The Texas Commission of Environmental Quality (TCEQ) reserves the right to require full joint public notice on a request for minor revision. If this application is a modification of an original permit or any modification thereof for which a special condition was cited by the Commission or a predecessor agency, such conditions shall remain valid. The applicant is hereby placed on notice that any activity conducted pursuant to the COE permit which results in a violation of the state's surface water quality standards may result in an enforcement proceeding being initiated by the TCEQ or a successor agency.

STANDARD PROVISIONS: These following provisions attach to any permit issued by the Corps of Engineers and shall be followed by the permittee or any employee, agent, contractor, or subcontractor of the permittee during any phase of work authorized by a Corps permit.

1. The water quality of wetlands shall be maintained in accordance with all applicable provisions of the Texas Surface Water Quality Standards including the General, Narrative, and Numerical Criteria.

2. The applicant shall not engage in any activity which will cause surface waters to be toxic to man, aquatic life, or terrestrial life.

3. Permittee shall employ measures to control spills of fuels, lubricants, or any other materials to prevent them from entering a watercourse. All spills shall be promptly reported to the TCEQ, Emergency Spill Response, at (512) 463-7727.

4. Sanitary wastes shall be retained for disposal in some legal manner. Marinas and similar operations which harbor boats equipped with marine sanitation devices shall provide state/federal permitted treatment facilities or pump out facilities for ultimate transfer to a permitted treatment facility. Additionally, marinas shall display signs in appropriate locations advising boat owners that the discharge of sewage from a marine sanitation device to waters in the state is a violation of state and federal law.

5. Materials resulting from the destruction of existing structures shall be removed from the water or areas adjacent to the water and disposed of in some legal manner.

6. A discharge shall not cause substantial and persistent changes from ambient conditions of turbidity or color. The use of silt screens or other appropriate methods is encouraged to confine suspended particulates.

7. The placement of any material in a watercourse or wetlands shall be avoided and placed there only with the approval of the Corps when no other reasonable alternative is available. If work within a wetland is unavoidable, gouging or rutting of the substrate is prohibited. Heavy equipment shall be placed on mats to protect the substrate from gouging and rutting if necessary.

8. Dredged Material Placement: Dredged sediments shall be placed in such a manner as to prevent any sediment runoff onto any adjacent property not owned by the applicant. Liquid runoff from the disposal area shall be retained on-site or shall be filtered and returned to the watercourse from which the dredged materials were removed. Except for material placement authorized by this permit, sediments from the project shall be placed in such a manner as to prevent any sediment runoff into waters in the state, including wetlands.

9. If contaminated spoil that was not anticipated or provided for in the permit application is encountered during dredging, dredging operations shall be immediately terminated and the TCEQ, Emergency Spill Response, shall be contacted at (512) 463-7727. Dredging activities shall not be resumed until authorized by the Commission.

10. Contaminated water, soil, or any other material shall not be allowed to enter a watercourse. Noncontaminated storm water from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.

11. Storm water runoff from construction activities that result in a disturbance of one or more acres, or are a part of a common plan of development that will result in the disturbance of one or more acres, must be controlled and authorized under Texas Pollutant Discharge Elimination System (TPDES) general permit TXR150000. A copy of the general permit, application (notice of intent), and additional information is available at: http://www.tnrcc.state.tx.us/permitting/waterperm/wwperm/construct.html or by contacting the TCEQ Storm Water & Pretreatment Team at (512) 239-4433.

12. Upon completion of earthwork operations, all temporary fills shall be removed from the watercourse/wetland, and areas disturbed during construction shall be seeded, riprapped, or given some other type of protection to minimize subsequent soil erosion. Any fill material shall be clean and of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters.

13. Disturbance to vegetation will be limited to only what is absolutely necessary. After construction, all disturbed areas will be revegetated to approximate the pre-disturbance native plant assemblage.

14. Where the control of weeds, insects, and other undesirable species is deemed necessary by the permittee, control methods which are nontoxic to aquatic life or human health shall be employed when the activity is located in or in close proximity to water, including wetlands.

15. Concentrations of taste and odor producing substances shall not interfere with the production of potable water by reasonable water treatment methods, impart unpalatable flavor to food fish including shellfish, result in offensive odors arising from the water, or otherwise interfere with reasonable use of the water in the state.

16. Surface water shall be essentially free of floating debris and suspended solids that are conducive to producing adverse responses in aquatic organisms, putrescible sludge deposits, or sediment layers which adversely affect benthic biota or any lawful uses.

17. Surface waters shall be essentially free of settleable solids conducive to changes in flow characteristics of stream channels or the untimely filling of reservoirs, lakes, and bays.

18. The work of the applicant shall be conducted such that surface waters are maintained in an aesthetically attractive condition and foaming or frothing of a persistent nature is avoided. Surface waters shall be maintained so that oil, grease, or related residue will not produce a visible film of oil or globules of grease on the surface or coat the banks or bottoms of the watercourse.

19. This certification shall not be deemed as fulfilling the applicant's/permittee's responsibility to obtain additional authorization/approval from other local, state, or federal regulatory agencies having special/specific authority to preserve and/or protect resources within the area where the work will occur.

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

September 2, 2005

U S ARMY CORPS OF ENGINEERS
REGULATORY BRANCH (CESWF-PER-R)
P O BOX 17300
FORT WORTH TX 76102-0300
ATTN PRESLEY HATCHER

Re: Proposed Regional General Permit for Utility Lines and Intake and Outfall Structures
Fort Worth District CESWF-05-RGP-2
Tulsa District TXG300011
Albuquerque District 2005-00060

Dear Mr. Hatcher:

The Railroad Commission of Texas (Commission) has received the public notice for the draft regional general permit dated February 22, 2005. The Commission is the certifying agency for federal permits covering activities in Texas associated with the exploration, development, and production, including pipeline transportation, of oil, gas, or geothermal resources that may result in discharges to waters of the United States. This office did not receive any comments on the proposed permit.

This office has examined the proposed general permit and identified no conflicts between the proposed permit and applicable state water quality laws, with two exceptions. In Texas, activities that are not water dependent are presumed to have a practicable alternative, unless the applicant demonstrates otherwise. In addition, compensatory mitigation is not considered an alternative. Our review indicates that, based on the information contained in the draft permit and public notice, and the addition of language to address these issues, there is a reasonable assurance that the permitted activities will be conducted in a manner which will not violate any applicable water quality requirements. The Commission also finds that no conditions more stringent than those in the draft permit, other than those noted above, would be necessary to comply with state water quality laws. Therefore, certification of the referenced proposed permit for compliance with applicable water quality laws conditional on addition of the recommended language or some version thereof is hereby granted.

Please call me at (512) 463-7308 if you have any questions.

Sincerely,

Leslie Savage, WQ Certification Coordinator
Oil and Gas Division
Railroad Commission of Texas

Cc: Tommie Seitz
Bart Sims

State of Louisiana

Department of Environmental Quality

April 1, 2005

Department of the Army-Corps of Engineers, Fort Worth District
P.O. Box 17300
Fort Worth, TX 76102-0300

Attention: Jessica Napier

RE: Water Quality Certification (JP 050121-05/AI# 101986/CER20050001)
Renewal of Regional General Permit 2

Dear Ms. Napier,

After reviewing your request for the renewal of U.S. Army Corps of Engineers, Fort Worth District RGP-2, the Department ahs decided that it has no objections for the renewal of this general permit.

Sincerely,

Thomas R. Grigga
Engineer Manager

TRG/jjp

NATIONWIDE PERMIT 12
Utility Line Activities
Effective Date: March 19, 2007
(NWP Final Notice, 72 FR 11182, para. 12)

Utility Line Activities. Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than ½ acre of waters of the United States.

Utility lines: This NWP authorizes the construction, maintenance, or repair of utility lines, including outfall and intake structures, and the associated excavation, backfill, or bedding for the utility lines, in all waters of the United States, provided there is no change in pre-construction contours. A ``utility line'' is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term ``utility line'' does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a power line or utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2 acre of waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.
Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the United States, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the United States, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the United States, provided the total discharge from a single and complete project does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (See 33 CFR part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP also authorizes temporary structures, fills, and work necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites.
Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met:

(1) The activity involves mechanized land clearing in a forested wetland for the utility line right-of-way;

(2) a section 10 permit is required;

(3) the utility line in waters of the United States, excluding overhead lines, exceeds 500 feet;
(4) the utility line is placed within a jurisdictional area (i.e., water of the United States), and it runs parallel to a stream bed that is within that jurisdictional area;
(5) discharges that result in the loss of greater than 1/10-acre of waters of the United States;
(6) permanent access roads are constructed above grade in waters of the United States for a distance of more than 500 feet; or
(7) permanent access roads are constructed in waters of the United States with impervious materials. (See general condition 27.) (Sections 10 and 404)

Note 1: Where the proposed utility line is constructed or installed in navigable waters of the United States (i.e., section 10 waters), copies of the pre-construction notification and NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, accordance with the requirements for temporary fills.

Note 3: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to Section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15)

NATIONWIDE PERMIT GENERAL CONDITIONS

General Conditions: The following general conditions must be followed in order for any authorization by a NWP to be valid:

1. **Navigation**. (a) No activity may cause more than a minimal adverse effect on navigation.
(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.
(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. **Aquatic Life Movements**. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

3. **Spawning Areas**. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. **Migratory Bird Breeding Areas**. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. **Shellfish Beds**. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. **Water Supply Intakes**. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. **Adverse Effects From Impoundments**. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. **Management of Water Flows**. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. **Fills Within 100-Year Floodplains**. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. **Equipment**. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. **Soil Erosion and Sediment Controls**. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. **Removal of Temporary Fills**. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. **Proper Maintenance**. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

15. **Wild and Scenic Rivers**. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ``study river'' for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

16. **Tribal Rights**. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

17. **Endangered Species**. (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity ``may affect'' or will have ``no effect'' to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be

affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their worldwide Web pages at http://www.fws.gov/ and http://www.noaa.gov/fisheries.html respectively.

18. **Historic Properties**. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

19. **Designated Critical Resource Waters**. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 27, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

20. **Mitigation**. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require pre-construction notification, unless the district engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

21. **Water Quality**. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

22. **Coastal Zone Management**. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency

concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

23. **Regional and Case-By-Case Conditions**. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

24. **Use of Multiple Nationwide Permits**. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing, over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

25. **Transfer of Nationwide Permit Verifications**. If the permittee sells the property associated with the nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature: ``When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit, and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

26. **Compliance Certification**. Each permittee who received the NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general or specific conditions;

(b) A statement that any required mitigation was completed in accordance with the permit conditions; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

27. **Pre-Construction Notification**. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, as a general rule, will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) Forty-five calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 17 that listed species or critical habitat might affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 18 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) is completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee cannot begin

the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided result in a quicker decision.);

(4) The PCN must include a delineation of special aquatic sites and other waters of the United States on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters of the United States, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, where appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10 acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination.

(5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

(e) District Engineer's Decision: In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either:

(1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit;

(2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or

(3) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan.

28. **Single and Complete Project**. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration, establishment (creation), enhancement, or preservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.
Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.
Discharge: The term "discharge" means any discharge of dredged or fill material.
Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.
Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.
Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR Part 60).
Independent utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.
Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.
Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).
Open water: For purposes of the NWPs, an open-water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of ``open waters'' include rivers, streams, lakes, and ponds.
Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).
Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.
Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar

document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: Re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects waterbodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete project: The term ``single and complete project'' is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a ``single and complete project'' is all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal

waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows. Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody. For purposes of the NWPs, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent–meaning bordering, contiguous, or neighboring–to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

ADDITIONAL INFORMATION

This nationwide permit is effective March 19, 2007, and expires on March 18, 2012.

Information about the U.S. Army Corps of Engineers regulatory program, including nationwide permits, may also be accessed at http://www.swf.usace.army.mil/pubdata/environ/regulatory/index.asp or http://www.usace.army.mil/cw/cecwo/reg.

U.S. Army Corps of Engineers (USACE)
Fort Worth District

Nationwide Permit (NWP) Pre-Construction Notification (PCN) Form

This form integrates requirements of the Nationwide Permit Program within the Fort Worth District, including General and Regional Conditions. Please consult instructions included at the end prior to completing this form.

Contents

DESCRIPTION OF NWP 12 – UTILITY LINE ACTIVITIES

Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States (U.S.), provided the activity does not result in the loss of greater than 1/2-acre of waters of the U.S.

Utility lines: This NWP authorizes the construction, maintenance, or repair of utility lines, including outfall and intake structures, and the associated excavation, backfill, or bedding for the utility lines, in all waters of the U.S., provided there is no change in pre-construction contours. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term "utility line" does not include activities that drain a water of the U.S., such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the U.S. for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a power line or utility line in non-tidal waters of the U.S., provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2 acre of waters of the U.S. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters of the U.S. to construct, maintain, or expand substation facilities.

Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the U.S., provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the U.S., provided the total discharge from a single and complete project does not cause the loss of greater than 1/2-acre of non-tidal waters of the U.S. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary. Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, accordance with the requirements for temporary fills. Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the U.S. and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the U.S. must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the U.S. even if there is no associated discharge of dredged or fill material (See 33 CFR part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP also authorizes temporary structures, fills, and work necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Part I: NWP Conditions and Requirements Checklist

To ensure compliance with the General Conditions (GC), in order for an authorization by a NWP to be valid, please answer the following questions:

1. **Navigation (Applies to Section 10 waters [i.e. navigable waters of the U.S.], see instruction 4 for link to list):**
   - **a.** Does the project cause more than a minimal adverse effect on navigation?
     ☐ Yes ☐ No ☐ N/A
   - **b.** Does the project require the installation and maintenance of any safety lights and signals prescribed by the U.S. Coast Guard on authorized facilities in navigable waters of the U.S.?
     ☐ Yes ☐ No ☐ N/A
   - **c.** Does the Applicant understand and agree that if future operations by the U.S. require the removal, relocation, or other alteration of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Applicant will be required, upon due notice from the USACE, to remove, relocate, or alter the

structural work or obstructions caused thereby, without expense to the U.S.; and no claim shall be made against the U.S. on account of any such removal or alteration?
☐ Yes ☐ No ☐ N/A

If you answered yes to question a. or b. above, or if you answered no to question c. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

2. Aquatic Life Movements:

a. Does the project substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area? ☐ Yes ☐ No

b. Is the project's primary purpose to impound water? ☐ Yes ☐ No

c. Will culverts placed in streams be installed to maintain low flow conditions?
☐ Yes ☐ No ☐ N/A

If you answered yes to question a. or b. above, or if you answered no to question c. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

3. Spawning Areas:

a. Does the project avoid spawning areas during the spawning season to the maximum extent practicable? ☐ Yes ☐ No ☐ N/A

b. Does the project result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area?
☐ Yes ☐ No ☐ N/A

If you answered no to question a. above, or if you answered yes to question b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

4. Migratory Bird Breeding Areas:

a. Does the project avoid waters of the U.S. that serve as breeding areas for migratory birds to the maximum extent practicable? ☐ Yes ☐ No ☐ N/A

If you answered no to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

5. Shellfish Beds:

a. Does the project occur in areas of concentrated shellfish populations? ☐ Yes ☐ No

If you answered yes to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

6. Suitable Material:

a. Does the project use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.)?
☐ Yes ☐ No

b. Is the material used for construction or discharged in a water of the U.S. free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act)? ☐ Yes ☐ No

If you answered yes to question a. above, or if you answered no to question b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

7. Water Supply Intakes:

a. Does the project occur in the proximity of a public water supply intake? ☐ Yes ☐ No

If you answered yes to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

8. Adverse Effects From Impoundments:

a. Does the project create an impoundment of water? ☐ Yes ☐ No

b. If you answered yes to question a. above, are the adverse effects (to the aquatic system due to accelerating the passage of water, and/or restricting its flow) minimized to the maximum extent practicable? ☐ Yes ☐ No ☐ N/A

If you answered no to question b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

9. Management of Water Flows:

a. Does the project maintain the pre-construction course, condition, capacity, and location of open waters to the maximum extent practicable, for each activity, including stream channelization and storm water management activities? ☐ Yes ☐ No

b. Will the project be constructed to withstand expected high flows? ☐ Yes ☐ No

c. Will the project restrict or impede the passage of normal or high flows? ☐ Yes ☐ No

If you answered no to question a. or b. above, or if you answered yes to question c. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

10. Fills Within 100-Year Floodplains:

a. Does the project comply with applicable FEMA-approved state or local floodplain management requirements? ☐ Yes ☐ No ☐ N/A

If you answered no to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

11. Equipment:

a. Will heavy equipment working in wetlands or mudflats be placed on mats, or other measures be taken to minimize soil disturbance? ☐ Yes ☐ No ☐ N/A

If you answered no to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

12. Soil Erosion and Sediment Controls:

a. Will the project use appropriate soil erosion and sediment controls and maintain them in effective operating condition throughout construction? ☐ Yes ☐ No

b. Will all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, be permanently stabilized at the earliest practicable date? ☐ Yes ☐ No

c. Be aware that if work will be conducted within waters of the U.S., Applicants are encouraged to perform that work during periods of low-flow or no-flow.

If you answered no to question a. or b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

13. Removal of Temporary Fills:

a. Will temporary fills be removed in their entirety and the affected areas returned to pre-construction elevations? ☐ Yes ☐ No ☐ N/A

b. Will the affected areas be revegetated, as appropriate? ☐ Yes ☐ No ☐ N/A

If you answered no to question a. or b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

14. Proper Maintenance:

a. Will any authorized structure or fill be properly maintained, including maintenance to ensure public safety? ☐ Yes ☐ No

If you answered no to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

15. Wild and Scenic River:

There are no Wild and Scenic Rivers within the geographic boundaries of the Fort Worth District. Therefore, this GC does not apply.

16. Tribal Rights:

a. Will the project or its operation impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights? ☐ Yes ☐ No ☐ N/A

If you answered yes to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

17. Endangered Species (see also Box 8 in Part III):

a. Is the project likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or will the project destroy or adversely modify the critical habitat of such species? ☐ Yes ☐ No

b. Might the project affect any listed species or designated critical habitat? ☐ Yes ☐ No

c. Is any listed species or designated critical habitat in the vicinity of the project?
☐ Yes ☐ No

d. If the project "may affect" a listed species or critical habitat, has Section 7 consultation addressing the effects of the proposed activity been completed?
☐ Yes ☐ No ☐ N/A

If you answered yes to question a. or b. or c. above, or if you answered no to question d. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

18. Historic Properties (see also Box 9 in Part III):

a. Does the project have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties?
☐ Yes ☐ No ☐ N/A

If you answered yes to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:

19. Designated Critical Resource Waters:

a. Will the project impact critical resource waters, which include NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment? ☐ Yes ☐ No

If you answered yes to question a. above, be aware that discharges of dredged or fill material into waters of the U.S. are not authorized by NWP 12 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

20. Mitigation (see also Box 10 in Part III):

a. Will the project include appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal? ☐ Yes ☐ No

If you answered no to question a. above, please include an explanation in Box 10 of why no mitigation would be necessary in order to be in compliance with this GC or be aware that the project would require an individual permit application.

21. Water Quality (see also Box 11 in Part III):

a. If in Texas, does the project comply with the conditions of the TCEQ water quality certification for NWP 12? ☐ Yes ☐ No ☐ N/A

b. If in "Indian Country," does the project comply with the conditions of the EPA water quality certification for NWPs? ☐ Yes ☐ No ☐ N/A

If you answered no to question a. or b. above, please be aware that the project would require an individual permit application.

22. Coastal Zone Management:

The Fort Worth District does not cover any Coastal Zone; therefore, this GC does not apply.

23. Regional and Case-By-Case Conditions:
See the Regional Conditions checklist below to ensure compliance with this GC.

24. Use of Multiple Nationwide Permits:

a. Does the project use more than one NWP for a single and complete project?
☐ Yes ☐ No

b. If you answered yes to question a. above, be aware that unless the project's acreage loss of waters of the U.S. authorized by the NWPs is below the acreage limit of the NWP with the highest specified acreage limit, no NWP can be issued and the project would require an individual permit application.

If you answered yes to question a. above, please explain how the project would be in compliance with this GC and what additional NWP number you intend to use:

25. Transfer of Nationwide Permit Verifications:

a. Does the Applicant agree that if he or she sells the property associated with the nationwide permit verification, the Applicant may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate USACE district office to validate the transfer?
☐ Yes ☐ No

26. Compliance Certification:

a. Does the Applicant agree that if he or she receives the NWP verification from the USACE, they must submit a signed certification regarding the completed work and any required mitigation (the certification form will be sent by the USACE with the NWP verification letter)?
☐ Yes ☐ No

27. Notification:

a. Reason for notification
☐ Mechanized land clearing in a forested wetland.
☐ Require a Section 10 permit.
☐ Utility line exceeds 500 feet in waters of the U.S., excluding overhead lines.
☐ Utility line is within a jurisdictional area (i.e., water of the U.S.), and the utility line runs parallel to a stream bed that is within that jurisdictional area.
☐ The loss of waters of the U.S. exceeds 1/10 acre.
☐ Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet.
☐ Permanent access roads are constructed in waters of the U.S. with impervious materials.
☐ Potential endangered species.
☐ Potential historic properties.
☐ Discharge into pitcher plant bog or bald cypress-tupelo swamp.
☐ Discharge into the area of Caddo Lake within Texas that is designated as a "Wetland of International Importance" under the Ramsar Convention.
☐ Required by Louisiana Regional Conditions.
☐ Other:

b. Does the Applicant agree that he or she will not begin the project until either:
1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
2) Forty-five calendar days have passed from the district engineer's receipt of the complete PCN and the Applicant has not received written notice from the district or division engineer? However, if the Applicant was required to notify the USACE pursuant to general condition 17 that listed species or critical habitat might be affected or in the vicinity of the project, or to

notify the USACE pursuant to general condition 18 that the activity may have the potential to cause effects to historic properties, the Applicant cannot begin the activity until receiving written notification from the USACE that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act and/or Section 106 of the National Historic Preservation Act is completed. ☐ Yes ☐ No

c. Does the Applicant agree that if the district or division engineer notifies the Applicant in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the Applicant cannot begin the activity until an individual permit has been obtained?
☐ Yes ☐ No

28. Single and Complete Project:

a. Does the Applicant certify that the project is a "single and complete project" or that each crossing meets the description below for a "single and complete project"?
☐ Yes ☐ No

Single and complete project: The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a "single and complete project" is all crossings of a single water of the U.S. (i.e., a single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Independent utility: Defined as a test to determine what constitutes a single and complete project in the USACE regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

To ensure compliance with the NWP 12-specific requirements please answer the first question regarding all utility line activities and then answer the other questions as they apply to your project.

All utility line activities:

1. Does the project cause the loss of greater than 1/2-acre non-tidal waters of the U.S. at any crossing considered a single and complete project? ☐ Yes ☐ No

If you answered yes to question 1. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application or the use of regional general permit CESWF-05-RGP-2 (see USACE Fort Worth District website for information on conditions and requirements).

2. Does each activity/crossing considered a single and complete project have independent utility? ☐ Yes ☐ No ☐ N/A

If you answered no to question 2. above, be aware that the project may require an individual permit application.

3. **a.** Will any temporary structures, fills, and work necessary to construct the project meet the criteria for maintaining flows, minimizing flooding, and withstanding high flows? ☐ Yes ☐ No ☐ N/A

b. Will temporary structures and fills be removed in their entirety and the affected areas be returned to pre-construction elevations and revegetated, as appropriate? ☐ Yes ☐ No ☐ N/A

If you answered no to question 3a. or 3b. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application.

Utility lines:

4. Does the project involve a change in pre-construction contours? ☐ Yes ☐ No

If you answered yes to question 4. above, be aware that the project would not be authorized by a NWP 12 and may require an individual permit application.

5. Does the project include activities that drain a water of the U.S., such as drainage tile or french drains? ☐ Yes ☐ No

If you answered yes to question 5. above, be aware that the project is not considered a "utility line" and would not be authorized by a NWP 12 and may require an individual permit application. Note: Pipes that convey drainage from another area are considered a "utility line."

6. **a.** Does the project involve leaving sidecasts from trench excavation in waters of the U.S. for more than three months? ☐ Yes ☐ No

b. Does the project involve placing sidecasts from trench excavation in waters of the U.S. in such a manner that the sidecasts are dispersed by current or other forces? ☐ Yes ☐ No

If you answered yes to question 6a. above, be aware that the district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate, and otherwise an individual permit application may be required. If you answered yes to question 6b.

above, be aware that the project would not be authorized by a NWP 12 and may require an individual permit application.

7. In wetlands, does the project involve backfilling the top 6 to 12 inches of the trench with topsoil from the trench? ☐ Yes ☐ No ☐ N/A

If you answered no to question 7. above, please explain how the project would be in compliance with this requirement and be aware that the project may not be authorized by a NWP 12 and may require an individual permit application:

8. Does the project involve constructing or backfilling a trench in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a french drain effect?
☐ Yes ☐ No

If you answered yes to question 8. above, be aware that the project would not be authorized by a NWP 12 and may require an individual permit application.

9. Will the project, upon completion of the utility line crossing of each waterbody, immediately stabilize exposed slopes and stream banks? ☐ Yes ☐ No ☐ N/A

If you answered no to question 9. above, be aware that the project would not be authorized by a NWP 12 and may require an individual permit application.

10. Does the project involve pipes or pipelines that will be used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the U.S.?
☐ Yes ☐ No ☐ N/A

If you answered yes to question 10. above, be aware that these pipes or pipelines are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to Section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material into waters of the U.S. associated with such pipes or pipelines will require a Section 404 permit (see NWP 15).

Utility line substations:

11. Does the project involve discharges into non-tidal wetlands adjacent to tidal waters of the U.S.?
☐ Yes ☐ No

If you answered yes to question 11. above, be aware that the project would not be authorized by a NWP 12 and may require an individual permit application.

Foundations for overhead utility line towers, poles, and anchors:

12. If the project includes construction or maintenance of foundations for overhead utility line towers, poles, and/or anchors in waters of the U.S., are these the minimum size necessary and are separate footings for each tower leg (rather than a larger single pad) used where feasible?
☐ Yes ☐ No ☐ N/A

If you answered no to question 12. above, be aware that the project would not be authorized by a NWP 12 and may require an individual permit application.

Access Road(s):

13. Will the access road(s) be used for the construction and maintenance of utility lines, including overhead power lines and utility line substations, and, for a single and complete project, cause the loss of no greater than 1/2-acre of non-tidal waters of the U.S.?
☐ Yes ☐ No ☐ N/A

If you answered no to question 13. above, be aware that the project would not be authorized by a NWP 12 and may require an individual permit application.

14. Does the project involve discharges into non-tidal wetlands adjacent to tidal waters of the U.S.?
☐ Yes ☐ No

If you answered yes to question 14. above, be aware that the project would not be authorized by a NWP 12 and may require an individual permit application.

15. **a.** Will the access road(s) in waters of the U.S. be the minimum width necessary?
☐ Yes ☐ No

b. Will the access road be constructed so that the length of the road minimizes any adverse effects on waters of the U.S.? ☐ Yes ☐ No

If you answered no to question 15a. or 15b. above, be aware that the project would not be authorized by a NWP 12 and may require an individual permit application.

16. **a.** Will the access road(s) be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy road or geotextile/gravel road) so as to minimize any adverse effects on waters of the U.S.? ☐ Yes ☐ No

b. Will access roads constructed above pre-construction contours and elevations in waters of the U.S. be properly bridged or culverted to maintain surface flows? ☐ Yes ☐ No

If you answered no to question 16a. or 16b. above, be aware that the project may not be authorized by a NWP 12 and may require an individual permit application.

17. Will access roads used solely for construction of the utility line be removed upon completion of the work, in accordance with the requirement for temporary fills? ☐ Yes ☐ No

If you answered no to question 17. above, be aware that the project may not be authorized by a NWP 12 and may require an individual permit application.

REGIONAL CONDITIONS CHECKLIST

To ensure compliance with the Regional Conditions within the Fort Worth District, in the State of Texas, in order for an authorization by a NWP to be valid, please answer the following questions (for projects in Texas only):

1. Will the project include required compensatory mitigation at a minimum one-for-one ratio for all special aquatic sites that exceed 1/10 acre and require pre-construction notification, and for all losses to streams that exceed 300 linear feet and require pre-construction notification (unless the appropriate District Engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement)?
☐ Yes ☐ No ☐ N/A

If you answered no to question 1. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application.

2. Does the project involve a discharge into habitat types that are wetlands (typically referred to as pitcher plant bogs) that are characterized by an organic surface soil layer and include vegetation such as pitcher plants (*Sarracenia* sp.), sundews (*Drosera* sp.), and sphagnum moss (*Sphagnum* sp.) or wetlands (typically referred to as bald cypress-tupelo swamps) comprised predominantly of bald cypress trees (*Taxodium distichum*), and water tupelo (*Nyssa aquatica*), that are occasionally or regularly flooded by fresh water with common associates including red maple (*Acer rubrum*), swamp privet (*Forestiera acuminata*), green ash (*Fraxinus pennsylvanica*), water elm (*Planera aquatica*), lizard's tail (*Saururus cernuus*), water mermaid weed (*Proserpinaca* spp.), buttonbush (*Cephalanthus occidentalis*), and smartweed (*Polygonum* spp.)? ☐ Yes ☐ No

If you answered yes to question 2. above, notification of the District Engineer is required in accordance with NWP GC 27, and the USACE will coordinate with other resource agencies as specified in NWP GC 27(d).

3. Is the project in the area of Caddo Lake within Texas that is designated as a "Wetland of International Importance" under the Ramsar Convention? ☐ Yes ☐ No

If you answered yes to question 3. above, notification of the District Engineer is required in accordance with NWP GC 27, and the USACE will coordinate with other resource agencies as specified in NWP GC 27(d)

4. **a.** Is the project in an area of Dallas, Denton, or Tarrant counties that is within the study area of the "Final Regional Environmental Impact Statement (EIS), Trinity River and Tributaries" (May 1986)? ☐ Yes ☐ No
b. If Yes, does the project meet the criteria and follow the guidelines specified in Section III of the Record of Decision for the Regional EIS, including the hydraulic impact requirements?
☐ Yes ☐ No ☐ N/A

If you answered no to question 4b. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application.

5. Does the project involve mechanized land clearing in a forested wetland? ☐ Yes ☐ No

If you answered yes to question 5. above, notification of the District Engineer is required in accordance with NWP GC 27 prior to commencing the activity.

To ensure compliance with the Regional Conditions within the Fort Worth District, in the State of Louisiana, in order for an authorization by a NWP to be valid, please answer the following questions (for projects in Louisiana only):

1. Does the activity cause the permanent loss of greater than 1/2 acre of seasonally inundated cypress swamp and/or cypress-tupelo swamp? ☐ Yes ☐ No

If you answered yes to question 1. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application.

2. Does the activity cause the permanent loss of greater than 1/2 acre of pine savanna, pine flatwoods, and/or pitcher plant bogs? ☐ Yes ☐ No

If you answered yes to question 2. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application.

3. Has the activity been determined to have an adverse impact upon a federal or state designated rookery and/or bird sanctuary? ☐ Yes ☐ No

If you answered yes to question 3. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application.

4. Does the activity fell any existing den or candidate den trees within areas known to be occupied by the threatened Louisiana black bear? (Candidate den trees are defined as bald cypress and/or tupelo gum with visible cavities, having a minimum diameter-at-breast-height of 36 inches, and associated with rivers, lakes, streams, bayous, sloughs, or other waterbodies.) ☐ Yes ☐ No

If you answered yes to question 4. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application.

5. Does the project involve instream activities in the following waterways: Bayou Boeuf Tributaries in Rapides Parish: (Brown Creek, Mack Branch, Clear Creek, Little Brushy Creek, Loving Creek, Little Loving Creek, Long Branch, Bayou Clear, Castor Creek, Valentine Creek, and Little Bayou Clear), Amite River (LA Highway 37 at Grangeville to Port Vincent), Bogue Falaya River and Tributaries, Abita River and Tributaries, Bayou Chinchuba (between U.S. 190 and Louisiana Highway 59), West Pearl River, Bogue Chitto River and Tributaries, and Red River tributaries in Grant Parish (Black Creek, Swafford Creek, Cypress Creek, Beaver Creek, Cress Creek, Jordon Creek, Hudson Creek, Gray Creek, Moccosin Branch and James Branch)? ☐ Yes ☐ No

If you answered yes to question 5. above, notification of the District Engineer is required in accordance with NWP GC 27 due to the occurrence of threatened or endangered species.

6. To the best of the applicant's knowledge, is any excavated and/or fill material to be placed within wetlands free of contaminants? ☐ Yes ☐ No ☐ N/A

If you answered no to question 6. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application.

7. Regional Condition 7 applies to work within the Louisiana Coastal Zone and/or the Outer Continental Shelf off Louisiana, and therefore does not apply in the USACE Fort Worth District. Work in these areas may require coordination with the USACE Galveston or New Orleans districts.

8. Does the activity adversely affect greater than 1/10 acre of wetlands, and/or adversely impact a designated Natural and Scenic River, a state or federal wildlife management area, and/or refuge?
☐ Yes ☐ No

If you answered yes to question 8. above, notification of the District Engineer is required in accordance with NWP GC 27.

9. **a.** For NWP 12, the Regional Conditions for Louisiana require a 50-foot gap for every 500 linear feet of sidecast material resulting from trench excavation activities associated with utility line construction.
Does the project meet this condition? ☐ Yes ☐ No ☐ N/A
b. Additionally, no fill shall be placed in a manner which would impede natural watercourses.
Does the project meet this condition? ☐ Yes ☐ No ☐ N/A

If you answered no to question 9a. above, be aware that under certain circumstances the gap intervals may be modified, but otherwise the project would require an individual permit application. If applicable, explain why a modified gap interval is necessary:

If you answered no to question 9b. above, be aware that the project would not be authorized by a NWP 12 and would require an individual permit application.

10. For NWP 12, the Regional Conditions for Louisiana require a PCN, as defined under NWP GC 27, for utility line activities regardless of impact acreage. The U.S. Fish and Wildlife Service and National Marine Fisheries Service will be forwarded a copy of the PCN.

Additional Discussion:

Part II: Project Information

Box 1 Project Name:		**Applicant Name**	
Applicant Title		**Applicant Company, Agency, etc.**	
Mailing Address		Applicant's internal tracking number (if any)	
Work Phone with area code	Home Phone with area code	Fax #	E-mail Address
Relationship of applicant to property: ☐ Owner ☐ Purchaser ☐ Lessee ☐ Other:			
Application is hereby made for verification that subject regulated activities associated with subject project qualify for authorization under a USACE nationwide permit or permits as described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I hereby grant to the agency to which this application is made the right to enter the above-described location to inspect the proposed, in-progress, or completed work. I agree to start work only after all necessary permits have been received.			
Signature of applicant			Date (mm/dd/yyyy)

Box 2 Authorized Agent/Operator Name and Signature: ***(If an agent is acting for the applicant during the permit process)***			
Agent/Operator Title		**Agent/Operator Company, Agency, etc.**	
Mailing Address			
E-mail Address			
Work Phone with area code	Home Phone with area code	Fax #	Cell Phone #
I hereby authorize the above-named agent to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application. I understand that I am bound by the actions of my agent, and I understand that if a federal or state permit is issued, I, or my agent, must sign the permit.			
Signature of applicant			Date (mm/dd/yyyy)
I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate.			
Signature of authorized agent			Date (mm/dd/yyyy)

Box 3 Name of property owner, if other than applicant: ☐ Multiple Current Owners ***(If multiple current property owners, check here and include a list as an attachment)***	
Owner Title	**Owner Company, Agency, etc.**
Mailing Address	

Work Phone with area code	Home Phone with area code

Box 4 Project location, including street address, city, county, state, and zip code where proposed activity will occur:
Nature of Activity (Description of project; include all features; see instructions):
Project Purpose (Description of the reason or purpose of the project; see instructions):
Has a delineation of waters of the U.S., including wetlands, been completed? (see instructions) ☐ Yes, Attached ☐ No If a delineation has been completed, has it been verified in writing by the USACE? ☐ Yes, Date of approved or preliminary jurisdictional determination (mm/dd/yyyy): USACE project: ☐ No
Are color photographs of the existing conditions available? ☐ Yes, Attached ☐ No Are aerial photographs available? ☐ Yes, Attached ☐ No
☐ **Multiple Single and Complete Crossings** ***(If multiple single and complete crossings, check here and complete the table in Attachment D)***
Waterbody(ies) (if known; otherwise enter "an unnamed tributary to"): Tributary(ies) to what known, downstream waterbody(ies):
Latitude & longitude (Decimal Degrees):
USGS Quad map name(s):
Watershed(s) and other location descriptions, if known:
Directions to the project location:

Part III: Project Impacts and Mitigation

Box 5 Reason(s) for Discharge into waters of the U.S.:
Type(s) of material being discharged and the amount of each type in cubic yards:
Total surface area (in acres) of wetlands or other waters of the U.S. to be filled:

Indicate the proposed impacts to **waters of the U.S.** in ACRES (for wetlands and impoundments) and LINEAR FEET (for rivers and streams), and identify the impact(s) as permanent and/or temporary for each waterbody type listed below. For projects with multiple single and complete crossings, the table below should indicate the cumulative totals of those single and complete crossings that require notification as outlined in Part I, GC question 27, and would not determine the threshold for whether a project qualifies for a NWP. The table below is intended as a tool to summarize impacts by resource type for planning compensatory mitigation and does not replace the summary table of single and complete crossings in Attachment D for those projects with multiple single and complete crossings.

	Permanent		Temporary	
Waterbody Type	**Acres**	**Linear feet**	**Acres**	**Linear feet**
Non-forested wetland				
Forested wetland				
Perennial stream				
Intermittent stream				
Ephemeral stream				
Impoundment				
Other:				
Total:				

Potential indirect and/or cumulative impacts of proposed discharge (if any):

Required drawings (see instructions):
Vicinity map: ☐ Attached
To-scale plan view drawing(s): ☐ Attached
To-scale elevation and/or cross section drawing(s): ☐ Attached

Is any portion of the work already complete? ☐ Yes ☐ No
If yes, describe the work:

Box 6 Authority: (see instructions)
Is Section 10 of the Rivers and Harbors Act for projects affecting navigable waters applicable?
☐ Yes ☐ No ***(see Fort Worth District Navigable Waters list)***

Is Section 404 of the Clean Water Act applicable? ☐ Yes ☐ No

Box 7 Larger Plan of Development:
Is the discharge of fill or dredged material for which Section 10/404 authorization is sought intended for a utility line project which is part of a larger plan of development?
☐ Yes ☐ No ***(If yes, please provide the information in the remainder of Box 7)***

Does the utility line project have independent utility in addition to the larger plan of development (e.g., major transmission line, main water line, etc.)? ☐ Yes ☐ No
If yes, explain:

If discharge of fill or dredged material is part of development, name and proposed schedule for that larger development (start-up, duration, and completion dates):

Location of larger development (If discharge of fill or dredged material is part of a plan of development, a map of suitable quality and detail for the entire project site should be included):

Total area in acres of entire project area (including larger plan of development, where applicable):

Box 8 Federally Threatened or Endangered Species (see instructions)

Please list any federally-listed (or proposed) threatened or endangered species or critical habitat potentially affected by the project (use scientific names (i.e., genus species), if known):

Have surveys, using U.S. Fish and Wildlife Service (USFWS) protocols, been conducted?
☐ Yes, Report attached ☐ No (explain):

If a federally-listed species would potentially be affected, please provide a description and a biological evaluation.
☐ Yes, Report attached ☐ Not attached

Has Section 7 consultation been initiated by another federal agency?
☐ Yes, Initiation letter attached ☐ No

Has Section 10 consultation been initiated for the proposed project?
☐ Yes, Initiation letter attached ☐ No

Has the USFWS issued a Biological Opinion?
☐ Yes, Report attached ☐ No
If yes, list date Opinion was issued (mm/dd/yyyy):

Box 9 Historic properties and cultural resources

Please list any historic properties listed (or eligible to be listed) on the National Register of Historic Places which the project has the potential to affect:

Has an archaeological records search been conducted?
☐ Yes, Report attached ☐ No (explain):

Are any cultural resources of any type known to exist on-site?
☐ Yes ☐ No

Has an archaeological pedestrian survey been conducted for the site?
☐ Yes, Report attached ☐ No (explain):

Has Section 106 or SHPO consultation been initiated by another federal or state agency?
☐ Yes, Initiation letter attached ☐ No

Has a Section 106 MOA been signed by another federal agency and the SHPO?
☐ Yes, Attached ☐ No
If yes, list date MOA was signed (mm/dd/yyyy):

Box 10 Proposed Conceptual Mitigation Plan Summary (see instructions)

Measures taken to avoid and minimize impacts to waters of the U.S. (if any):

Applicant proposes combination of one or more of the following mitigation types:
☐ Mitigation Bank ☐ On-site ☐ Off-site (Number of sites:) ☐ None

Applicant proposes to purchase mitigation bank credits: ☐ Yes ☐ No
Mitigation Bank Name:
Number of Credits:

Indicate in ACRES (for wetlands and impoundments) and LINEAR FEET (for rivers and streams) the total quantity of waters of the U.S. proposed to be created, restored, enhanced, and/or preserved for purposes of providing compensatory mitigation. Indicate mitigation site type (on- or off-site) and number. Indicate waterbody type (non-forested wetland, forested wetland, perennial stream, intermittent stream, ephemeral stream, impoundment, other) or non-jurisdictional (uplands[1]).

Mitigation Site Type and Number	Waterbody Type	Created	Restored	Enhanced	Preserved
e.g., On-site 1	*Non-forested wetland*	*0.5 acre*			
e.g., Off-site 1	*Intermittent stream*		*500 LF*	*1000 LF*	
	Totals:				

[1] **For uplands, please indicate if designed as an upland buffer.**

Summary of Mitigation Work Plan (Describe the mitigation activities listed in the table above):

If no mitigation is proposed, provide a detailed explanation of why no mitigation would be necessary to ensure that adverse effects on the aquatic environment are minimal:

Has a conceptual mitigation plan been prepared in accordance with the USACE regulations and guidelines?
☐ Yes, Attached ☐ No (explain):

Mitigation site(s) latitude & longitude (Decimal Degrees):	USGS Quad map name(s):

Other location descriptions, if known:

Directions to the mitigation location(s):

Box 11 Water Quality Certification (see instructions)**:**

For Texas:

Does the project meet the conditions of the Texas Commission on Environmental Quality (TCEQ) Clean Water Act Section 401 certification for NWP 12? ☐ Yes ☐ No

Does the project include soil erosion control and sediment control Best Management Practices (BMPs)? ☐ Yes ☐ No

Does the project include BMPs for post-construction total suspended solids control?
☐ Yes ☐ No

For Louisiana:
LDEQ has issued water quality certification for NWP 12 without conditions.

For Tribal Lands ("Indian Country"):
Does the project meet the conditions of the EPA water quality certification for NWPs?
☐ Yes ☐ No

Box 12 List of other certifications or approvals/denials received from other federal, state, or local agencies for work described in this application:

Agency	Approval Type[2]	Identification No.	Date Applied	Date Approved	Date Denied

[2] Would include but is not restricted to zoning, building, and floodplain permits

Part IV: Attachments

	Included
A. List of Property Owners	☐
B. Delineation of Waters of the U.S., Including Wetlands	☐
C. Color Photographs	☐
D. Summary Table of Single and Complete Crossings	☐
E. Required Drawings/Figures	☐
F. Threatened or Endangered Species Reports and/or Letters	☐
G. Historic Properties and Cultural Resources Reports and/or Letters	☐
H. Conceptual Mitigation Plan	☐
I. Other:	☐

End of Form

Attachment D: Summary Table of Single and Complete Crossings

Waterbody ID[1]	Latitude and Longitude (Decimal Degrees)	Resource Type[2]	Linear Feet in Project Area	Acres in Project Area	Impact Type[3]	Linear Feet of Impact	Acres of Impact	Cubic Yards of Material to be Discharged	PCN Required	Reason[4]
e.g., W-1	*32.755°N, 97.755°W*	*NFW*	*-*	*0.25*	*D/P*	*-*	*0.15*	*1210*	*Yes*	*A, B*

[1] Waterbody ID may be the name of a feature or an assigned label such as "W-1" for a wetland.

[2] Resource Types: NFW – Non-forested wetland, FW – Forested wetland, PS – Perennial Stream, IS – Intermittent Stream, ES – Ephemeral Stream, I – Impoundment

[3] Impact Types: D/P – Direct* and Permanent, D/T – Direct and Temporary, I/P – Indirect** and Permanent, I/T – Indirect and Temporary

* Direct impacts are here defined as those adverse affects caused by the proposed activity, such as discharge or excavation.

** Indirect impacts are here defined as those adverse affects caused subsequent to the proposed activity, such as flooding or effects of drainage on adjacent waters of the U.S.

[4] Reasons for PCN requirement:

A – Mechanized land clearing in a forested wetland
B – Require a Section 10 permit
C – Utility line exceeds 500 feet in waters of the U.S., excluding overhead lines
D – Utility line is within a jurisdictional area (i.e., water of the U.S.), and the utility line runs parallel to a stream bed that is within that jurisdictional area
E – The loss of waters of the U.S. exceeds 1/10 acre
F – Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet
G – Permanent access roads are constructed in waters of the U.S. with impervious materials
H – Potential endangered species
I – Potential historic properties
J – Discharge into pitcher plant bog or bald cypress-tupelo swamp
K– Discharge into the area of Caddo Lake within Texas that is designated as a "Wetland of International Importance" under the Ramsar Convention
L – Required by Louisiana Regional Conditions
M – Other

Instructions: [please do not include these pages when submitting form]

1) **Complete Part I of the form first to determine if the project meets the conditions and requirements of NWP 12, including the General and Regional Conditions as well as the notification requirements. Additional information on the general conditions is available at the following website:**

   http://www.swf.usace.army.mil/pubdata/environ/regulatory/permitting/gp.asp

2) **Boxes 1 to 3:** Provide contact information for the Applicant, Agent, Owner, etc.

3) **Box 4:**
   a. **Nature of Activity:** Describe the overall activity or project. Give appropriate dimensions of structures such as wingwalls, dikes (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles, or float-supported platforms. The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach a separate sheet marked "Box 4 Nature of Activity."

   b. **Proposed Project Purpose:** Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project.

   c. **Delineation of waters of the U.S.:**
   Waters of the U.S. are defined under 33 CFR part 328.3 (a) as:
   (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
   (2) All interstate waters including interstate wetlands;
   (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
      (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
      (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
      (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;
   (4) All impoundments of waters otherwise defined as waters of the U.S. under the definition;
   (5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;
   (6) The territorial seas;
   (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.

   In addition, 33 CFR part 328.3 (b) states: The term wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, the ordinary high water mark, as well as any adjacent wetlands, demarcate the limits of non-tidal waters of the U.S. Wetlands are identified and delineated using the methods and criteria established in the USACE *Wetlands Delineation Manual* (1987 Manual) (i.e., occurrence of hydrophytic vegetation, hydric soils, and wetland hydrology) as well as any applicable interim regional supplements.

d. **Multiple Single and Complete Crossings:** If the project includes multiple crossings which qualify as single and complete projects (see definitions in Part I question for General Condition 28), include information for each crossing in the summary table in Attachment D.

4) **Box 5:**

Required drawings (see examples in separate file): Submit one legible copy of all drawings (8 1/2 x 11-inch or 11 x 17-inch) with a 1-inch margin around the entire sheet. The title box shall contain the title of the proposed project, date, and sheet number.

i. **Vicinity map:** Cover an area large enough so the project can be easily located; include arrow marking the project area, identifiable landmarks (e.g., named waterbody, county, city), name or number of roads, north arrow, and scale.

ii. **Plan view:** Include features such as existing bank lines, ordinary high water mark line(s), average water depth around the activity, dimensions of the proposed project, dimensions of any structures immediately adjacent to the proposed activity, north arrow, and scale.

iii. **Elevation and/or cross-section views:** Include features such as water elevation as shown on plan view drawing, existing and proposed ground level, dimensions of the proposed project, dimensions of any structures immediately adjacent to the proposed activity, and scale.

5) **Box 6:** A list of navigable waters in the Fort Worth District can be found at the following website:

http://www.swf.usace.army.mil/pubdata/environ/regulatory/jurisdiction/navlist.pdf

Under Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged or fill material into waters of the U.S. More information on regulated activities can be found at the following website:

http://www.swf.usace.army.mil/pubdata/environ/regulatory/regulatedactivities.asp

6) **Box 8:** Information on federally threatened or endangered species may be found on the U.S. Fish and Wildlife Service website and the Texas Parks and Wildlife Department website. Include an attachment if additional space is required for listing species or critical habitat potentially affected by the project.

http://www.fws.gov/southwest/es/EndangeredSpecies/lists/

http://www.tpwd.state.tx.us/huntwild/wild/species/endang/index.phtml

http://www.tpwd.state.tx.us/landwater/land/maps/gis/ris/endangered_species/

7) **Box 10:** When completing this box, be aware that the USACE will consider if the project has been designed to avoid and minimize adverse effects, both temporary and permanent, to waters of the U.S. to the maximum extent practicable at the project site when determining appropriate

and practicable mitigation necessary to ensure that adverse effects to the aquatic environment are minimal. The USACE may also require compensatory mitigation at a minimum one-for-one ratio for losses of wetlands, streams, and open waters to ensure that the project results in minimal adverse effects on the aquatic environment. See the USACE Fort Worth District Regulatory Branch website for a mitigation plan template and requirements.

http://www.swf.usace.army.mil/pubdata/environ/regulatory/permitting/mitigation.asp

8) **Box 11:** Projects in Texas should meet the conditions of the Texas Commission on Environmental Quality (TCEQ) Clean Water Act Section 401 certification for NWP 12. The TCEQ conditions of Section 401 certification for NWP 12 as well as a description of Best Management Practices can be found at the following website:

http://www.tceq.state.tx.us/permitting/water_quality/wq_assessment/401certification/401certification_nationwide.html

Projects in Louisiana require water quality certification from the Louisiana Department of Environmental Quality (LDEQ). LDEQ has issued water quality certification for NWP 12 without conditions. Information about water quality certification from LDEQ can be found at the following website:

http://www.deq.louisiana.gov/portal/tabid/2268/Default.aspx

The Environmental Protection Agency (EPA) is the agency required to address water quality certification of the 2007 NWPs in "Indian Country" where a tribe has not received treatment in the same manner as a state for the Clean Water Act (CWA) Section 401 program. "Indian Country," as defined in 18 U.S.C. 1151, means: (1) all land within the limits of any Indian reservation under the jurisdiction of the U.S. government, not withstanding the issuance of any patent, and including rights-of-way running through the reservation; (2) all dependent Indian communities within the borders of the U.S. whether within the original or subsequently-acquired territory thereof, and whether within or without the limits of a state; and (3) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. At this time, no Indian tribes in Texas or Louisiana have CWA Section 401 authority.

The EPA has developed a list of conditions that must be met in order for water quality certification of NWPs in "Indian Country" lands. The list of "401 Certification Conditions of Nationwide Permits for Tribal Lands in Texas" can be found at the following website:

http://www.swg.usace.army.mil/reg/permitnw/NWP%202007%20Information/npw_regional%20conditions/2007NWPTXwqcEPA.pdf

The list of "Water Quality Regional NWPs Conditions for 'Indian Country' Lands" in Louisiana can be found in Part III of the document at the following website:

http://www.mvn.usace.army.mil/ops/regulatory/2007%20NWP%20regional%20conditions%20-%20Louisiana.pdf

9) **Attachments:** Check the boxes in Part IV for those attachments that are included, and place a cover sheet or tab with each attachment behind the last page of the form. If Attachment D is not needed, discard this page, but if more room is necessary, include an additional table.

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

July 20, 2011

Planning, Environmental, and Regulatory Division
Regulatory Branch

SUBJECT: Project Number SWF-2011-00341, Western Watershed Sewer Relief Line (WWRL) C - Upper Segment

Ms. Frances Martinez
Weston Solutions, Inc
70 N.E. Loop 410
Suite 600
San Antonio, TX 78216-6350

Dear Ms. Martinez:

Thank you for your letter received July 5, 2011 concerning a proposal by San Antonio Water System (SAWS) to construct a pipeline that is mostly located within the 100-year floodplain and would cross Leon Creek at three locations in the City of San Antonio, Bexar County, Texas.. This project has been assigned Project Number SWF-2011-00341. Please include this number in all future correspondence concerning this project.

Ms. Elisha Bradshaw has been assigned as the regulatory project manager for your request and will be evaluating it as expeditiously as possible.

You may be contacted for additional information about your request. For your information, please reference the Fort Worth District Regulatory Branch homepage at http://www.swf.usace.army.mil/regulatory and particularly guidance on submittals at http://www.swf.usace.army.mil/pubdata/environ/regulatory/introduction/submital.pdf, and mitigation at http://www.usace.army.mil/CECW/Pages/final_cmr.aspx that may help you supplement your current request or prepare future requests.

If you have any questions about the evaluation of your submittal or would like to request a copy of one of the documents referenced above, please contact Ms. Elisha Bradshaw at the address above or telephone (817) 886-1738 and refer to your assigned project number. Please note that it is unlawful to start work without a Department of the Army permit if one is required.

Please help the Regulatory Program improve its service by completing the survey on the following website: http://per2.nwp.usace.army.mil/survey.html.

Stephen L Brooks
Chief, Regulatory Branch

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 26, 2011

Ms. Julie Ann Ferguson
San Antonio Water System
2800 U.S. Hwy. 281 North
San Antonio, TX 78298-2449

Re: TCEQ Grant and Texas Review and Comment System (TRACS) #2011-292, City of San Antonio, Bexar County – WWRL C - Upper Segment SAWS Job No. 09-2515

Dear Ms. Ferguson:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced project and offers following comments:

A review of the project for General Conformity impact in accordance with 40 CFR Part 93 and Title 30, Texas Administrative Code § 101.30 indicates that the proposed action is located in the City of San Antonio, Bexar County, which is currently unclassified or in attainment of the National Ambient Air Quality Standards for all six criteria air pollutants. Therefore, General Conformity does not apply.

Although any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions should pose no significant impact upon air quality standards. Any minimal dust and particulate emissions should be easily controlled by the construction contractors using standard dust mitigation techniques.

We recommend the environmental assessment address actions that will be taken to prevent surface and groundwater contamination.

Thank you for the opportunity to review this project. If you have any questions, please contact Ms. Tangela Niemann at (512) 239-3786 or tangela.niemann@tceq.texas.gov.

Sincerely,

Jim Harrison, Director
Intergovernmental Relations Division

2011-292

20 June 2011

CERTIFIED MAIL

Mr. Richard A. Hyde
Deputy Director
Office of Permitting and Registration
Texas Commission on Environmental Quality
MC 122
P.O. Box 13087
Austin, Texas 78711-3087

RE: Interagency/ Intergovernmental Coordination for Environmental Planning
Western Watershed Sewer Relief Line (WWRL) C – Upper Segment
SAWS Job No. 09-2515

Dear Mr. Hyde,

On behalf of the San Antonio Water System (SAWS), Weston Solutions, Inc. (WESTON) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). SAWS is proposing to request an easement with a term of 75 years to perpetuity for construction and maintenance of a new 21,100-foot long, 84- and 90-inch diameter sanitary sewer pipeline that would cross Lackland Air Force Base (AFB) along its eastern boundary and along Westover Road. The purpose of the new pipeline is to replace an existing 54-inch diameter sanitary sewer pipeline that has exceeded its service life and requires additional capacity to service Lackland AFB and other customers.

The proposed pipeline would be constructed by open-cut trench methods, jack and bore or tunneling methods at select road crossings, creek crossings, and deeper segments where open-cut methods are not feasible. The alignment of the proposed relief line parallels the existing line in most cases. The proposed sewer is mostly within the 100-year floodplain and would cross Leon Creek at three locations. The existing sewer line would be abandoned in-place upon completion of construction of the new proposed sewer line.

As required by NEPA, the EA will also consider taking no action. With the No Action Alternative, there will remain a high risk of a collapse in the existing sewer main, resulting in a wastewater spill. Alternative strategies developed for the sanitary sewer improvements, including the No Action Alternative, will be assessed in the EA.

For your reference and comment, Chapter 1 – Purpose and Need for Action and Chapter 2 – Description of Proposed Action and Alternatives (DOPAA) of the Draft EA are enclosed. We request your participation early in the process, and solicit any particular concerns or recommendations you may have in the area of this project including those regarding resources that may be of special interest to you. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effects. Please send your environmental comments by 1 August 2011 to:

San Antonio Water System

Weston Solutions, Inc.
ATTN: Frances Martinez, P.E.
70 N.E. Loop 410, Suite 600
San Antonio, TX 78216-5842
Phone: (210) 308-6350
Fax: (210) 308-4329
Email: Frances.Martinez@WestonSolutions.com

Thank you for your assistance in this matter. Please forward any requests for further information or applicable comments to the Project Engineer, Ms. Julie Ann Ferguson at (210) 233-3489.

Sincerely,

/KA

Kerry Averyt, P.E.
Manager
SAWS Replacements and Improvements

Enclosure: Chapter 1 – Purpose and Need for Action and Chapter 2 – Description of Proposed Action and Alternatives (DOPAA) of the Draft EA

cc: Frances Plocek, P.E., Director, SAWS
Julie A. Ferguson, P.E., Project Manager, SAWS
Abdel Hamed, P.E., Project Manager, WESTON
File

CHAPTER 1
PURPOSE AND NEED FOR ACTION

This chapter has six parts: statement of the purpose and need for action, description of the location for the proposed action, purpose of Environmental Assessment (EA), the scope of the environmental review, identification of applicable regulatory requirements, and an introduction to the organization of the document.

1.1 PURPOSE OF AND NEED FOR ACTION

The existing Western Watershed sanitary sewer interceptor that is located on Lackland Air Force Base (AFB) is comprised of approximately 21,100 linear feet (LF) of sewer pipeline, measuring 54-inches in diameter. The sanitary sewer interceptor lies within a 50-foot easement currently utilized by the San Antonio Water System (SAWS). Portions of the existing wastewater pipeline have been rehabilitated as a result of pipeline deterioration and failure. Recently in 2010 for the Western Watershed Sewer Relief Line, Morey Road Siphon Construction Project (SAWS Job No. 10-2507), approximately 700 LF of 24-inch and 54-inch siphon pipes required emergency line maintenance including cleaning and rehabilitation of two siphon structures. The pipeline also has occurrences of overflow, which indicates the capacity of the pipeline requires expansion. Hydraulic modeling of the collection system indicated that the peak flow rate for the sewer outfall, located at U.S. Highway 90 and Leon Creek, would be 174.7 MGD by the year 2050. The purpose of the proposed Western Watershed Sewer Relief Line Upper Segment Project is to construct a new sewer relief line. The action is needed to handle additional capacity to address future flow needs as well as to address recent failures and overflows of the existing pipeline.

1.2 LOCATION OF THE PROPOSED ACTION

The subject property is located within San Antonio, Bexar County, Texas, (Figure 1-1) and is bound by U.S. Highway 90 to the north, Lackland AFB Golf Course to the west, Lackland AFB runways to the east, and to the south by SW Military Drive (Figure 1-2). Lackland AFB is located approximately 7 miles southwest of the City of San Antonio center. In 1995, the Base Realignment and Closure (BRAC) Commission voted to close the San Antonio Air Logistics Center at the former Kelly AFB and to realign a portion of the Base to Lackland AFB. Lackland AFB assumed administrative and operations responsibility in October 2000 for a 2,789-acre portion of the former Kelly AFB, known as the Kelly Field Annex (KFA).

1.3 PURPOSE OF ENVIRONMENTAL ASSESSMENT

The Environmental Assessment (EA) evaluates the potential environmental consequence of actions associated with the installation of a proposed sanitary sewer line through Lackland AFB, which parallels Leon Creek from SW Military Drive to U.S. Highway 90. Based on this information, the U.S. Air Force would determine if the proposed action qualifies for a Finding of No Significant Impact/Finding of No Practicable Alternative or would require preparation of an Environmental Impact Statement. As required by the National Environmental Policy Act (NEPA) and its implementing regulations, preparation of required environmental documents must precede final decisions regarding the proposed project and be made available to inform decision-makers of the potential environmental impact.

1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

NEPA of 1969, as amended, requires federal agencies to consider environmental consequences in their decision-making process. The President's Council on Environmental Quality (CEQ) has issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental impact analysis. The Air Force Environmental Impact Analysis Process (EIAP) is accomplished through adherence to the procedures set forth in CEQ regulations (40 *Code of Federal Regulations* [CFR] Sections 1500-1508) and 32 CFR 989 (Environmental Impact Analysis Process), 15 July 1999, and amended 28 March 2001. These federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action.

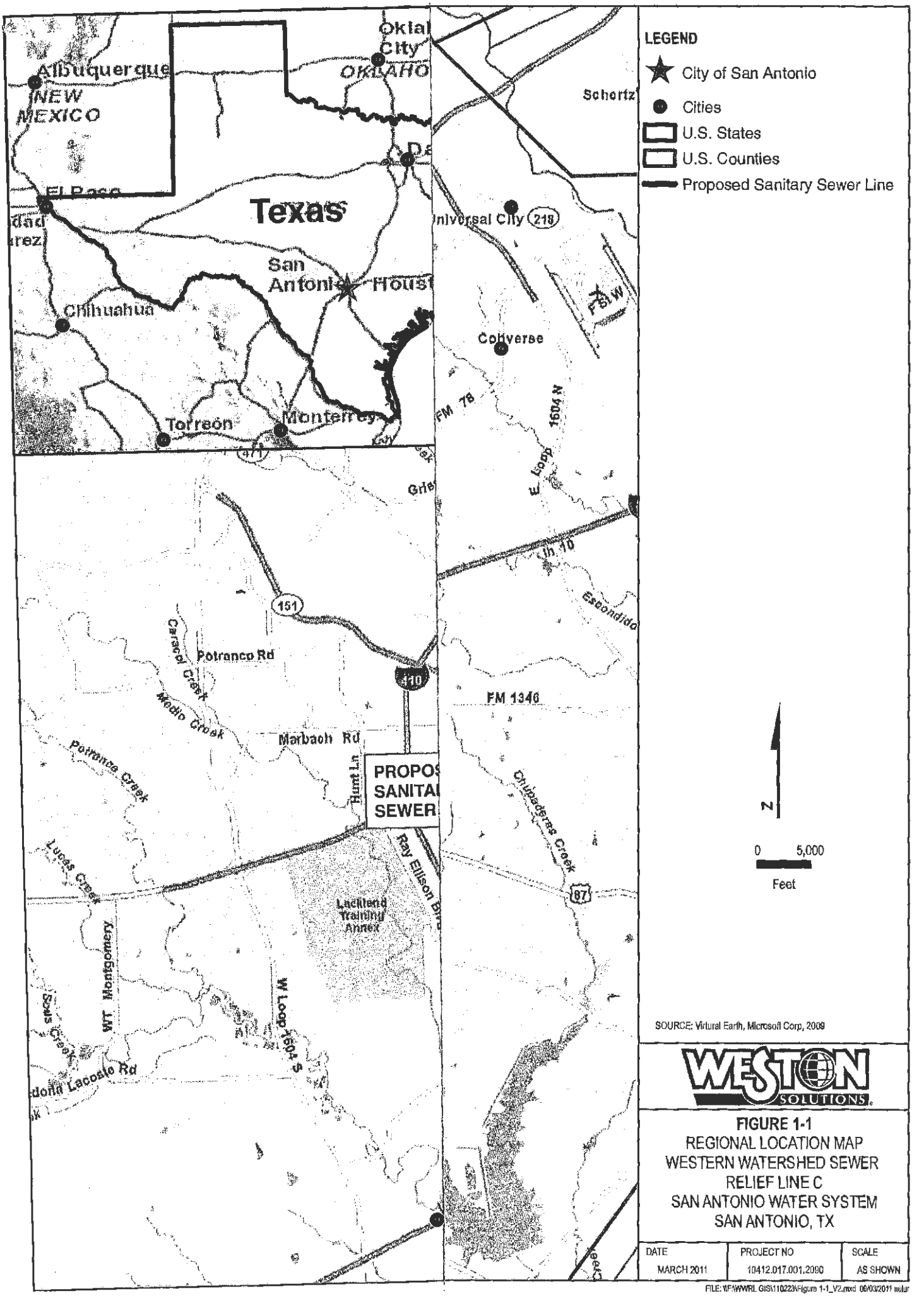
The EA identifies, describes, and evaluates the potential environmental impacts that are associated with the installation of the proposed sanitary sewer line, taking into consideration possible cumulative impacts from other actions. The potential environmental effects of taking no action are also described. As appropriate, the affected environment and environmental consequences of the action may be described in terms of a regional overview or a site-specific description.

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued by the President on 11 February 1994. In the EO, the President instructed each federal agency to make "achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Adverse is defined by the Federal Interagency Working Group on Environmental Justice as 'having a deleterious effect on human health or the environment that is significant, unacceptable, or above generally accepted norms.'" This EA would determine if the proposed or alternative actions would result in adverse effects to low-income or minority populations.

1.4.1 Resource Areas Addressed in Detail

Resource areas that could be affected by the proposed or alternative actions have been selected to allow for a comprehensive analysis of potential impacts. The following resource areas are discussed in detail in this EA:

- Noise
- Air Quality
- Earth Resources
- Biological Resources
- Cultural Resources
- Water Resources
- Hazardous Substances
- Safety
- Infrastructure and Utilities
- Socioeconomic Resources
- Environmental Justice



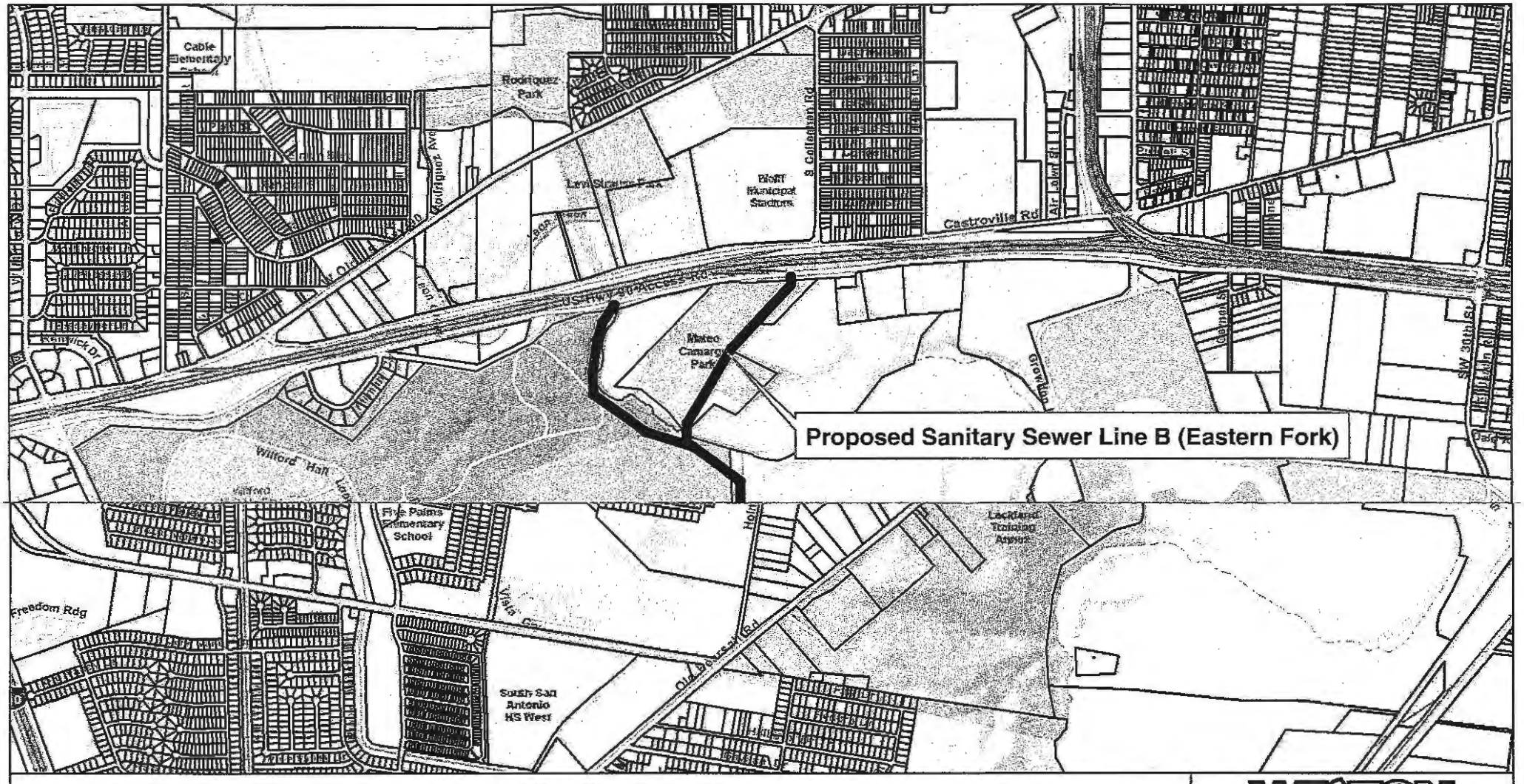
WESTON SOLUTIONS

FIGURE 1-1
REGIONAL LOCATION MAP
WESTERN WATERSHED SEWER
RELIEF LINE C
SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\FAWWRL GIS\110223\Figure 1-1_V2.mxd 06/03/2011 nulur

This page intentionally left blank.



LEGEND

- Lackland AFB
- Property Line
- Proposed Sanitary Sewer Line

SOURCE: Virtural Earth, Microsoft Corp, 2009

WESTON SOLUTIONS

FIGURE 1-2
VICINITY MAP
WESTERN WATERSHED SEWER
RELIEF LINE C
SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\F:\WWRL GIS\110223\Figure 1-2.mxd 09/03/2011 nulur

This page intentionally left blank.

1.4.2 Resource Topics Eliminated from Detailed Analysis

There would be no change in land use on the proposed project site or on adjacent properties. The subject property would continue to retain the same owner, and the subject property and adjacent properties would be utilized for the same activities that currently occur at each property. Therefore, land use would not be affected by the Proposed Action and has been eliminated from further study in this document.

1.5 IDENTIFICATION OF APPLICABLE REGULATORY REQUIREMENTS

This EA is part of the EIAP for the proposed project as set forth in 32 CFR 989, 15 July 1999, and amended 28 March 2001; CEQ regulations; DoD Directive 6050.1 (*Environmental Effect in the United States of DoD Actions, July 30, 1979*); as well as DoD 4715.9 (*Environmental Planning and Analysis*).

NEPA, as amended, requires federal agencies to consider, as part of the decision-making process, the environmental consequences of their proposed and alternative actions. SAWS have considered the potential environmental impacts of installing a sanitary sewer relief line in its decision-making process. The following paragraphs describe the laws and regulations that apply or may apply to the proposed and alternative actions.

1.5.1 Interagency and Intergovernmental Coordination

Federal, state, and local agencies with jurisdiction that could be affected by the Proposed Action have been notified and consulted. A complete listing of the agencies consulted may be found in Chapter 6 and IICEP letters and responses are presented in Appendix A. This coordination fulfills the Interagency Coordination Act and EO 12372 that require federal agencies to cooperate with and consider state and local views in implementing a federal proposal. EO 12372 is implemented by the U.S. Air Force in accordance with Air Force Instruction (AFI) 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning.*

1.5.2 Permits

It would be the construction contractor's responsibility to ensure permits are identified and obtained from Lackland AFB, local, state, and federal agencies. The contractor would be required to obtain a permit to dig prior to any construction activities. All underground utilities would be located prior to earth moving activities.

Compliance with the Texas Pollutant Discharge Elimination System (TPDES) Permit would be required. In order to obtain coverage under a TPDES Permit (TXR150000), a Notice of Intent (NOI) must be submitted to the Texas Commission on Environmental Quality (TCEQ) before any construction activities begin. The Permit would authorize stormwater discharges during large and small construction-related activities where the discharges have a potential to enter surface waters or a storm drain system. Construction activities would also require development, submittal, and implementation of a Storm Water Pollution Prevention Plan (SWPPP) to be covered under the TPDES permit for Lackland AFB.

Additionally, TCEQ would ensure that the discharge to be permitted through the U.S. Army Corps of Engineers – Wetlands and Section 404 Permit, complies with state water quality

standards. TCEQ is responsible for conducting Section 401 certification reviews of U.S. Army Corps of Engineers Section 404 permit applications for the discharge of dredged or fill material into waters of the United States, including wetlands. Erosion control and sediment control best management practices (BMPs) would be required.

Other permits that may be required and their respective authorizing entities are as follows:

- City of San Antonio Site Work Permit
- City of San Antonio Tree Permit
- City of San Antonio Right-of-Way Permit
- FEMA Floodplain Development Permit
- Texas Department of Transportation Utility Permit
- US Army Corps of Engineers – Wetlands and Section 404 Permit (Nationwide)
- Texas Historical Commission

1.5.3 Other Regulatory Requirements

The EA considers all applicable laws and regulations, including but not limited to the following:

- Clean Air Act (CAA) (42 United States Code [USC] 7401 et seq.)
- AFI 32-7040, *Air Quality Compliance*
- EO 11990, *Protection of Wetlands*
- Clean Water Act (CWA) (33 USC 1251 et seq.)
- EO 11988, *Floodplain Management*
- Endangered Species Act (ESA) (16 USC 1531-1542)
- Pollution Prevention Act of 1990 (42 USC 13101 and 13102 et seq.)
- Archaeological Resources Protection Act
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*

1.6 ORGANIZATION OF THE DOCUMENT

This EA is organized into seven chapters.

Chapter 1 Statement of the purpose and need for action, description of the location for the proposed action, purpose of Environmental Assessment (EA), the scope of the environmental review, identification of applicable regulatory requirements, and organization of the document.

Chapter 2 Development of alternatives, alternatives eliminated from further consideration; detailed description of the Proposed Action; description of the No-action alternative; summary of other actions planned for SAWS, Lackland AFB, and the surrounding community; comparison matrix of environmental effects for the proposed alternative; and any mitigation measures and procedures to reduce impacts.

Chapter 3 General description of the current conditions of resources that could be affected by the proposed actions.

Chapter 4 Analysis of the environmental consequences of the proposed and alternative actions.

Chapter 5 Lists of preparers for the document.

Chapter 6 Lists of persons and agencies consulted in the preparation of the EA.

Chapter 7 Lists source documents relevant to the preparation of the EA.

This page intentionally left blank.

CHAPTER 2
DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This chapter has nine parts: brief history of the development of alternatives; identification of alternatives eliminated from further consideration; a description of the Proposed Action; a description of the No-action Alternative; identification of other proposed actions planned for SAWS, Lackland AFB, and the surrounding community; a summary of environmental impacts from the proposed alternative; and a table of any proposed mitigation measures.

2.1 HISTORY OF THE FORMULATION OF ALTERNATIVES

A Preliminary Engineering Report (PER) was authorized by SAWS in September 2007 and completed by Camp, Dresser & McKee (CDM) in August 2009 that presented alternatives for improvements to the Western Watershed Sewer Relief Line C. The alternatives were identified based on the condition of the existing system and the needed future design capacity. Several improvement scenarios were evaluated to maintain a gravity-flow sewer system that would roughly follow the route of the existing line. Alternatives for the sanitary sewer system improvements were developed to meet the following goals:

- Allow for a safe construction environment.
- Reduce the potential for future sanitary sewer overflow events.
- Provide additional sewage collection and conveyance capacity to handle year 2050 projections.
- Reduce system inflow and infiltration.
- Provide for minimal need for operations and maintenance (O&M).
- Minimize impact to existing Environmental Restoration Program (ERP) Sites.
- Reduce the duration and scope of by-pass pumping operations for system installation.

A non-gravity flow system, or lift station and force main option, was not considered feasible to handle the projected design flow capacity and did not meet the overall project objectives. High service pump systems are expensive to maintain and operate and require redundancy of pumps, force mains, storage capacity, and generators for reliability. Because of their dependability and low operation and maintenance costs, a gravity flow system was selected as the preferred method to convey the wastewater. A well-designed gravity flow system is cost effective, is self-cleansing, has a long design life, and eliminates the need for mechanical devices (pumps) that have the potential to breakdown or become inoperative with a power outage.

The route of interceptor sewers or trunk sewers is largely governed by topography and, in the case of a replacement interceptor such as the Western Watershed Sewer Relief Line C, the route is governed by topography and the location of the existing sewer collection system.

Four alternatives were evaluated for the Western Watershed Sewer Relief Line C with consideration given to the proposed pipeline alignment and the construction methods to be used. An initial assessment of the feasibility of a new pipeline alignment that would shift the current alignment to the west or east to place it outside of the boundary of Lackland AFB and outside the limits of the 100-year floodplain was performed. Topographic data was collected by conducting a Light Detection and Ranging (LIDAR) survey of the area to evaluate whether it was feasible to reroute the sewer; however, significant deviation of the route to the east or west would result in installation at extreme depths that would be difficult and costly to construct and result in a system that is more difficult and hazardous to access for maintenance. The ground elevation has a sharp increase immediately to the west of the floodplain. The ground elevation increases approximately 100 feet immediately outside of the floodplain to the west of the existing alignment as compared to the existing pipeline ground elevation (CDM 2009). Significant changes in the alignment of the new line (from the existing) would also require extensive rerouting and replacement of the local collection system laterals currently connected to the existing sewer interceptor. Therefore, the alignment chosen was one that would allow for safe excavation/construction practices, minimize ground disturbance, and would allow for more facilitated accessibility and maintenance of the new sanitary sewer collection system.

All alternatives would require the construction of a new pipeline via open cut and trenchless construction methods and only vary in the diameter of pipe required. The open-cut construction method refers to the conventional installation of pipeline by digging a surface trench, installing the pipe, and then burying it. Trenchless construction methods minimize the disruptive effect of open trench pipeline construction. This approach is ideal for areas where excavation may impact vehicular traffic, waterways, or environmentally sensitive areas. Trenchless methods include tunneling, microtunneling, horizontal directional drilling, sliplining, jack and bore and other methods for installation, and repair and rehabilitation of pipelines below the ground. The alternatives, therefore, would follow the same alignment and differ only in whether or not the existing pipeline is abandoned, rehabilitated in-place, or removed.

The alignment route was developed to minimize encroachment into Lackland ERP sites and to be consistent with future Base development plans. A number of meetings were held between SAWS and Lackland AFB to refine the alternatives as well as the proposed alignments. Lackland AFB provided figures and data relating to the landfill cap limits and degree of hazardous materials buried therein.

2.2 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The option to perform in-place rehabilitation of the existing sewer line only (without adding any new pipelines in a new alignment) was eliminated from further consideration since rehabilitation results in a reduced inside pipe diameter, thus reducing capacity. If the existing sewer were rehabilitated, then this rehabilitated sewer line would not have sufficient capacity for the projected year 2050 flow (CDM 2009).

Also considered was an alternative that included the in-place rehabilitation of the existing 54-inch diameter pipeline and installing a new, parallel relief sewer line to handle the increased capacity for future flow. This option included the rehabilitation of the existing 54-inch diameter pipeline by means of sliplining. The rehabilitated pipeline diameter would decrease in size to a 48-inch diameter pipe. A new 66-inch diameter pipeline would parallel the existing (and newly sliplined) pipeline. This 66-inch diameter pipeline would transition to a 72-inch diameter

pipeline between U.S. Highway 90 and Kelly Road, and the 72-inch diameter pipeline would transition to an 84-inch from Kelly Road to SW Military Drive. This alternative was eliminated from consideration due to safety concerns arising from the deteriorated state of the existing sanitary sewer line and the need for temporarily diverting wastewater flow from the existing sewer while it is rehabilitated. This would require extensive use of by-pass pumping operations. It was also eliminated as a viable alternative due to the larger width construction limits that could possibly lead to disturbing more environmentally protected areas.

Also considered was an alternative that included the in-place rehabilitation of the existing 54-inch diameter pipeline by means of Capital Improvements Program (CIP). The rehabilitated pipeline diameter would remain a 54-inch diameter pipe. A new 66-inch diameter pipeline would parallel the existing (and CIP) pipeline. This 66-inch diameter pipeline would transition to a 72-inch diameter pipeline between U.S. Highway 90 and Kelly Road and the 72-inch diameter pipeline would transition to an 84-inch from Kelly Road to SW Military Drive. This alternative was eliminated from future consideration due to safety concerns arising from the deteriorated state of the existing sanitary sewer line, and the need for temporarily diverting wastewater flow off of the existing sewer while it is rehabilitated. This would require extensive use of by-pass pumping operations. It was also eliminated as a viable alternative due to the larger width construction limits that could possibly lead to disturbing more environmentally protected areas.

Lastly, an alternative consisting of removing the existing 54-inch diameter pipeline and replacing it in-place with a new, single, full capacity line was evaluated. This option would require the by-pass of existing flow during construction that would be prohibited within the Environmental Restoration Sites through Lackland AFB. Due to this concern, the line would cross Leon Creek thus diverting the alignment west around the existing landfills while remaining within the floodplain. This alternative would include the construction of a new 84-inch diameter pipeline within the existing SAWS 50-foot easement on the west side of the creek and transition to a new 90-inch diameter pipe within a proposed 50-foot easement along Hall Street to avoid existing landfills. This would prevent any disturbance to the existing capped environmental sites. This option would include the removal and replacement of at least one existing siphon and the addition of one siphon to redirect the proposed line away from the landfills. This alternative was eliminated from further consideration since it presents several risks during construction related to the known poor condition of the existing sewer and the need to maintain by-pass pumping operations in close proximity to Leon Creek. Handling of peak wet weather flow could be expected to be a massive undertaking necessitating the use of several large pumps, power, and backup pumps and generators over a long period of time.

2.3 DETAILED DESCRIPTION OF THE PROPOSED ACTION

The recommended alternative was selected because it met the sanitary sewer system improvement goals presented in Section 2.1. Additionally, the Proposed Action was selected based on cost, ease of construction, and feedback provided by Lackland AFB Civil, Real Estate, and Environmental Departments as well as SAWS personnel and Operation & Maintenance Departments. Pipe sizing and alignment analysis were based on SAWS Design Criteria and TCEQ Chapter 217 design criteria.

The recommended alignment for the Western Watershed Sewer Relief Line C consists of constructing approximately 22,100 linear feet of new 54-, 84-inch and 90-inch gravity sewer line

extending through City of San Antonio property and Lackland AFB between US Highway 90 and SW Military Drive and includes the abandonment of the existing 54-inch wastewater pipeline and its easement. The width of the existing sewer line easement is 50 feet. Recommendations are that the new line be installed in a new easement with enough clearance from the existing line in order to minimize the possibility of collapse or further damage to the existing sewer during construction. A new 75-foot wide permanent utility easement and a 25-foot wide temporary construction easement are recommended for the proposed Western Watershed Sewer Relief Line C. The temporary easement would be effective for the duration of the construction. The utility easement would provide for ingress and egress into the site to provide maintenance for the sanitary sewer pipe. The construction permit would allow for additional area space to conduct construction-related activities. After the construction has ended, this temporary construction permit would expire. Where the existing easement is no longer required for the new sewer line, the existing easement may be released by SAWS.

The location of the proposed relief line is shown in greater detail in Figure 2-1, Sheets 1 to 16. Below is a brief summary of the Proposed Action:

For the proposed relief sewer line, SAWS would proceed to acquire a 75-foot wide permanent and an additional 25-foot wide temporary construction easement. These easements are proposed within properties belonging to Lackland AFB, City of San Antonio (COSA), and one private property owner, Mr. Cristoval Alcoser. Additionally, a second private property might be utilized at the north end of the sewer line.

- The existing line would be replaced with approximately 12,850 LF of 84-inch diameter pipeline, approximately 4,470 LF of 90-inch diameter pipeline, and 2,400 LF of 54-inch diameter pipeline. A table summarizing the proposed sewer segments is provided as Table 2-1.
- The existing sewer line pipe is reinforced concrete pipe (RCP). The new pipeline would be centrifugally cast, fiberglass-reinforced, polymer-mortar (CCFRPM) pipe.
- The proposed relief pipeline would be constructed by open-cut methods and trenchless / jack and bore or tunneling methods at select road crossings, creek crossings, and deeper segments where open-cut methods are not feasible.
- There are seven lateral sewer lines that would be rerouted and reconnected to the new sewer pipeline.
- The alignment of the proposed relief line parallels the existing line in most cases. Approximately 9,682 LF of the southern reach of the proposed line would be offset and to the east of the existing sewer line in order to minimize disturbance to the existing environmental restoration sites in this area.
- The proposed alignment is adjacent to or crosses through Lackland AFB environmental restoration sites: LF014, LF012 East, LF011-Middle, LF011-North, and Landfill 12; is adjacent to Unexploded Ordnance (UXO) Areas AL240 and AL722; and is in close proximity to an ammunition loading zone. An attentive monitoring program would be implemented in the Western Watershed Sewer Relief Line C throughout construction activities to ensure that the integrity of the existing landfill caps is maintained at all times.
- The proposed sewer is primarily within the 100-year floodplain and would cross Leon Creek at three locations.

- The creek and environmental restoration site crossings would require coordination with Lackland AFB and local, state, and federal agencies.
- The existing sewer line would be abandoned in-place upon completion of construction of the new relief line.
- SAWS would own and maintain both the proposed sanitary sewer line and the easement.

Based upon information known at the time of preparation of the EA, a contractor bid advertisement for the project is anticipated for publication in late 2013 with construction commencing in early 2014. At present, SAWS and the Design Engineer of Record are developing the 60% design plans, specifications, and an opinion of probable construction costs. The design phase would include coordination with various regulatory agencies for acquisition of permits related to the proposed improvements. Other related design activities include topographic and tree surveys, site reconnaissance, and geotechnical investigations.

2.4 DESCRIPTION OF THE NO-ACTION ALTERNATIVE

Under the No-action Alternative, the existing aged and deteriorating system would remain in use. Additional structural failures, cave-ins, sanitary sewer overflows, and also costly spot repairs would continue. The existing sewer system would remain in poor operational and structural condition and have inadequate capacity. The potential exists for a water quality violation, disruptions in sewer service, and high repair and maintenance costs, as well as costs to restore the surrounding environment should a spill occur. The potential threat of a potential cave-in of a failed sewer line could also present a dangerous threat to human safety. Disruption of wastewater service to Lackland AFB could interfere with critical military Base operations.

This page intentionally left blank.

Upstream (US) MH	Downstream (DS) MH	US Station	Depth (ft)	Proposed Construction	Reference Map No.
MH-02	MH-01	STA. 2+10.52	35	Open-cut	1
JB-01	MH-02	STA. 3+25.62	26	Open-cut	1
JB-02	JB-01	STA. 4+97.93	59	Open-cut	1
MH-03	JB-02	STA. 8+35.07	90	Open-cut	1
MH-04	MH-03	STA. 11+79.38	17	Open-cut	1, 2
MH-05	MH-04	STA. 19+79.72	05	Open-cut/ Trenchless	2
MH-06	MH-05	STA. 23+81.86	65	Trenchless	2, 3
MH-07	MH-06	STA. 30+30.28	82	Open-cut	3
MH-08	MH-07	STA. 38+31.81	69	Open-cut	3, 4
MH-09	MH-08	STA. 46+42.02	29	Open-cut	4
MH-10	MH-09	STA. 53+30.30	47	Open-cut	4, 5
MH-11	MH-10	STA. 58+09.74	17	Open-cut	5
MH-12	MH-11	STA. 62+88.51	89	Open-cut	5
MH-13	MH-12	STA. 69+06.16	19	Open-cut	5, 6
MH-14	MH-13	STA. 78+91.50	70	Open-cut/ Trenchless	6, 7
MH-15	MH-14	STA. 85+46.49	01	Open-cut	7
MH-16	MH-15	STA. 92+76.38	16	Open-cut	7, 8
MH-17	MH-16	STA. 95+64.84	94	Open-cut	8
MH-18	MH-17	STA. 97+20.63	56	Open-cut	8
MH-19	MH-18	STA. 101+86.66	46	Open-cut	8
MH-20	MH-19	STA. 107+46.08	81	Open-cut	8, 9
JB-03	MH-20	STA. 124+49.48	27	Open-cut/ Trenchless	9, 10
JB-04	JB-03	STA. 127+76.07	18	Open-cut	10
MH-21	JB-04	STA. 142+83.78	27	Open-cut	10, 11
MH-22	MH-21	STA. 150+79.15	55	Open-cut	11, 12
MH-23	MH-22	STA. 157+73.92	89	Open-cut	12, 13
MH-24	MH-23	STA. 163+67.53	51	Open-cut/ Trenchless	13
MH-25	MH-24	STA. 171+38.61	99	Trenchless	13
MH-26	MH-25	STA. 174+01.36	32	Open-cut	13, 14
MH-27	MH-26	STA. 177+98.19	79	Open-cut	14
MH-28	MH-27	STA. 180+13.46	49	Open-cut	14
MH-29	MH-28	STA. 182+60.81	29	Open-cut	14
MH-30	MH-23	STA. 1+00.10	51	Open-cut	15
MH-31	MH-30	STA. 3+23.49	46	Open-cut	15,16
MH-32	MH-31	STA. 13+63.50	01	Open-cut	16
MH-33	MH-32	STA. 24+08.77	36	Open-cut	15,16
MH-34	MH-33	STA. 25+01.45	08	Open-cut	16

This page intentionally left blank.

Resource	Proposed A Constructi	epairs to Existing Sewer Line
Noise	Short-term exterior noi impacts fro	
Air Quality	No long-te emissions c thresholds, Protection	
Earth Resources	No long-ter to the uppe and sheet fl	
Biological Resources	Loss of hal area, Short impacts to constructio	
Cultural Resources	No impacts	
Water Resources	No long-te result of c quality, no	
Hazardous Substances	No impact activities, r	
Safety	No long-te short-term	
Utilities and Infrastructure	No impacts sanitary se main line; patterns; n site entry a	
Socioeconomic Resources	No change incurred fo	
Environmental Justice	Impacts w temporary over baseli	

This page intentionally left blank.

Resource	Mitigat	
Noise	No mitig	noise control devices (i.e., mufflers, baffling,
	and/or er	d equipment parts is generated. Construction
	activities	1926.52. Occupational exposure to the noise
	from hea	gs or ear muffs should be worn at all locations
	where w	
Air Quality	No mitig	r piles, preventing of dirt carryover to paved
	roads, us	
Earth Resources	No mitig	n contractor would be required to implement
	sedimen	mit would allow for use of temporary control
	measure	unction within the environment.
Biological Resources	No mitig	removal. If the contractor needed to remove
	heritage	ce, trees can be removed down to 10% of the
	total if n	io of 1:1. Other heritage trees are mitigated at
	a 3:1 rat	es would be reduced by tunneling under Leon
	Creek ar	
Cultural Resources	No mitig	
Water Resources	No miti	and construction specific SWPPP should be
	impleme	mit (TXR150000) would be required. During
	construc	l measures would be installed and maintained
	throughc	soil retention blankets).
Hazardous Substances	No mitig	on. In the unlikely event that any hazardous
	wastes,	he waste and dispose of it properly through
	coordina	nan health and the environment; all materials
	would b	would occur prior to the initiation of Proposed
	Action a	
Safety	No miti	Plans. Potential hazards would be minimized
	through	
Utilities and Infrastructure	No miti	on during excavation activities; covering haul
	trucks w	g; protecting slopes with mulches, matting, or
	other ty	arriers, and gravel filter barriers for sites with
	relativel	r utilities would be impacted by the Proposed
	Action,	
Socioeconomic Resources	No miti	
Environmental Justice	No miti	nent and limitation of hours of construction.
	Additio	

Notes:
AFB – Air Force Base
BMPs – Best Management Practices
ERP – Environmental Restoration Program
FEMA – Federal Emergency Management Agency
NPDES – National Pollutant Discharge Elimination Sy
WWRL-C – Western Watershed Relief Line C

This page intentionally left blank.

2.5 ADDITIONAL ACTIONS PLANNED FOR LACKLAND AFB AND SURROUNDING COMMUNITY

The EA also considers the effects of cumulative impacts (40 CFR 1508.7) and concurrent actions (40 CFR 1508.25[1]), if any are applicable to the Proposed Action. A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." Other actions announced for Lackland AFB and surrounding community that could occur during the same time period as the Proposed Action are, at the time of this report, limited to construction of middle and lower segments of the Western Watershed Sewer Relief Line. The middle and lower segments are a continuation of the Western Watershed Sewer Relief Line extending south to SW Loop 410. These actions are addressed from a cumulative perspective in this EA. The impacts of past actions are included in the baseline and, thus, considered in this EA.

2.6 COMPARISON OF ENVIRONMENTAL EFFECTS OF ALL ALTERATIVES

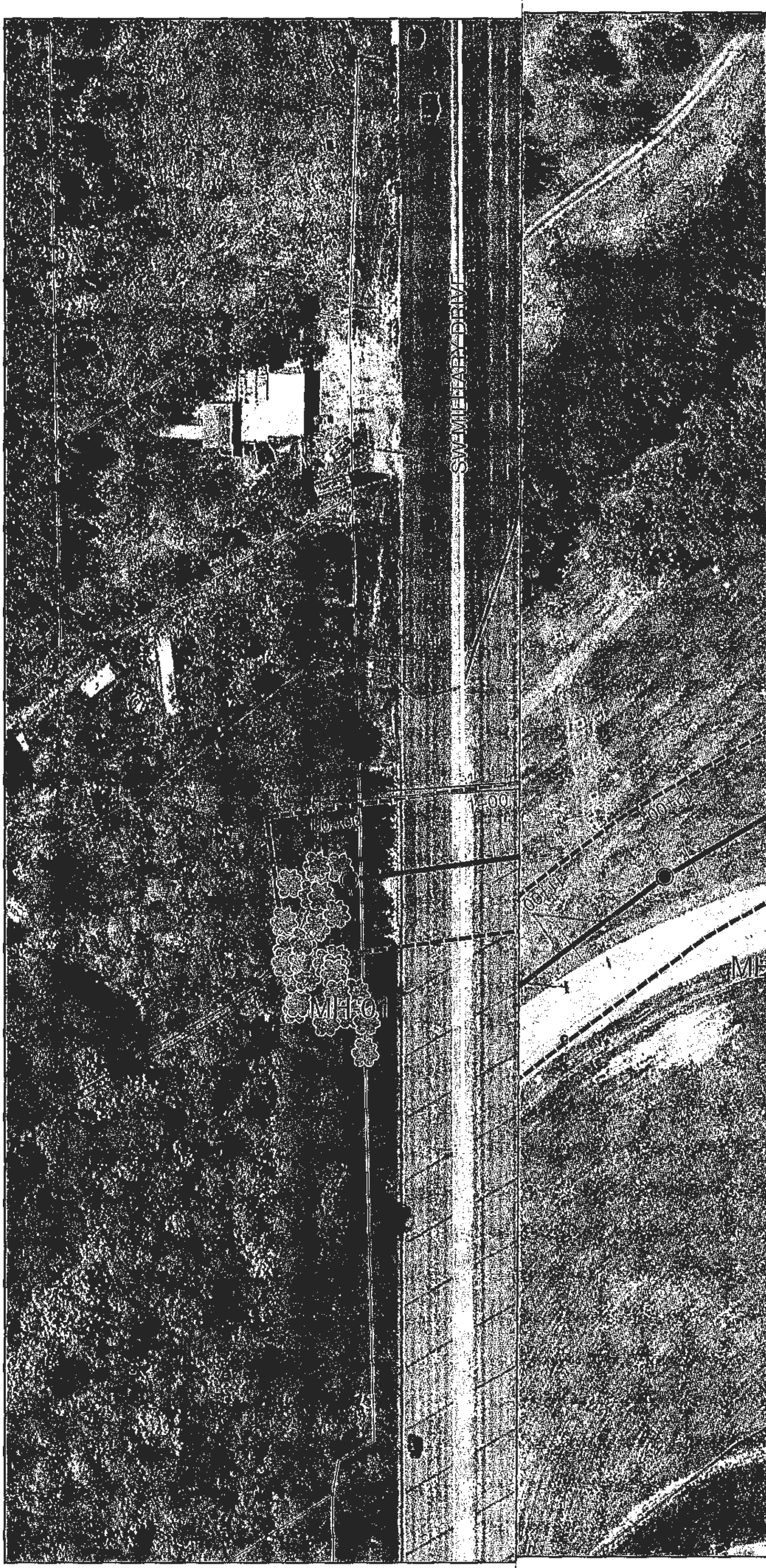
Table 2-2 summarizes the impacts of the Proposed Action and the No-action Alternative.

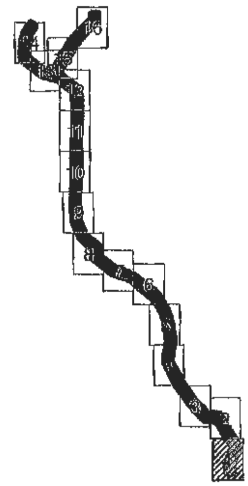
2.7 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The preferred alternative is the Proposed Action.

2.8 MITIGATION MEASURES

Table 2-3 presents mitigation measures and Best Management Practices (BMPs) anticipated for impacts incurred under the Proposed Action and the No-action Alternative.





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
- A = DOROTHY SINGLETON
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE: CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

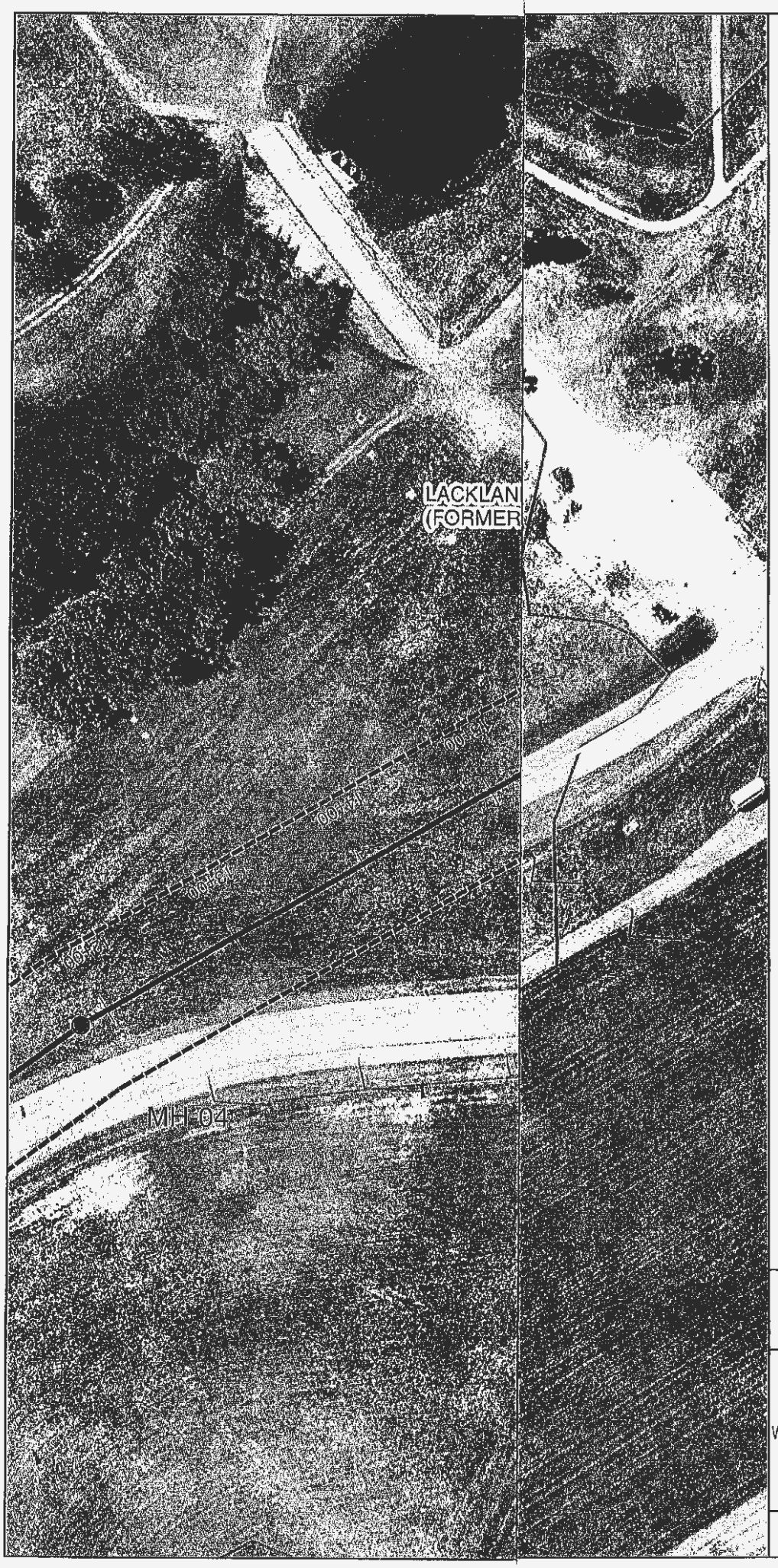
FIGURE 2-1 (SHEET 1 OF 16)

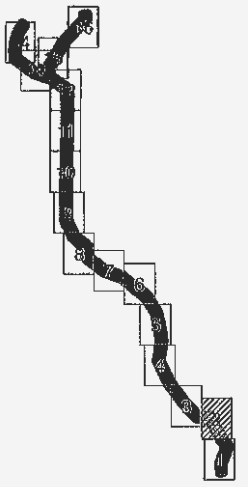
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: W:\WWRL GIS\110223\Figure 2-1_SHEET 1 OF 16.mxd 15/03/2011 mdur





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
  - A = DOROTHY SINGLETON
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE: CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

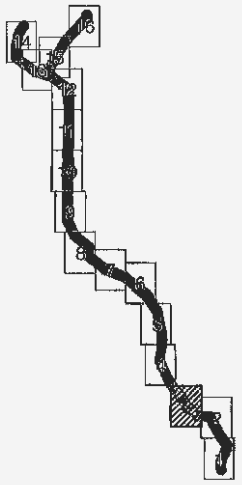
FIGURE 2-1 (SHEET 2 OF 16)

LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\FAWWRL GIS\110223\Figure 2-1_SHEET 2 OF 16.mxd 15/03/2011 nulur



LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
- A = DOROTHY SINGLETON
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

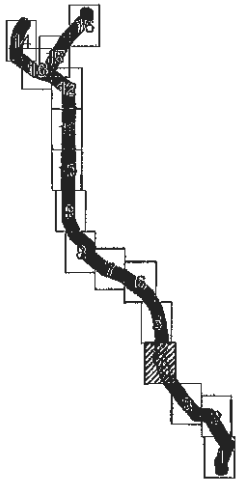
FIGURE 2-1 (SHEET 3 OF 16)

LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\F:\WWRL GIS\110223\Figure 2-1_SHEET 3 OF 16.mxd 15/03/2011 nufor



LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
  - A = DOROTHY SINGLETON
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE: CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

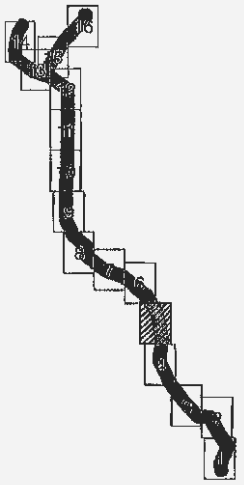
FIGURE 2-1 (SHEET 4 OF 16)

LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\FWWRL GIS\10223\Figure 2-1_SHEET 4 OF 16.mxd 15/03/2011 nulor



LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
  - A = DOROTHY SINGLETON
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

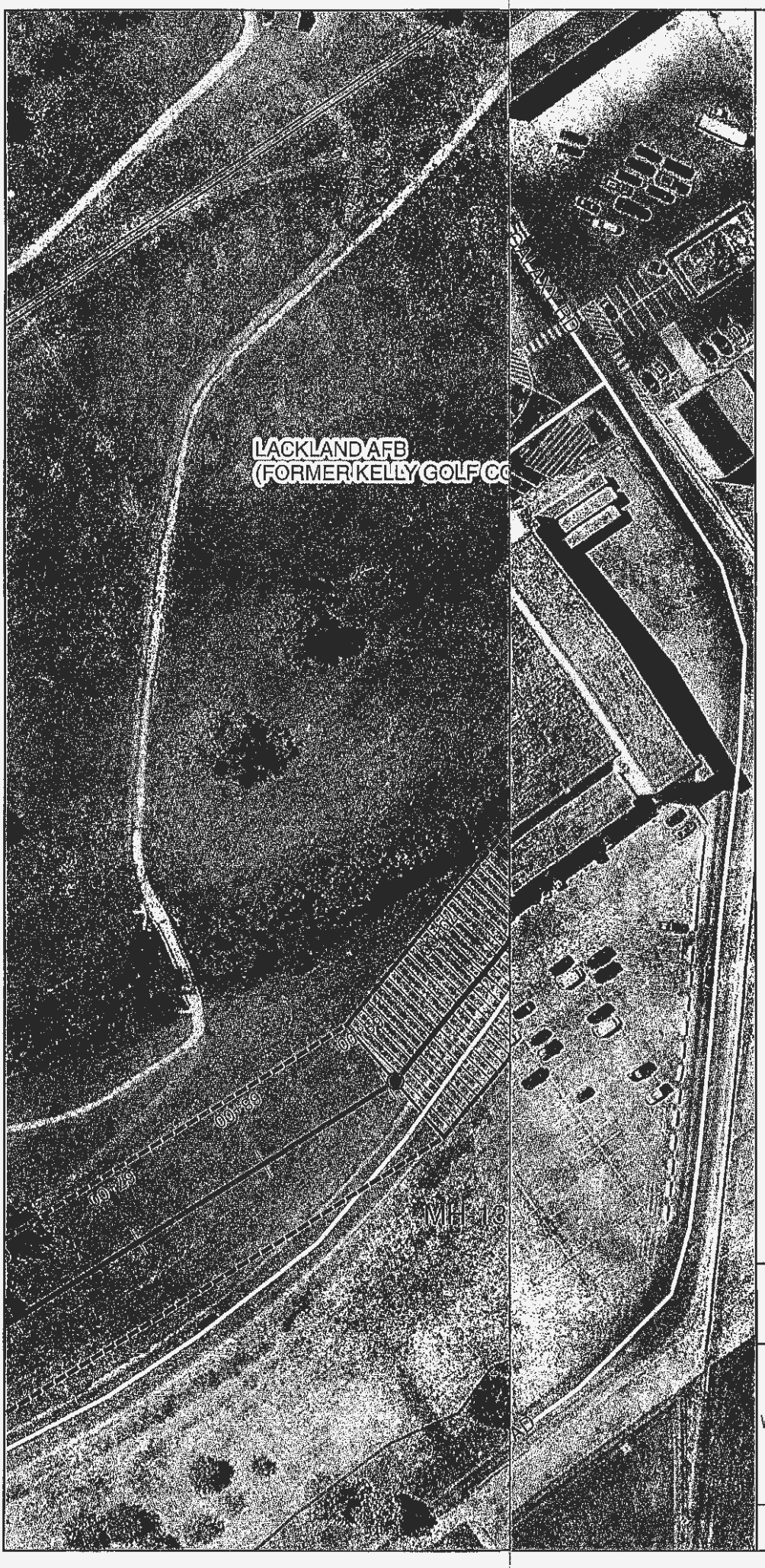
FIGURE 2-1 (SHEET 5 OF 16)

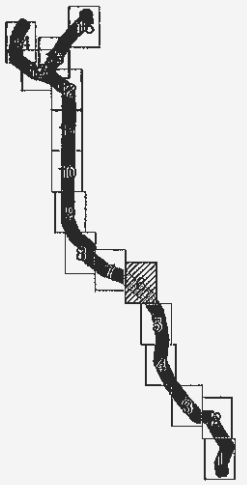
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\FAWWRL GIS\110223\Figure 2-1_SHEET 5 OF 16.mxd 15/03/2011 mjur





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
- A = DOROTHY SINGLETON
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

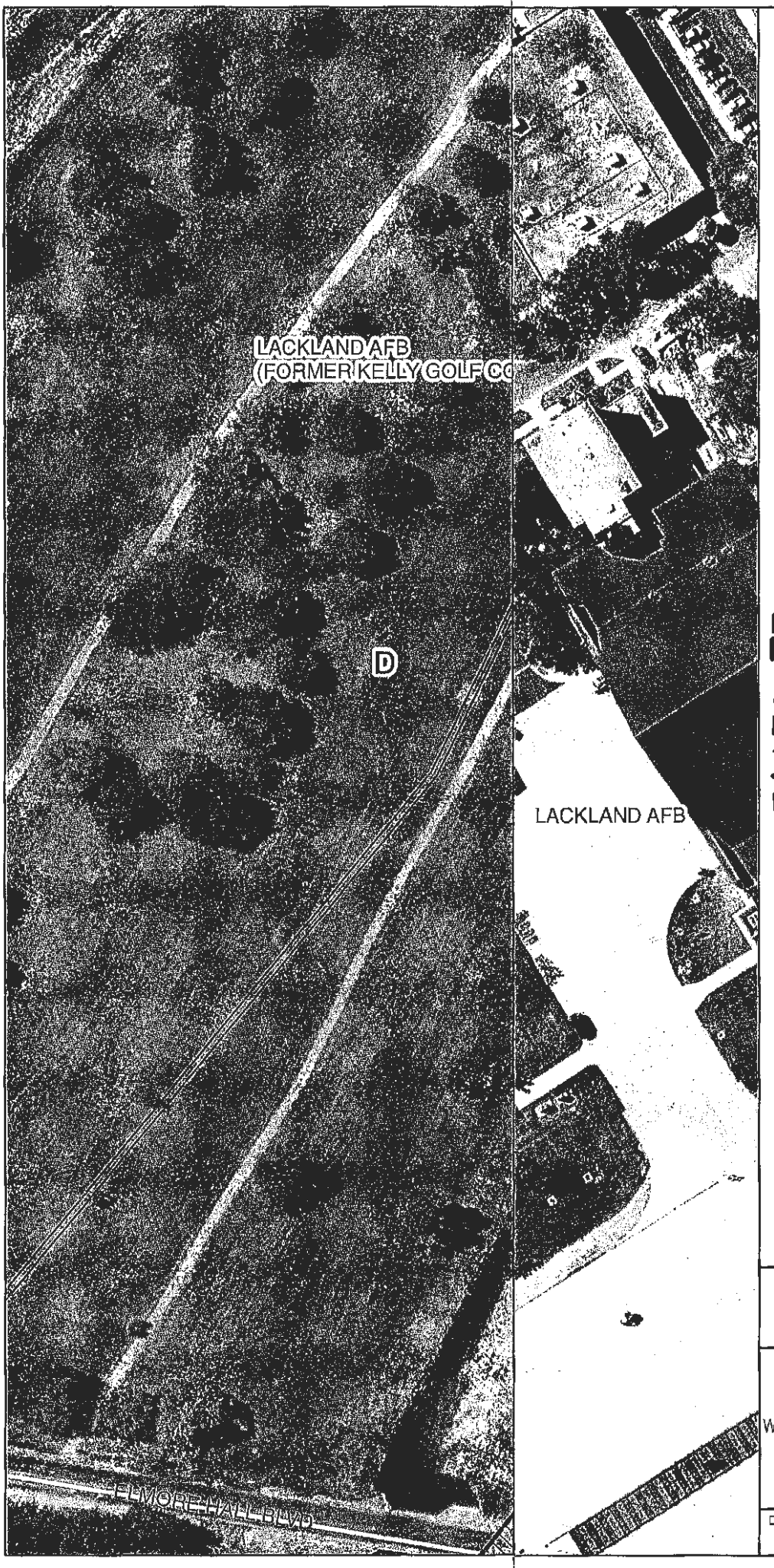
FIGURE 2-1 (SHEET 6 OF 16)

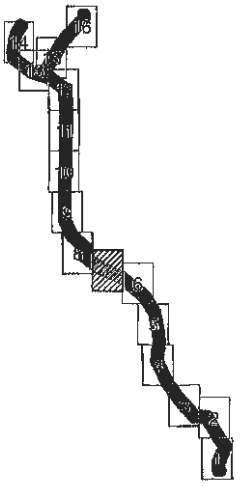
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\FAWWRL GIS\110223\Figure 2-1_SHEET 6 OF 16.mxd 15/09/2011 nolar





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
  - A = DOROTHY SINGLETON
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

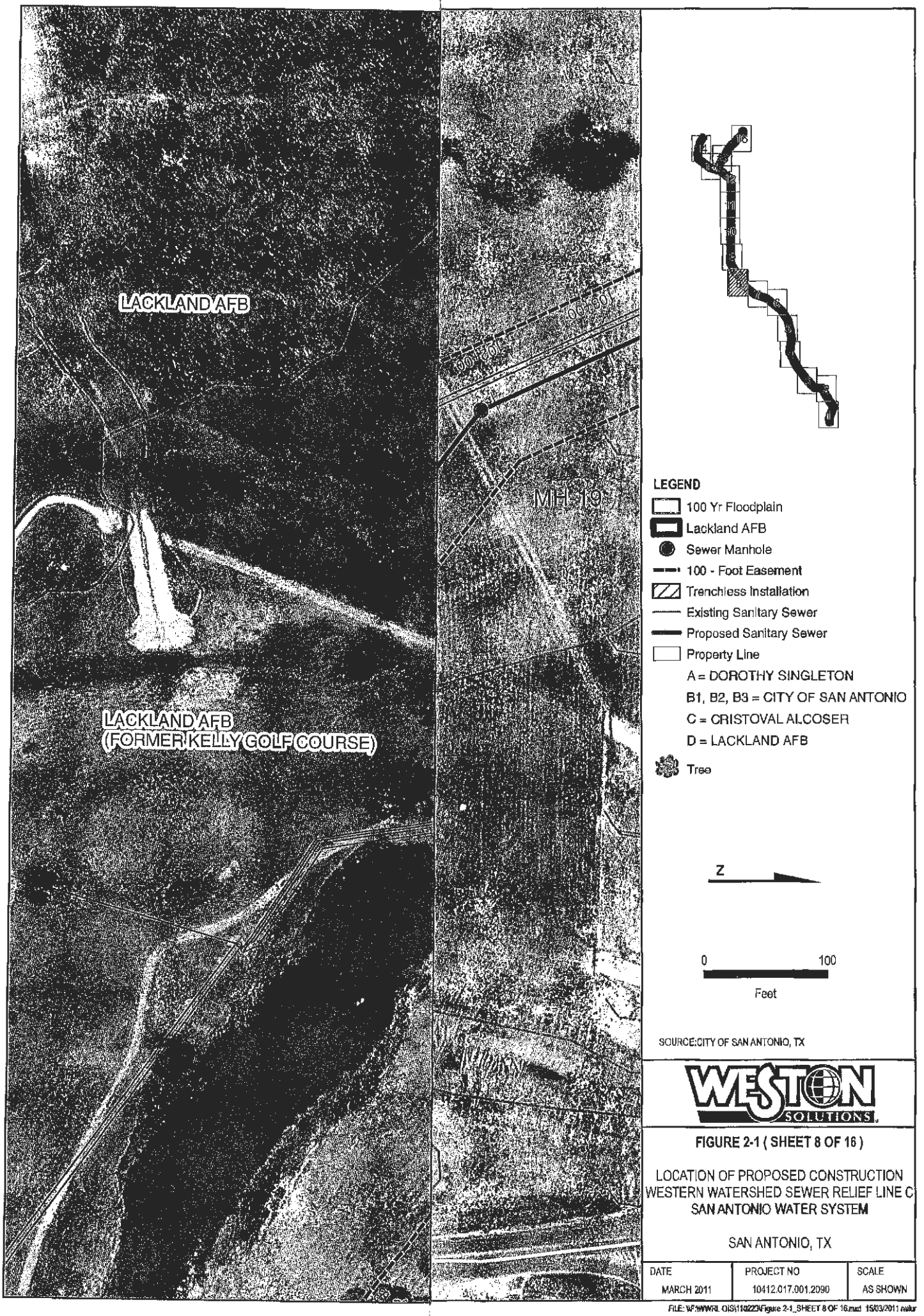
FIGURE 2-1 (SHEET 7 OF 16)

LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE:\\FWWRL GIS\110223\Figure 2-1_SHEET 7 OF 16.mxd 16/03/2011 nulr



SOURCE:CITY OF SAN ANTONIO, TX

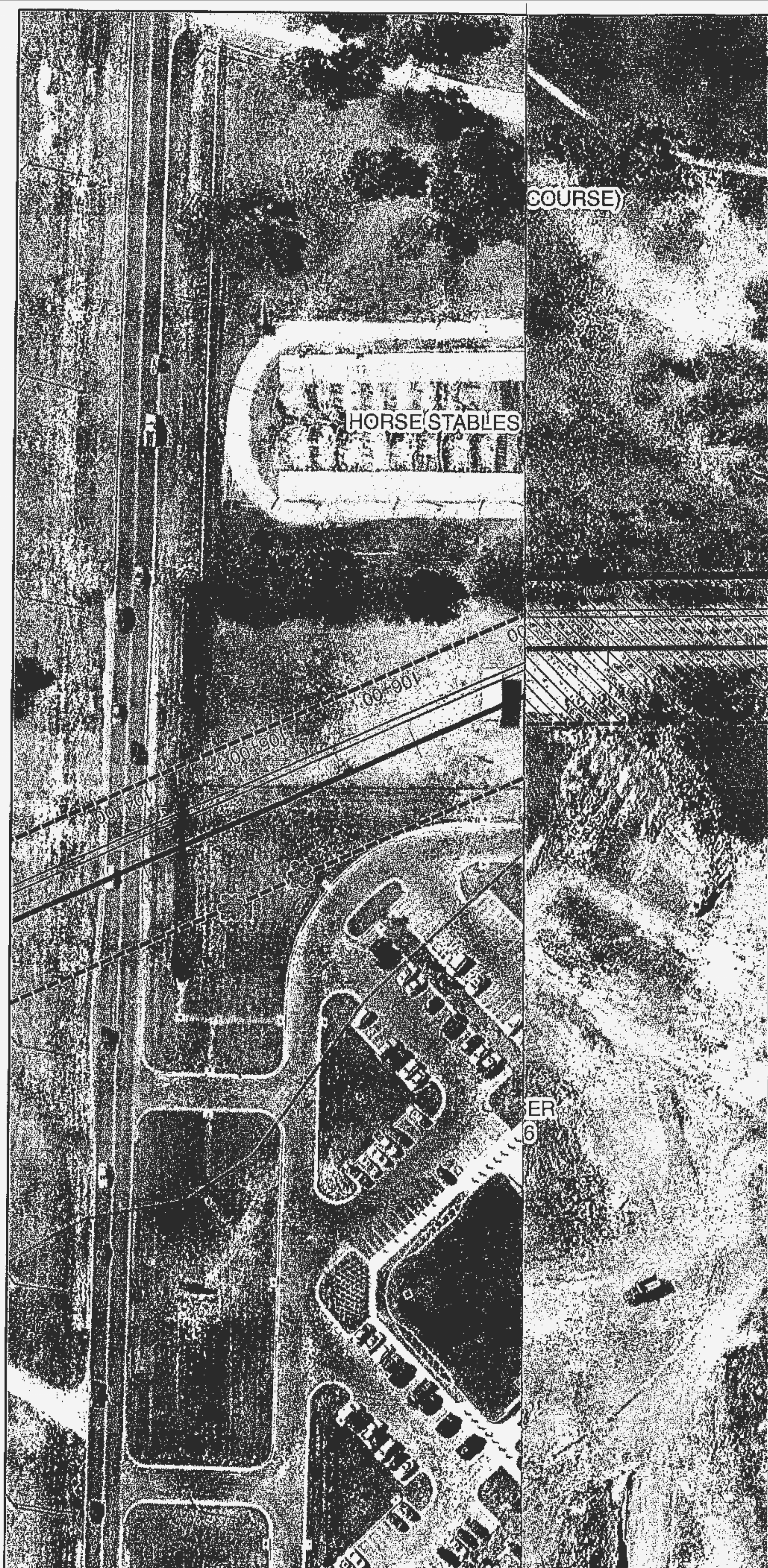
FIGURE 2-1 (SHEET 8 OF 16)

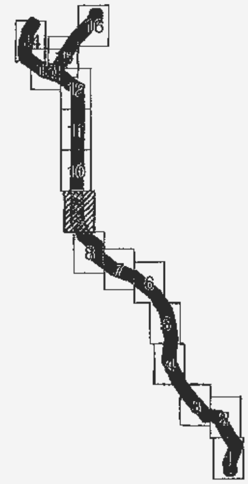
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: W:\WWRL GIS\10223\Figure 2-1_SHEET 8 OF 16.mxd 15/03/2011 aulur





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
  - A = DOROTHY SINGLETON
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

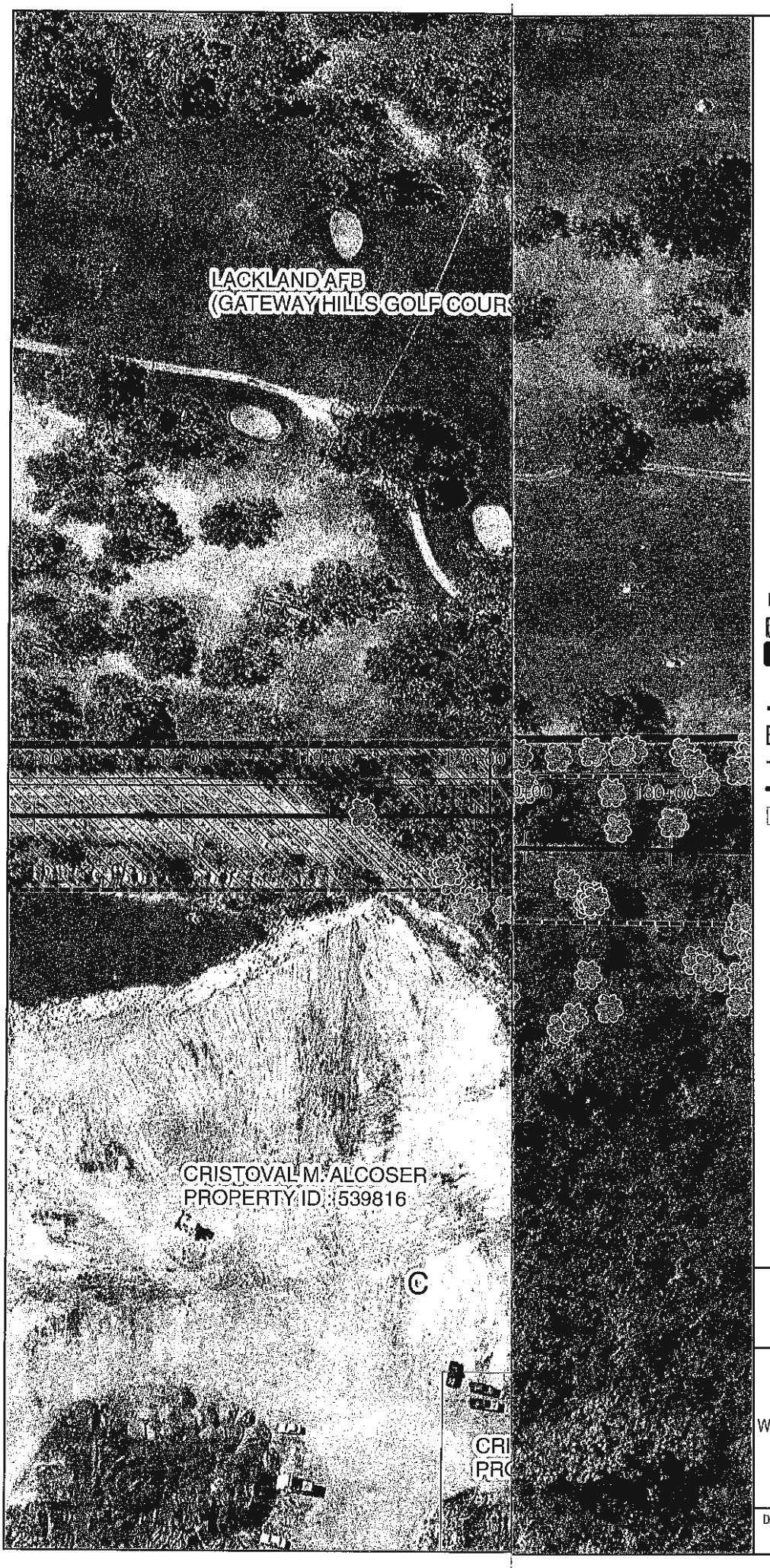
FIGURE 2-1 (SHEET 9 OF 16)

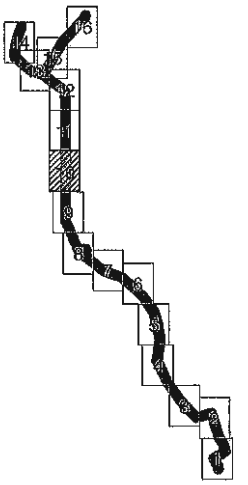
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\F:\WWRL GIS\110223\Figure 2-1_SHEET 9 OF 16.mxd 15/03/2011 nobr





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
  - A = DOROTHY SINGLETON
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

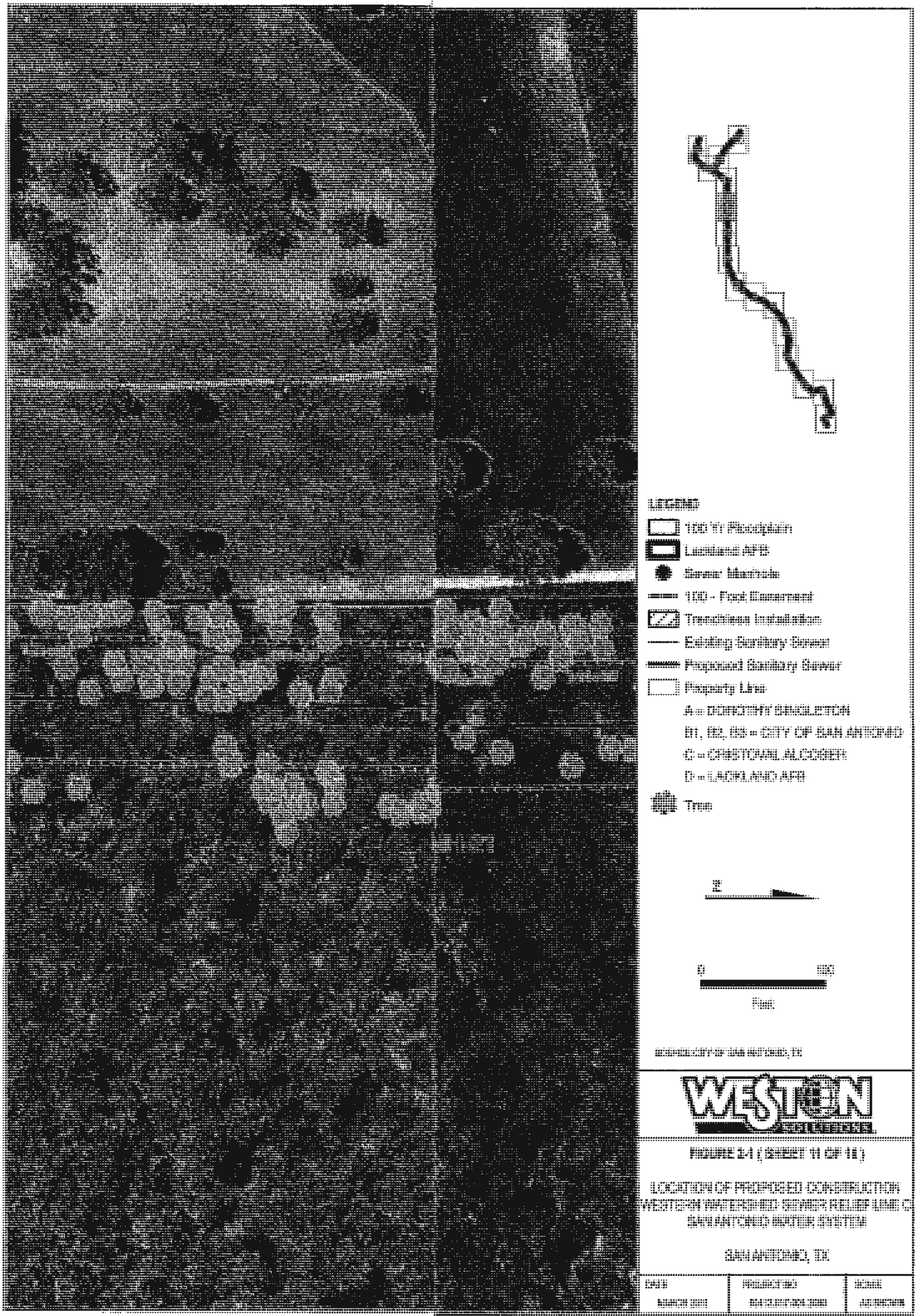
FIGURE 2-1 (SHEET 10 OF 16)

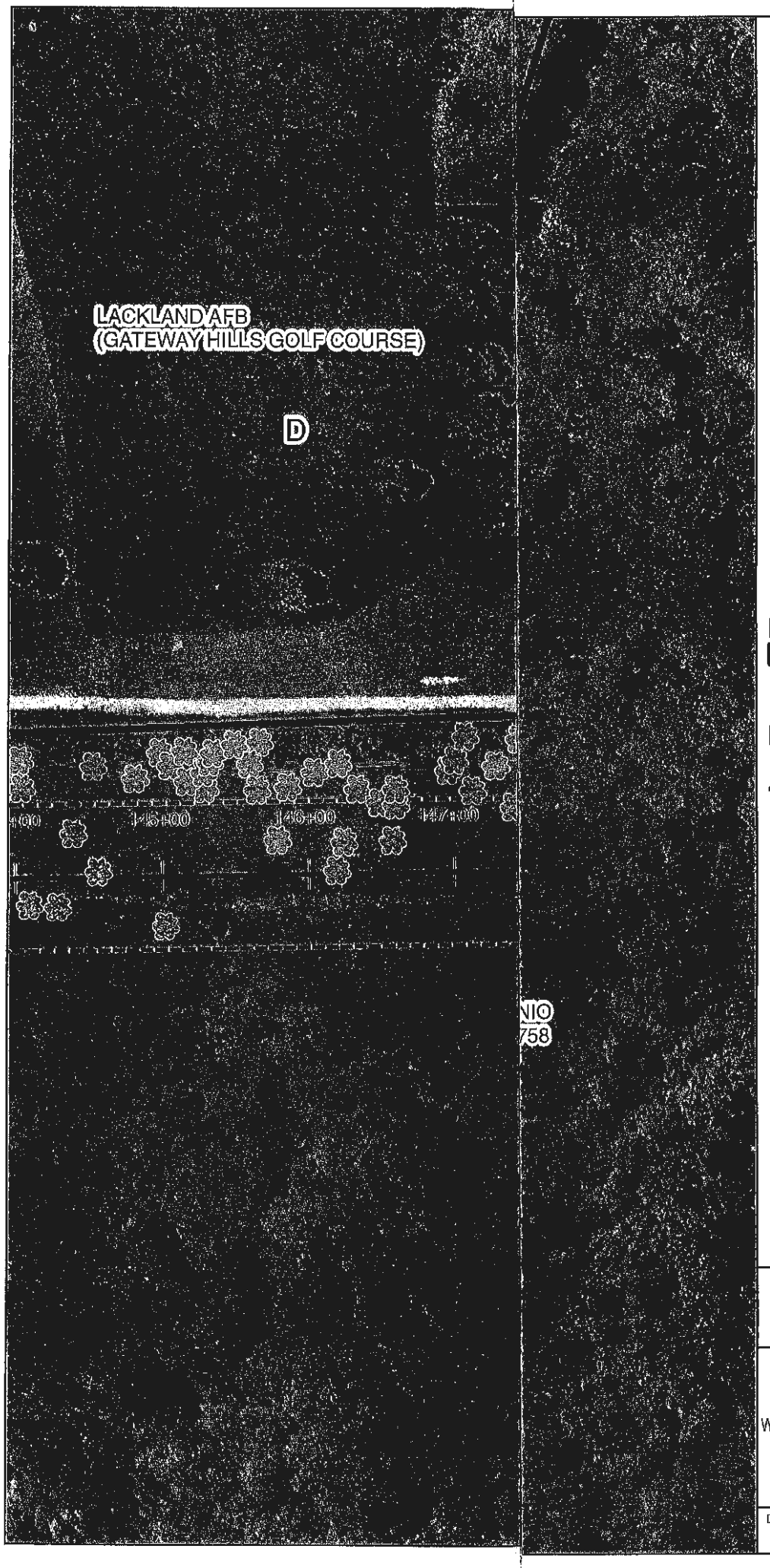
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

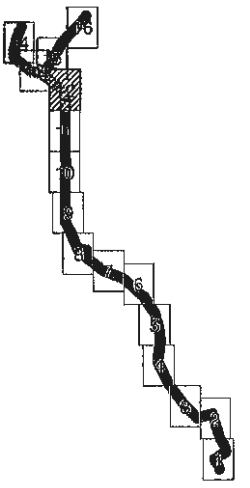
SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\FAWWRL-GIS\110223\Figure 2-1_SHEET 10 OF 16.mxd 15/03/2011 nulur


LEGEND
100 Yr Floodplain
Lackland AFB
Sewer Manhole
100 - Foot Easement
Trenchless Installation
Existing Sanitary Sewer
Proposed Sanitary Sewer
Property Line
A = DOROTHY SINGLETON
B1, B2, B3 = CITY OF SAN ANTONIO
C = CRISTOVAL ALCOSER
D = LACKLAND AFB
Tree
N
0
Feet
WESTON SOLUTIONS
FIGURE 2-1 (SHEET 11 OF 11)
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TX
DATE
PROJECT NO.
SCALE





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
  - A = DOROTHY SINGLETON
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

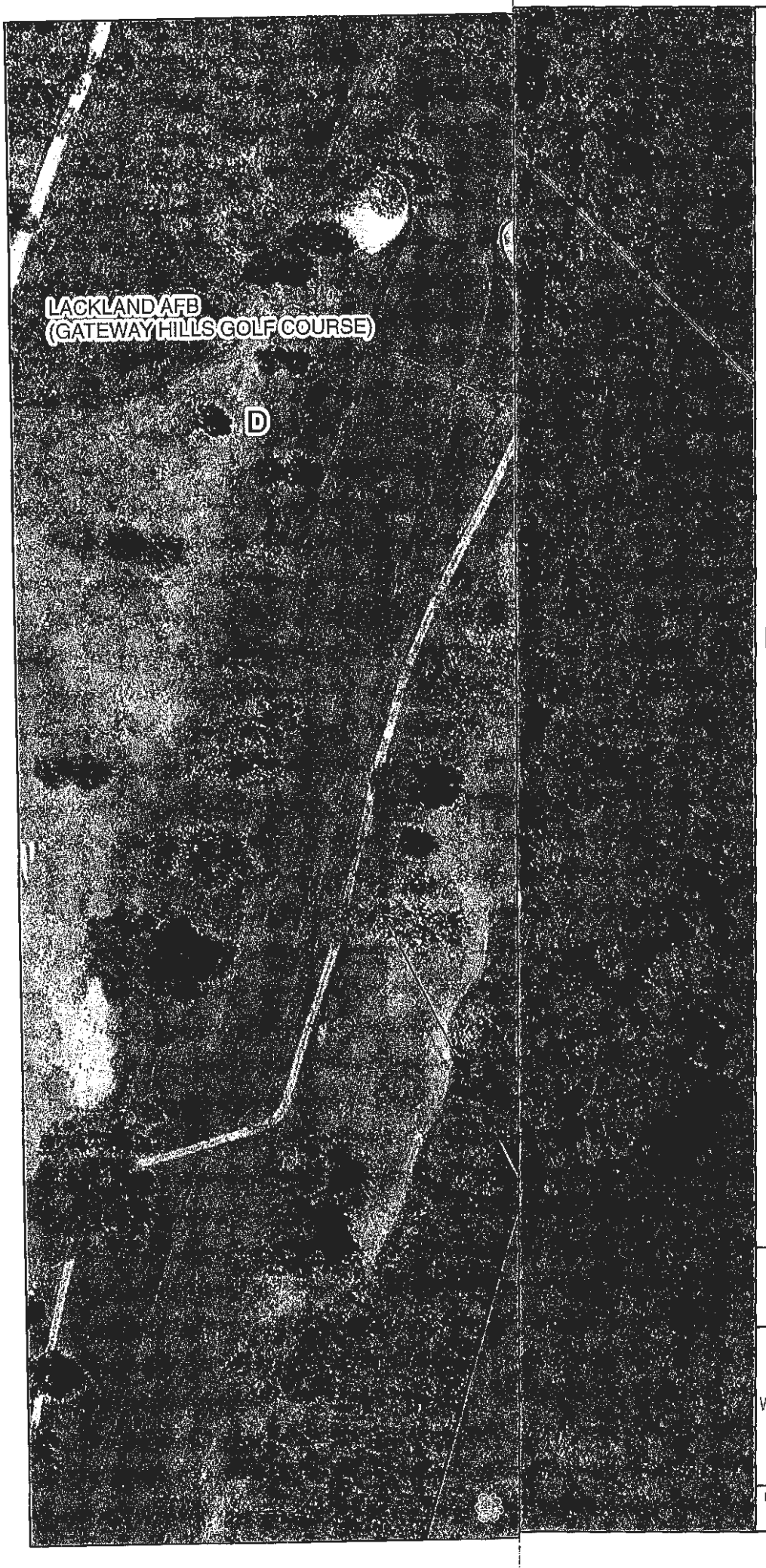
FIGURE 2-1 (SHEET 12 OF 16)

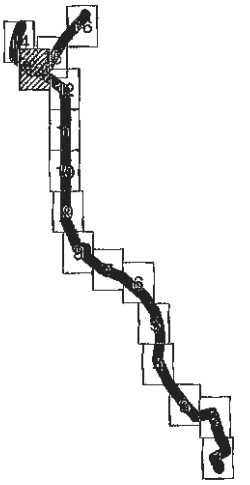
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\FW\WRL GIS\110223\Figure 2-1_SHEET 12 OF 16.mxd 15/03/2011 nolur





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
- A = DOROTHY SINGLETON
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

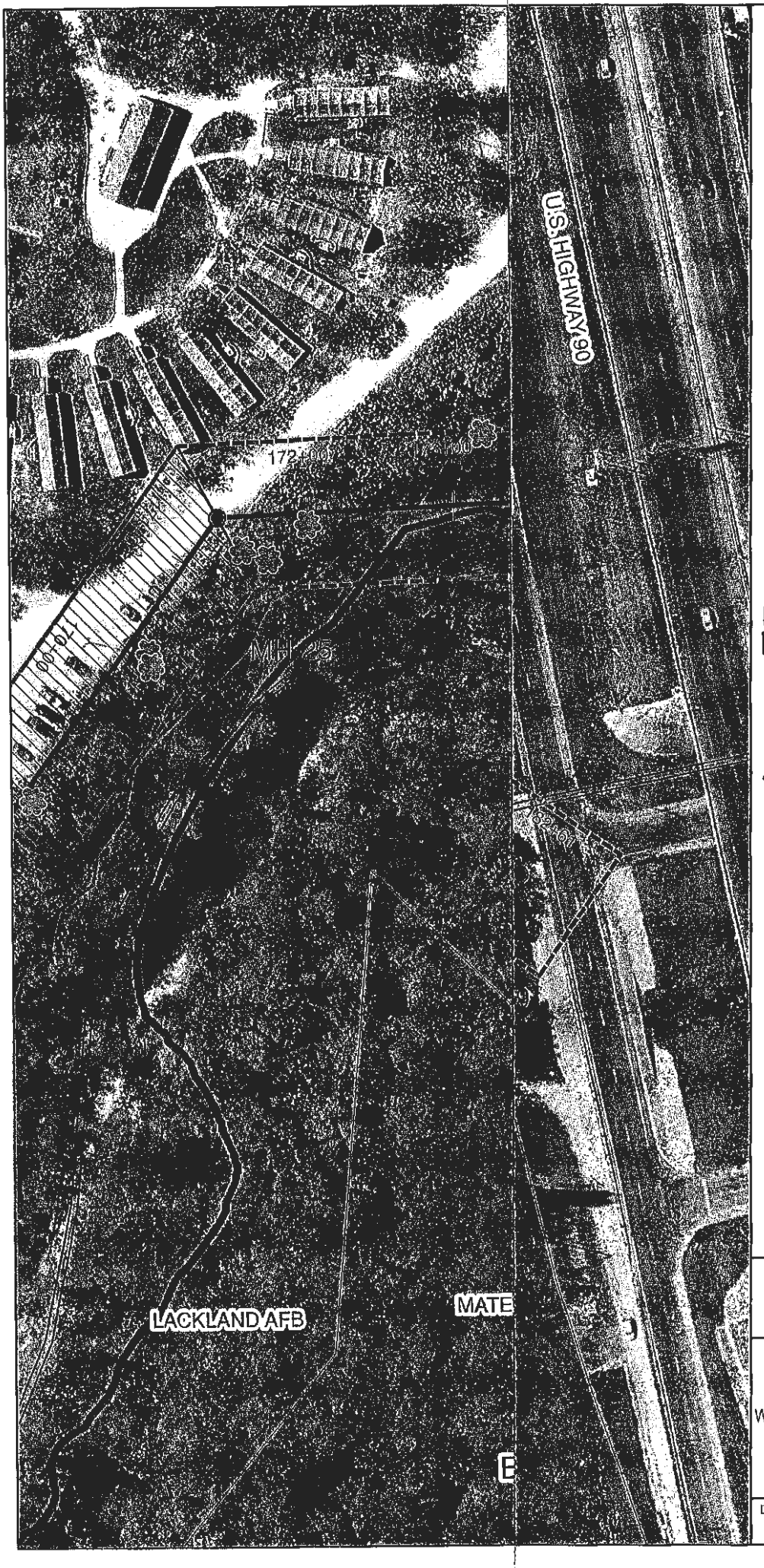
FIGURE 2-1 (SHEET 13 OF 16)

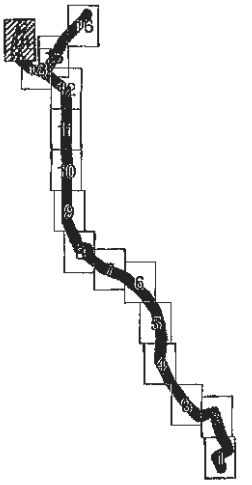
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\F:\WWRL GIS\110223\Figure 2-1_SHEET 13 OF 16.mxd 15/03/2011 nutur





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
  - A = DOROTHY SINGLETON
  - B1, B2, B3 = CITY OF SAN ANTONIO
  - C = CRISTOVAL ALCOSER
  - D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE: CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

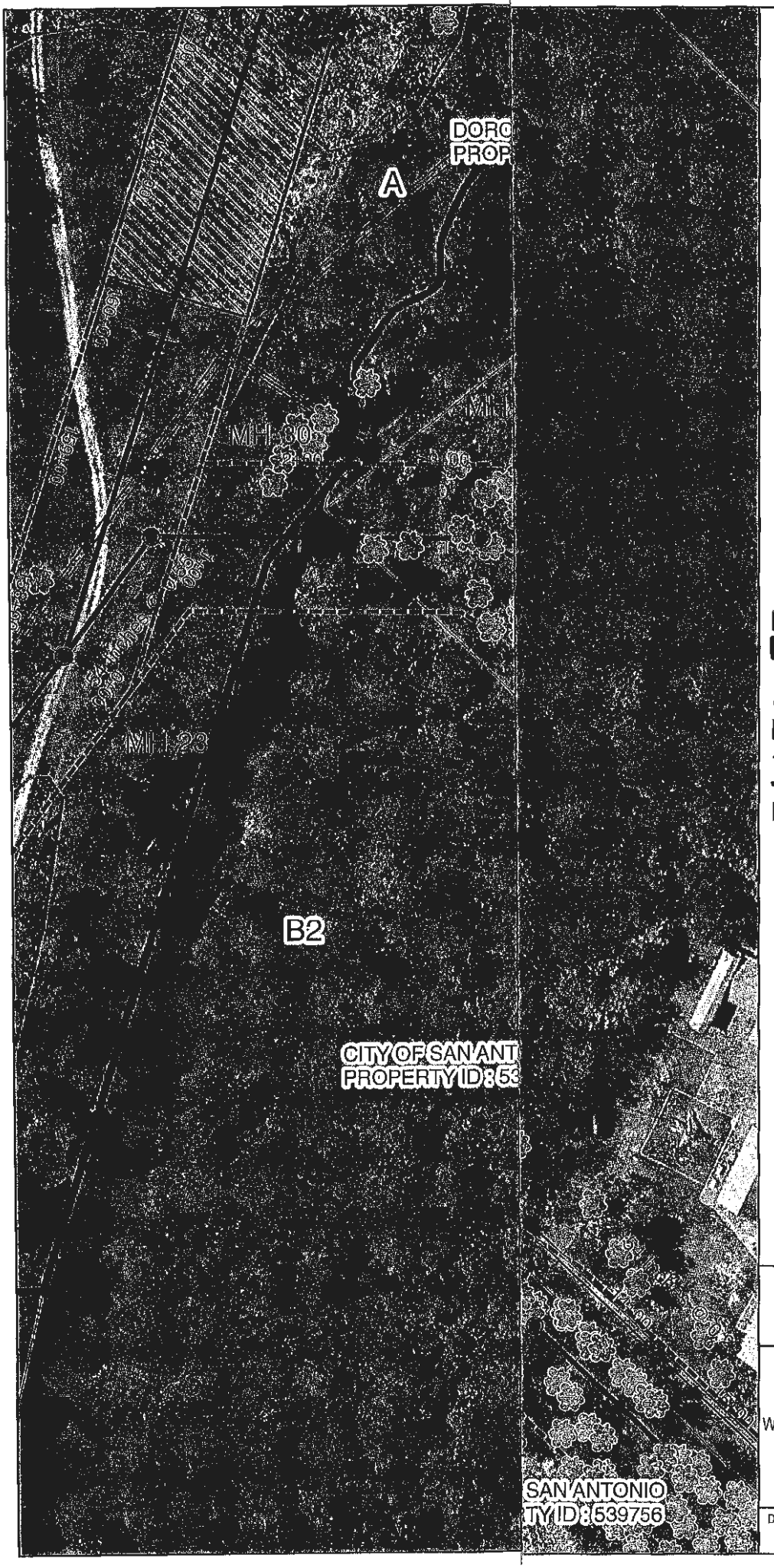
FIGURE 2-1 (SHEET 14 OF 16)

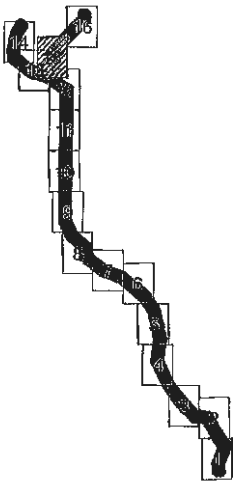
LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: W:\WWRL GIS\110223\Figure 2-1_SHEET 14 OF 16.mxd 16/03/2011 nulur





LEGEND

- 100 Yr Floodplain
- Lackland AFB
- Sewer Manhole
- 100 - Foot Easement
- Trenchless Installation
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Property Line
- A = DOROTHY SINGLETON
- B1, B2, B3 = CITY OF SAN ANTONIO
- C = CRISTOVAL ALCOSER
- D = LACKLAND AFB
- Tree

N

0 100

Feet

SOURCE:CITY OF SAN ANTONIO, TX

WESTON SOLUTIONS

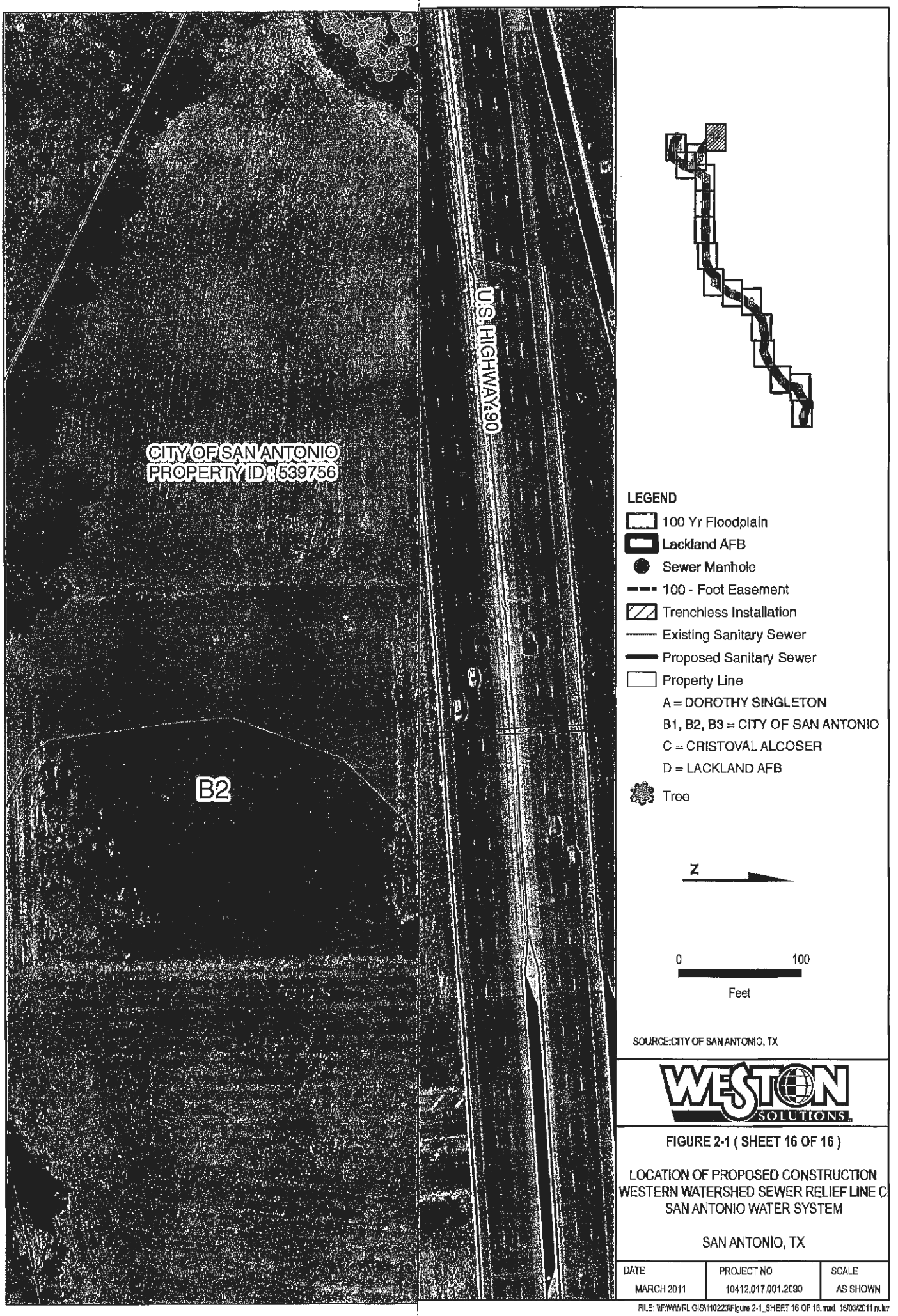
FIGURE 2-1 (SHEET 15 OF 16)

LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\FAWWRL GIS\110223\Figure 2-1_SHEET 15 OF 16.mxd 15/03/2011 nulur



WESTON SOLUTIONS

FIGURE 2-1 (SHEET 16 OF 16)

LOCATION OF PROPOSED CONSTRUCTION
WESTERN WATERSHED SEWER RELIEF LINE C
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
MARCH 2011	10412.017.001.2090	AS SHOWN

FILE: \\FSWWRL GIS\110223\Figure 2-1_SHEET 16 OF 16.mxd 15/09/2011 nulrr

GMI
A Subsidiary of Applied Research Associates, Inc.
2201 K Avenue, Suite A2 • Plano, TX 75074-5708
Phone: 972-423-5480 • Fax: 972-422-2736
www.geo-marine.com

February 21, 2013

Mr. Mark Denton
Archeology Division
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

Re: Proposed Western Watershed Sewer Relief Line Section 106 Review Responses

Dear Mr. Denton:

On behalf of the San Antonio Water System (SAWS) and in response to your letter of May 12, 2012 concerning this project, we have reexamined the areas previously identified for proposed mechanical trenching (Figure 1) and request your review as new information has been provided. Within the three areas proposed for backhoe trenching, several issues have been brought to our attention. The potential for unexploded ordnance (UXO) exists in Joint Base San Antonio – Lackland Air Force Base Military Munitions Response Program (MMRP) sites AL-240 and AL-722 (former bombing ranges), as shown on Figure 1. Area 13 is situated within and immediately adjacent to MMRP site AL-240. In addition, area 13 will be constructed by trenchless methods due to depth of construction at this area rather than open cut excavation. The area labeled 5, 4, 3, also falls within the limits of various types of MMRP sites that were historically used as old firing ranges (see Figure 1). According to Page 7 in the Joint Base San Antonio Programmatic Agreement (2011), "...firing ranges are exempted because of extensive prior ground disturbance". Area 10 has been impacted due to an existing sanitary sewer pipe collapse that occurred in July 2012 (Figure 2) where a large hole was excavated to examine and repair the damage to the pipe, therefore rendering backhoe trenching unproductive.

Due to the exemptions and previous impacts stated above, the likelihood of intact prehistoric archeological deposits in these areas is considered low, and no additional archeological investigation is recommended in areas 10 and 13 on the north end or in area 5, 4, 3 at the southern end of the project area. Therefore, we request your review of this new information and concur that additional investigations in these areas are not warranted.

Please let us know if you have any questions or require additional information. Thank you.

Sincerely,

Melissa M. Green, RPA
Principal Investigator /
Senior Project Manager
Cultural Resources

CONCUR
by
for Mark Wolfe
Executive Director, THC
Date 3-25-13
Track# 201305480

cc: Julie Simko – SAWS
Adrian Dongell, Abdel Hamed, Mari Jimenez – Weston

Full Reference:

June 2011. *Programmatic Agreement among the U.S. Air Force and the Texas State Historic Preservation Officer for the Operation, Maintenance and Development of Joint Base San Antonio, Texas.*

GMI
A Subsidiary of Applied Research Associates, Inc.

2201 K Avenue, Suite A2 Ɣ3lano, 7; 75074-5708
3Kone: 972-423-5480 Ɣ) ax: 972-422-2736

www.geo-marine.com

February 21, 2013

Mr. Mark Denton
Archeology Division
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

Re: Proposed Western Watershed Sewer Relief Line Section 106 Review Responses

Dear Mr. Denton:

On behalf of the San Antonio Water System (SAWS) and in response to your letter of May 12, 2012 concerning this project, we have reexamined the areas previously identified for proposed mechanical trenching (Figure 1) and request your review as new information has been provided. Within the three areas proposed for backhoe trenching, several issues have been brought to our attention. The potential for unexploded ordnance (UXO) exists in Joint Base San Antonio – Lackland Air Force Base Military Munitions Response Program (MMRP) sites AL-240 and AL-722 (former bombing ranges), as shown on Figure 1. Area 13 is situated within and immediately adjacent to MMRP site AL-240. In addition, area 13 will be constructed by trenchless methods due to depth of construction at this area rather than open cut excavation. The area labeled 5, 4, 3, also falls within the limits of various types of MMRP sites that were historically used as old firing ranges (see Figure 1). According to Page 7 in the Joint Base San Antonio Programmatic Agreement (2011), "…firing ranges are exempted because of extensive prior ground disturbance". Area 10 has been impacted due to an existing sanitary sewer pipe collapse that occurred in July 2012 (Figure 2) where a large hole was excavated to examine and repair the damage to the pipe, therefore rendering backhoe trenching unproductive.

Due to the exemptions and previous impacts stated above, the likelihood of intact prehistoric archeological deposits in these areas is considered low, and no additional archeological investigation is recommended in areas 10 and 13 on the north end or in area 5, 4, 3 at the southern end of the project area. Therefore, we request your review of this new information and concur that additional investigations in these areas are not warranted.

Please let us know if you have any questions or require additional information. Thank you.

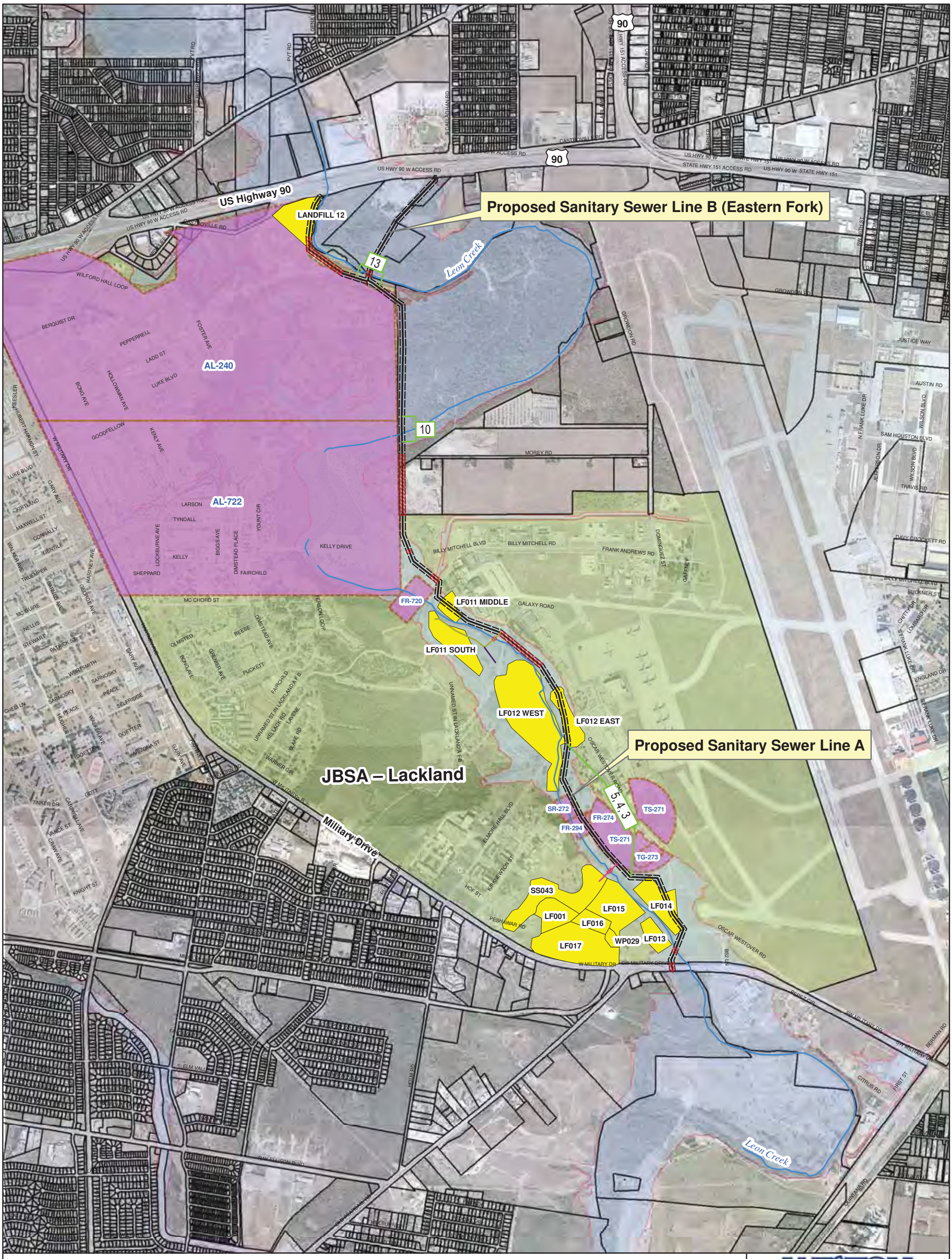
Sincerely,

Melissa M. Green, RPA
Principal Investigator /
Senior Project Manager
Cultural Resources

cc: Julie Simko – SAWS
Adrian Dongell, Abdel Hamed, Mari Jimenez – Weston

Full Reference:

June 2011. *Programmatic Agreement among the U.S. Air Force and the Texas State Historic Preservation Officer for the Operation, Maintenance and Development of Joint Base San Antonio, Texas*.



WESTON SOLUTIONS

FIGURE 1

PROJECT AREA
WESTERN WATERSHED SEWER RELIEF LINE
SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TX

DATE	PROJECT NO	SCALE
FEBRUARY 2013	10412.017.001.2090	AS SHOWN

FILE: SAWS Western Watershed Sewer Relief Line (WWRL)\Shipment\130214\LINES A to F - FIGURE 1.mxd 02/18/2013 nulur

Figure 2.

July 2012 pipe collapse in area 10.

Close-up of July 2012 pipe collapse damage in area 10.

APPENDIX B

FORM 813, REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control No.: 10-0026

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).*

SECTION I – PROPONENT INFORMATION

1. TO (*Environmental Planning Function*)	2. FROM (*Proponent organizational symbol*)	2a. PHONE NO.
802 CES/CEAOP	San Antonio Water System (SAWS)	(210) 233-3489

3. TITLE OF PROPOSED ACTION
Construct New Wastewater Pipeline

4. PURPOSE AND NEED FOR ACTION *(Identify decision to be made and need date)*
See continuation sheet on back of this form

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES *(DOPAA) (Provide sufficient details for evaluation of the total action.)*
See continuation sheet on back of this form

6. PROPONENT APPROVAL (*Name and Grade*)	6a. SIGNATURE	6b. DATE
Kelley S. Neumann, P.E., Sr. Vice Pres., Strat. Re.		Oct 14, 2010

SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY. *(Check appropriate box and describe potential effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)*	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE *(Noise, accident potential, encroachment, etc.)*	☐	☒	☐	☐
8. AIR QUALITY *(Emissions, attainment status, state implementation plan, etc.)*	☐	☒	☐	☐
9. WATER RESOURCES *(Quality, quantity, source, etc.)*	☐	☒	☐	☐
10. SAFETY AND OCCUPATIONAL HEALTH *(Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)*	☐	☒	☐	☐
11. HAZARDOUS MATERIALS/WASTE *(Use/storage/generation, solid waste, etc.)*	☐	☒	☐	☐
12. BIOLOGICAL RESOURCES *(Wetlands/floodplains, threatened or endangered species, etc.)*	☐	☐	☐	☒
13. CULTURAL RESOURCES *(Native American burial sites, archaeological, historical, etc.)*	☐	☒	☐	☐
14. GEOLOGY AND SOILS *(Topography, minerals, geothermal, Environmental Restoration Program, seismicity, etc.)*	☐	☐	☐	☒
15. SOCIOECONOMIC *(Employment/population projections, school and local fiscal impacts, etc.)*	☐	☒	☐	☐
16. OTHER *(Potential impacts not addressed above.)*	☐	☒	☐	☐

SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION

17. ☐ PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #_____ ; OR
☒ PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED

18. REMARKS
Lackland AFB is located in an area that is in attainment for air quality. Therefore, an air conformity determination is not required. The proposed action will not have disproportionately high and adverse human health or environmental effects on minority and low-income populations. If any portion of this document requires change after the approvals below, a new 813 is required.

"Strategic Resources" is abbreviated in Block 6 above.

APPROVAL DOCUMENTATION (enabled for digital signature – click here for instructions)

19a. ENVIRONMENTAL PLANNING FUNCTION (802 CES/CEA)	19b. STAFF JUDGE ADVOCATE (802 MSG/JA)
SUTTO.PAUL.R.1096792677 Digitally signed by SUTTO.PAUL.R.1096792677 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF, cn=SUTTO.PAUL.R.1096792677 Date: 2010.09.30 17:15:00 -05'00'	HARRIS.ERICA.L.1141016152 Digitally signed by HARRIS.ERICA.L.1141016152 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF, cn=HARRIS.ERICA.L.1141016152 Date: 2010.10.13 14:31:35 -05'00'

4.0 Purpose and need for action

4.1 Purpose of the action

The purpose of the proposed action is to construct a new wastewater relief pipeline in CY2014 through the Kelly Field Annex and adjacent to an existing wastewater pipeline.

4.2 Need for the action

The need for the action is the existing pipeline is in poor condition and lacks capacity to convey future flows.

5.0 Description of the proposed action and alternatives

5.1 Description of the proposed action

The description of the proposed action is to excavate and bury approximately 19,900 feet of new pipeline from US Highway 90 near Mateo Camargo Park to SW Military Drive at Leon Creek (see attached map). The new pipeline will be made out of centrifugally-cast, fiberglass-reinforced polymer-mortar. The existing 54-inch diameter, reinforced concrete pipeline adjacent to the proposed new pipeline has multiple breaks, is not large enough to convey anticipated flow increases, is near the end of its service life, and cannot be repaired in a cost-effective manner due to the extent of breaks. The new pipeline will be a combination of 84-inch and 90-inch diameter sizes. The existing pipeline will filled with pressure grout and abandoned in place. A significant portion of the Kelly Field Annex, now part of Lackland AFB, will be affected. Per 1 September 2010 written statement from SAWS, the existing pipeline and the proposed new pipeline are not asbestos-containing materials.

5.2 Description of the decision that must be made and identification of the decisionmaker

The decision that must be made is whether or not the proposed action requires further environmental analysis. The Chief, Asset Management Flight (802 CES/CEA) is the decisionmaker.

5.3 Anticipated environmental issues

Anticipated environmental issues affecting Lackland AFB include, but are not limited to, the proximity of a floodplain, wetlands, and Environmental Restoration Program (ERP) Sites to the proposed new pipeline.

5.4 Design, evaluation, and selection criteria

5.4.1 Mission requirements

SAWS provides wastewater conveyance and treatment services for the Greater San Antonio Area including Lackland AFB. Failure to provide these services due to a faulty pipeline may result in Lackland AFB's missions being interrupted or halted.

5.4.2 Environmental standards

Applicable environmental standards include, but are not limited to, Executive Order 19988, the Comprehensive Environmental Response, Compensation, and Liability Act, and Air Force Instruction 32-7066.

5.5 Description of alternatives

5.5.1 No-action alternative

Do not construct a new pipeline and continue to use the existing pipeline.

5.5.2 Proposed action

Construct a new pipeline adjacent to the existing pipeline and abandon the existing pipeline.

5.5.3 Another reasonable alternative

There is no reasonable alternative. Alternative pipeline routes were considered. However, they would be more invasive of ERP sites, more adversely affected by topography, and/or inconsistent with future base development plans.

5.6 List of required permits (modified or new), licenses, and entitlements

Environmental Baseline Survey (EBS) or an EBS Waiver, AF Form 103 Base Civil Engineering Work Clearance Request, Clean Water Act Section 404 Permit, real property easements (75-foot wide permanent, 25-foot wide temporary construction), and an ERP Construction Waiver.

This page intentionally left blank

INSTRUCTIONS FOR DIGITAL SIGNATURE:

1. Click in signature box to start process

2. Click "SIGN" button on SIGN DOCUMENT message box

3. Click "SAVE" button on SAVE AS message box

4. Click "YES" button when asked to replace existing file. This will save your signature to the file in the email.

5. Enter PIN and click "OK" button on ActivClient Login message box

6. Close Adobe Reader

7. Forward email to next office in line for signature, or return to CEAO

RETURN TO FORM

APPENDIX C

WWRL-UPPER SEGMENT DETAILS

Appendix C
WWRL-Upper Segment Details

Upstream (US) MH	Downstream (DS) MH	US Station	DS Station	Proposed Construction	Reference Sheet No. (Figure 2-1)	Property
PROPOSED SEWER LINE A						
JB-01	MH-01	02+41.01	00+00.00	Open-cut/Trenchless	1	JBSA-Lackland
JB-02	JB-01	07+05.51	02+41.01	Open-cut/Trenchless	1	JBSA-Lackland
MH-02	JB-02	10+25.25	07+05.51	Open-cut	1	JBSA-Lackland
MH-03	MH-02	16+47.96	10+25.25	Open-cut	1, 2	JBSA-Lackland
MH-04	MH-03	23+32.41	16+47.96	Open-cut	2	JBSA-Lackland
MH-05	MH-04	34+43.24	23+32.41	Open-cut	2, 3	JBSA-Lackland
MH-06	MH-05	40+41.16	34+43.24	Open-cut	3	JBSA-Lackland
MH-07	MH-06	49+61.57	40+41.16	Open-cut	3, 4	JBSA-Lackland
MH-08	MH-07	56+49.85	49+61.57	Open-cut	4, 5	JBSA-Lackland
MH-09	MH-08	61+29.29	56+49.85	Open-cut	5	JBSA-Lackland
MH-10	MH-09	66+08.05	61+29.29	Open-cut	5	JBSA-Lackland
MH-11	MH-10	72+25.71	66+08.05	Open-cut	5, 6	JBSA-Lackland
MH-12	MH-11	82+11.05	72+25.71	Trenchless	6, 7	JBSA-Lackland
MH-13	MH-12	84+59.97	82+11.05	Open-cut	7	JBSA-Lackland
MH-14	MH-13	88+66.04	84+59.97	Open-cut	7	JBSA-Lackland
MH-15	MH-14	91+59.97	88+66.04	Open-cut	7	JBSA-Lackland
MH-16	MH-15	95+95.93	91+59.97	Open-cut	7, 8	JBSA-Lackland
MH-17	MH-16	98+84.39	95+95.93	Open-cut	8	JBSA-Lackland
MH-18	MH-17	100+84.97	98+84.39	Trenchless	8	JBSA-Lackland
MH-19	MH-18	105+06.21	100+84.97	Open-cut	8	JBSA-Lackland
MH-20	MH-19	110+45.53	105+06.21	Open-cut/Trenchless	8, 9	JBSA-Lackland
MH-21	MH-20	120+34.98	110+45.53	Open-cut/Trenchless	9, --	JBSA-Lackland / Cristoval M. Alocoser
JB-03	MH-21	127+58.85	120+34.98	Open-cut/Trenchless	--	Cristoval M. Alocoser / City of San Antonio
JB-04	JB-03	131+28.85	127+58.85	Open-cut	--	City of San Antonio
MH-22	JB-04	138+33.69	131+28.85	Open-cut	--	City of San Antonio
MH-23	MH-22	145+84.78	138+33.69	Open-cut	--	City of San Antonio
MH-24	MH-23	153+80.15	145+84.78	Open-cut	--, 10	City of San Antonio
MH-25	MH-24	160+74.92	153+80.15	Open-cut	10	City of San Antonio / JBSA-Lackland
MH-26	MH-25	161+78.90	160+74.92	Open-cut	11	JBSA-Lackland
MH-27	MH-26	162+00.11	161+78.90	Open-cut	11	JBSA-Lackland
MH-28	MH-27	166+80.14	162+00.11	Open-cut/Trenchless	11	JBSA-Lackland
MH-29	MH-28	174+51.22	166+80.14	Trenchless	11, 12	JBSA-Lackland
MH-30	MH-29	177+13.97	174+51.22	Open-cut/Trenchless	12	JBSA-Lackland
MH-31	MH-30	181+11.06	177+13.97	Open-cut	12	JBSA-Lackland
MH-32	MH-31	183+27.13	181+11.06	Open-cut	12	JBSA-Lackland
MH-33	MH-32	184+85.97	183+27.13	Open-cut	12	JBSA-Lackland
--	MH-33	--	184+85.97	Open-cut	12	JBSA-Lackland
LINE B						
MH-34	MH-26	03+10.50	00+00.00	Open-cut/Trenchless	11	JBSA-Lackland / City of San Antonio
MH-35	MH-34	12+55.38	03+10.50	Open-cut	--	City of San Antonio
MH-36	MH-35	22+13.76	12+55.38	Open-cut	--	City of San Antonio
MH-37	MH-36	22+93.00	22+13.76	Open-cut	--	City of San Antonio
--	MH-37	--	22+93.00	Open-cut	--	City of San Antonio
LINE C						
MH-1C	MH-5	01+25.27	00+00.00	Open-cut	3	JBSA-Lackland
MH-2C	MH-1C	05+79.58	01+25.27	Open-cut	3	JBSA-Lackland
MH-3C	MH-2C	09+44.58	05+79.58	Open-cut/Trenchless	3	JBSA-Lackland
MH-4C	MH-3C	10+35.13	09+44.58	Open-cut	3	JBSA-Lackland
--	MH-4C	--	10+35.13	Open-cut	3	JBSA-Lackland

Appendix C
WWRL-Upper Segment Details

Upstream (US) MH	Downstream (DS) MH	US Station	DS Station	Proposed Construction	Reference Sheet No. (Figure 2-1)	Property
LINE D						
MH-1D	MH-12	00+43.58	00+00.00	Open-cut	7	JBSA-Lackland
MH-2D	MH-1D	04+12.18	00+43.58	Open-cut/Trenchless	7	JBSA-Lackland
MH-3D	MH-2D	06+13.36	04+12.18	Open-cut	7	JBSA-Lackland
MH-4D	MH-3D	10+44.37	06+13.36	Open-cut	7	JBSA-Lackland
MH-5D	MH-4D	14+32.98	10+44.37	Open-cut	7, 8	JBSA-Lackland
MH-6D	MH-5D	15+04.63	14+32.98	Open-cut	8	JBSA-Lackland
--	MH-6D	--	15+04.63	Open-cut	8	JBSA-Lackland
LINE E						
MH-1E	MH-2D	03+46.15	00+00.00	Open-cut	7	JBSA-Lackland
--	MH-1E	--	03+46.15	Open-cut	7	JBSA-Lackland
LINE F						
MH-1F	MH-27	00+73.02	00+00.00	Open-cut	12	JBSA-Lackland
--	MH-1F	--	00+73.02	Open-cut	12	JBSA-Lackland

APPENDIX D

AIR EMISSION CALCULATIONS

Appendix D
Air Emission Calculations

Table D-1
Summary of Construction Emissions
JBSA-Lackland, San Antonio, Bexar County, Texas

Reference Table	Emission Source	Annual Emissions[a] (ton/yr)						
		VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_2	CO_2e
Table D-2	Construction POVs	**0.69**	**0.61**	**10.17**	**0.02**	**0.01**	**0.01**	**388.34**
Table D-3	On-Road Diesel Vehicle Combustion	**0.14**	**0.69**	**10.17**	**0.04**	**0.03**	**0.00**	**364.21**
Table D-4	Non-Road Equipment Emissions	**1.41**	**15.56**	**0.39**	**3.03**	**-**	**5.64**	**-**
Table D-5	Fugitive Dust	**-**	**-**	**-**	**73.53**	**11.13**	**-**	**-**
Total		**2.25**	**16.87**	**18.57**	**76.62**	**14.20**	**5.65**	**682.58**

Notes

CO = carbon monoxide

CO_2e = carbon dioxide equivalent

NO_x = oxides of nitrogen

$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter

PM_{10} = particulate matter equal or less than 10 micrometers in diameter

POV = privately owned vehicle

SO_2 = sulfur dioxide

ton/yr = US (short) tons per year, except for CO_2e is in metric tons.

VOC = volatile organic compounds

a It is anticipated that the Proposed Action will take 30-36 months to complete. It has been conservatively assumed that all emissions associated with the Proposed Action take place during a one year period.

Appendix D - Air Emission Calculations

Table D-2
Construction POVs
JBSA-Lackland, San Antonio, Bexar County, Texas

Days Worked	Total Number of Construction POVs [a]	Vehicles Miles Traveled [b]
685	10	685,000

Pollutant	Emission Factor [c] (g/mile)	Annual Emissions (ton/yr)
VOC	0.919	0.69
NO_X	0.81	0.61
CO	13.47	10.2
PM_{10}	0.025	0.019
$PM_{2.5}$	0.012	8.68E-03
SO_2	0.0094	7.10E-03
CO_2e	514.3	388

Notes

g/mile = gram mile

ton/yr = US (short) tons per year

a Construction POVs are those used by construction workers to travel to the construction site. Assumed two workers per vehicle.

b Conservatively assumed every worker vehicle would travel 100 miles per day for each day worked.

c U.S. Environmental Protection Agency's Mobile Source Emission Factor Model (MOBILE6.2, 24-Sep-2003). Assumed all LDGT vehicle class traveling an average speed of 45 mph.

Sample Calculation

Pollutant emissions = {Total vehicle miles traveled per year (miles/yr) * Pollutant EF (g/mile)}/453.59 g/lb

Where,

EF = emission factor

453.59 g/lb = conversion factor from grams to pounds

Appendix D - Air Emission Calculations

Table D-3
On-Road Diesel Vehicle Combustion
JBSA-Lackland, San Antonio, Bexar County, Texas

Pollutant	Annual Average Emission Factor (g/mile) [a,e]		Annual Emissions (ton/yr)
	LDDT [b,c]	HDDV3 [b,d]	
VOC	0.336	0.250	0.14
NO_X	0.597	2.125	0.7
CO	0.615	0.955	0.39
PM_{10}	0.0724	0.0743	0.036
$PM_{2.5}$	0.0550	0.0541	0.027
SO_2	0.0056	0.0082	3.41E-03
CO_2e	598.3	874.8	364

Proposed Action Total Annual VMT (miles/yr)	
LDDT [f]	HDDV3 [g]
205,500	237,139

Notes

g/mile = grams per mile

mph = miles per hour

ton/yr = US (short)tons per year

VMT = vehicle miles traveled

a U.S. Environmental Protection Agency's Mobile Source Emission Factor Model (MO

b MOBILE6 Vehicle Type Category.

c LDDT = Light duty diesel powered trucks (i.e., includes diesel pickup trucks, sport utility vehicles and vans with GVWR ≤ 8,500 pounds.)

d HDDV3 = Heavy duty diesel powered vehicles (i.e., includes diesel trucks and buses with GVWR 10,001 - 14,000 pounds.)

e Assumed all vehicles travel average speed of 45 mph on a paved roadway.

f LDDT VMT based upon 6 vehicles traveling 50 miles/day for 685 working days.

g HDDV3 VMT based upon 5 loads/day of pipeline bedding delivery (525 days/project) and 10 yd^3 haul trucks for transporting excavated material not returned to trench. Assumed 1 sewer pipe delivery truck/day. Average trip length of

Sample Calculation

Annual Emissions = MOBILE6 EF (g/mile) * Annual VMT

Table D-4
Non-Road Equipment Emissions
JBSA-Lackland, San Antonio, Bexar County, Texas

Equipment Type/Name	Total (Ea/day)	Model Year [a]	Fuel Type	Engine Rating (hp) [b]	Operation (hr/yr) [c]	Load Factor [b]
Crane	1	2008	Diesel	190	1,872	43
Grader	1	2008	Diesel	99	1,872	62
Rubber Tired Loader	2	2008	Diesel	175	3,744	68
Dozer	1	2008	Diesel	175	1,872	68
Backhoe	1	2008	Diesel	99	1,872	55
Bobcat	1	2008	Diesel	99	1,872	55
Dump Truck	4	2008	Diesel	489	7,488	57
Water Truck	1	2008	Diesel	489	1,872	57
Hydraulic Power Pack	1	2008	Diesel	250	1,872	74
Light Stand	3	2008	Diesel	15	5,616	78
Generators/Pumps/ Compressors	6	2008	Diesel	50	11,232	74

Notes

ton/yr = US (short) tons per year

a Model year not supplied; assumed model year of 2008.

b Source: EPA Nonroad Engine and Vehicle Emission Study (11/91). Assumed 250 horsepower rating for tunnel boring machine hydraulic power pack.

c Assumed equipment operated 12 hours per day for 312 working days.

Table D-4
Non-Road Equipment Emissions
JBSA-Lackland, San Antonio, Bexar County, Texas

Equipment Description	Emission Factors [d] (g/hp-hr)					Total Emissions (ton/yr)				
	VOC	NO_X	CO	PM	SO_2	VOC	NO_X	CO	PM	SO_2
Crane	0.2	2.8	1.3	0.5	1.05	0.03	0.47	0.22	0.08	0.18
Grader	0.2	3.3	1.3	0.9	1.17	0.03	0.42	0.16	0.11	0.15
Rubber Tired Loader	0.4	2.9	2.3	0.8	1.27	0.20	1.42	1.13	0.39	0.62
Dozer	0.4	2.9	2.3	0.8	1.27	0.10	0.71	0.56	0.20	0.31
Backhoe	0.4	3.4	2.3	1.5	1.41	0.04	0.38	0.26	0.17	0.16
Bobcat	0.4	3.4	2.3	1.5	1.41	0.04	0.38	0.26	0.17	0.16
Dump Truck	0.2	2.8	1.3	0.5	1.05	0.46	6.44	2.99	1.15	2.42
Water Truck	0.2	2.8	1.3	0.5	1.05	0.12	1.61	0.75	0.29	0.60
Hydraulic Power Pack	0.2	2.8	1	0.4	1.07	0.08	1.07	0.38	0.15	0.41
Light Stand	0.6	5	2	0.6	1.19	0.04	0.36	0.14	0.04	0.09
Generators/Pumps/ Compressors	0.6	5	2.5	0.6	1.19	0.27	2.29	1.15	0.27	0.55
					Total	**1.4**	**15.6**	**8.0**	**3.0**	**5.6**

Notes

d Source: U.S. Air Force IERA-RS-BR-SR-2001-0010, Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations, January 2002

Sample Calculation

Pollutant Emissions = {equipment operation (hr/yr)*EF (g/hp-hr)*load factor (%)*horsepower (hp)}/453.59 g/lb

EF = emission factor

453.59 g/lb = conversion factor from grams to pounds

Table D-5
Fugitive Dust
JBSA-Lackland, San Antonio, Bexar County, Texas

Variable	Value PM_{10}	Value $PM_{2.5}$	Units	Description of Variable	Reference
S	5	5	mph	Mean Vehicle Speed	Assumption
U	6.0	6.0	mph	Mean Wind Speed	NCDC November 1998
k	0.35	0.053	-	Particle Size Multiplier	AP-42 Section 13.2.4 Page 3
U	9.1	9.1	mph	Mean Wind Speed	NCDC November 1998
M	3.4	3.4	%	Surface Material Moisture Content (dry)	AP-42 Table 13.2.4-1

Total Emission	
PM_{10} (ton/yr)	$PM_{2.5}$ (ton/yr)
74	**11.1**

Notes

[a] Emission factors based upon AP-42 Sections 13.2.4 (1/95)

Mean Wind Speed Source: National Climatic Data Center - Climatic wind speed for San Antonio, TX. Period of record 1930-1996.

Sample Calculation

$$EF_{PM10/2.5\ (lb/ton)} = (0.0032k)\ \frac{(U/5)^{1.3}}{(M/2)^{1.4}}$$

General Assumptions

Quantity of Soil Moved =	167,054	cubic yard (estimated excavation volume)
Density of Soil Moved =	2,528	lb/cubic yard (based on bulk dry density of compact soil = 1.5 g/cm^3)
Mass of Soil Moved =	63,356	tons/project (assumed 30% of excavated soil would be hauled away.)

APPENDIX E

SUPPLEMENTAL PHASE I ENVIRONMENTAL BASELINE STUDY

This Appendix exceeds the online electronic file size limit. This document may be made available upon request from Joint Base San Antonio, Attn: Andrew Riley, P.E., 502 CES/CENPL, 1555 Gott Street, JBSA Lackland TX 78236-5645; (210) 671-5339

APPENDIX F

PHASE II ENVIRONMENTAL BASELINE STUDY

This Appendix exceeds the online electronic file size limit. This document may be made available upon request from Joint Base San Antonio, Attn: Andrew Riley, P.E., 502 CES/CENPL, 1555 Gott Street, JBSA Lackland TX 78236-5645; (210) 671-5339