

Draft Environmental Assessment

**University of Texas Medical Branch at Galveston,
Texas**

**Proposed Construction and Operation of the Clinical
Services Wing and Associated Site Demolition
Activities**

**FEMA-1791-DR-TX / PW 500 (2), PW 1744 (2), PW
7386 (2), PW 9753 (2), PW 13287 (1)**

Galveston County, Texas

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FEMA

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LIST OF ACRONYMS AND ABBREVIATIONS

BEF	Base Flood Elevation
BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CBRS	Coastal Barrier Resource System
CBRA	Coastal Barriers Resources Act
CCC	Coastal Coordination Council
Code	International Building Code®
CZMA	Coastal Zone Management Act
CSW	Clinical Services Wing
DEA	Draft Environmental Assessment
DSHS	Texas Department of State Health Service
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
GLO	Texas General Land Office
gsf	gross square feet
HABS	Historical American Building Survey
IPCC	Intergovernmental Panel on Climate Change
MOA	Memorandum of Agreement
mph	miles per hour
msl	mean sea level
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
PA	Public Assistance
Plan	Construction Safety and Health Plan

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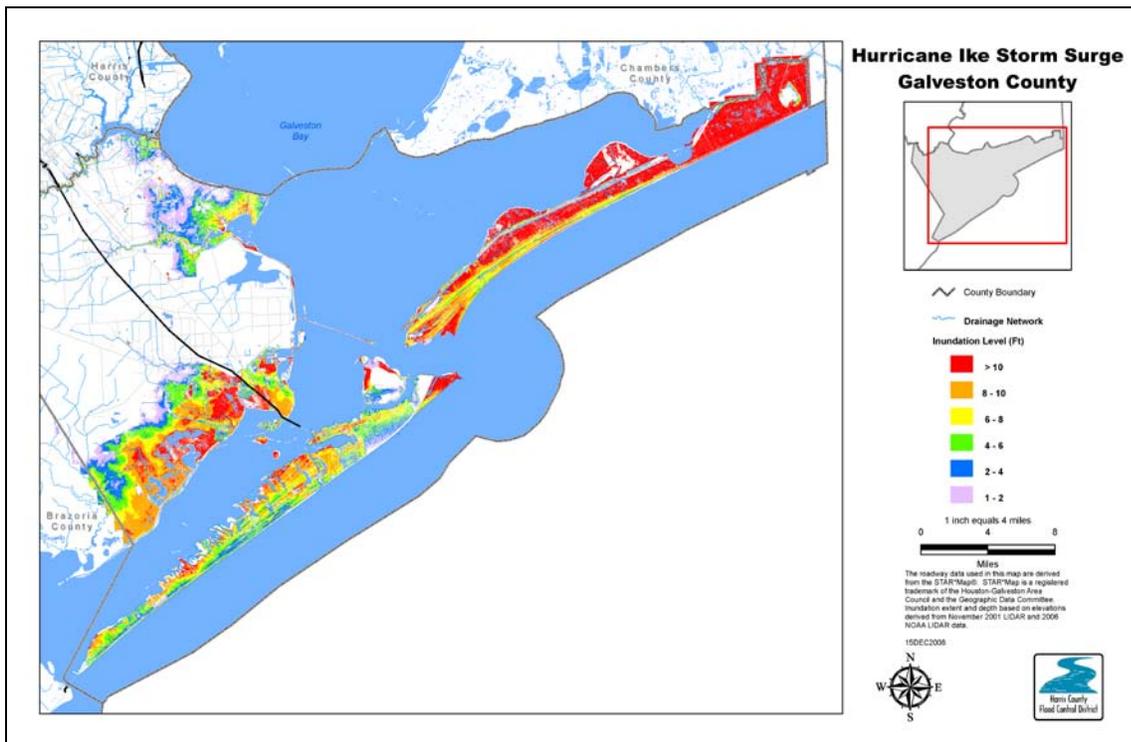
PM _{2.5}	particle pollution 2.5 microns or less in diameter
PM ₁₀	particle pollution 10 microns or less in diameter
PNP	Private Nonprofit
SGC	University of Texas System Supplementary General Conditions
SHPO	State Historic Preservation Officer
sf	square feet
TAC	Antiquities Code of Texas
TAHPR	Texas Asbestos Health Protection Rules
THPO	Tribal Historic Preservation Officer
TPWD	State of Texas Parks and Wildlife Department
UGC	State of Texas Uniform General Conditions
USFWS	U. S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UTMB	University of Texas Medical Branch at Galveston, Texas
VOC	volatile organic compounds

1.0 INTRODUCTION

This draft environmental assessment (DEA) analyzes the potential environmental impacts that could result from the construction and operation of a 6-story Clinical Services Wing (CSW) at the University of Texas Medical Branch at Galveston, Texas (UTMB). The United States Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to partially fund CSW construction. The CSW would relocate and elevate major clinical support care components damaged by Hurricane Ike that were located on the ground level of the existing UTMB hospital complex. There are five hurricane damaged buildings within the proposed CSW construction footprint that would be demolished to make space for the CSW.

1.1 Project Authority

Hurricane Ike, a Category 2 hurricane with a storm surge above normal high tide levels, moved across the Louisiana and Texas gulf coasts on September 13, 2008. Maximum sustained winds at landfall were estimated at 85 miles per hour (mph) and on Galveston Island winds reached 110 mph with gusts of 125 mph. The largest storm surge was estimated at 17 feet and possibly 20 feet in some Galveston Island areas (Figure 1-1). Hurricane Ike was the third most expensive disaster in FEMA history, behind Katrina and Andrew, and resulted in the largest evacuation of Texans in the state's history (FEMA 2008a).



(Source NOAA 2010)

Figure 1-1: Maximum storm surge inundation levels (water depth) for Galveston County, Texas, including Galveston Island and the Bolivar Peninsula, during Hurricane Ike. Areas shaded in red indicate where the water depths exceeded 10 feet.

Image courtesy of the Harris County Flood Control District.

President Bush declared a major disaster for the State of Texas due to damages from Hurricane Ike and signed a disaster declaration (FEMA 2008) on September 13, 2008, authorizing FEMA to provide federal assistance in designated areas of Texas. FEMA is administering this disaster assistance pursuant to the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* (Stafford Act), PL 93-288, as amended. Section 406 of the Stafford Act authorizes FEMA's Public Assistance Program to repair, restore, and replace State and local government and certain Private Nonprofit facilities damaged as a result of the declared event. UTMB-Galveston estimated damages totaling nearly \$710 million, "...including lost revenue due to the closure of the hospital's facilities..." (FEMA 2008a). As of 2010, FEMA has provided \$200 million to the reconstruction effort (GCDN 2010).

The *National Environmental Policy Act of 1969* (NEPA) requires that Federal agencies consider the environmental consequences of proposed actions before decisions are made. In complying with NEPA, FEMA follows the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) and FEMA's implementing regulations at 44 CFR 10.1 – 10.14. FEMA examined their proposal to partially fund the CSW against the list of categorical exclusions^a found in 44 CFR 10.8 and concluded that the Proposed Action could not be categorically excluded and that an environmental assessment was the appropriate level of analysis. This DEA assesses the potential environmental consequences resulting from construction and operation of the proposed CSW and associated building demolitions. The objectives of this DEA are to:

- Describe the underlying purpose and need for FEMA action (Chapter 2);
- Describe the Proposed Action and identify any reasonable alternatives that satisfy the purpose and need for FEMA action (Chapter 3);
- Describe the relevant baseline environmental conditions at UTMB (Chapter 4);
- Analyze the potential effects to the existing environment from implementation of the Proposed Action (Chapter 4); and
- Compare the impacts of the Proposed Action with the No Action Alternative (Chapter 4).

The DEA process also provides FEMA and UTMB with environmental information that can be used in developing mitigative actions, if necessary, to avoid or minimize adverse effects to the quality of the human and natural environment from the implementation of the Proposed Action.

A sliding scale approach is the basis for the analysis of potential effects in this DEA. The key element of this approach entails focusing on environmental issues in proportion to their potential effects (40 CFR Part 1502.2[b]). That is, certain aspects of the proposal may have a greater potential for environmental effects than others; and therefore are discussed in greater detail in this DEA. Chapters 1, 2, 3 and 4 are intended to provide sufficient detail so that the reader may understand the direct as well as the indirect and cumulative environmental consequences of the

^a "Categorical Exclusion" means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations and for which, therefore, neither an environmental assessment nor an environmental impact statement is required (40 CFR Sec. 1508.4).

Proposed Action and the No Action Alternative. FEMA will use the findings in this DEA to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

1.2 Project Location

UTMB, the third oldest medical school west of the Mississippi River, is a component of the University of Texas System located in Galveston, Texas, on the east end of Galveston Island, 48 miles south of Houston, Texas (Figure 1-2). Within Galveston, UTMB is located at 301 University Boulevard, with Harborside Drive on the north, 2nd Street to the east, 11th Street to the west, and Market Street to the south. UTMB is bounded by residential and commercial properties on all sides (NIAID 2005).



Figure 1-2: Location of UTMB.

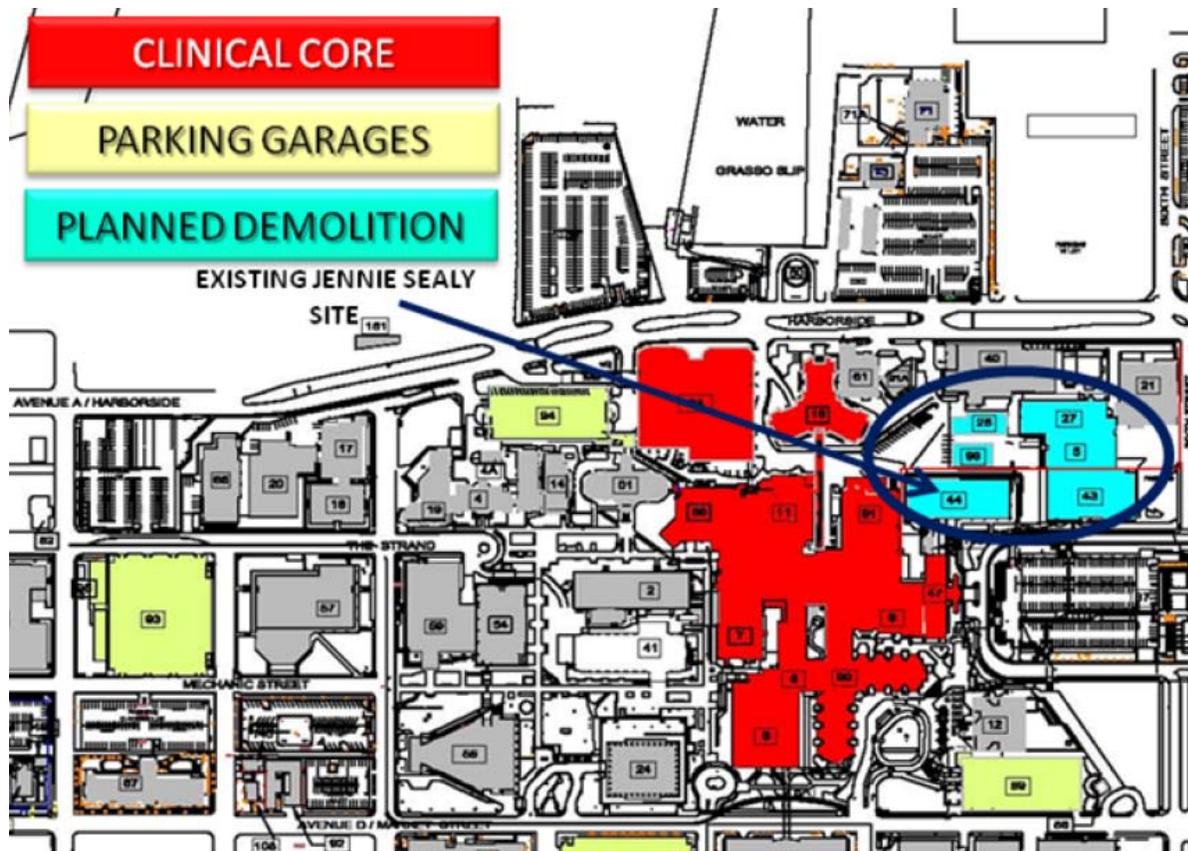
Established in 1891 as the University of Texas Medical Department, UTMB has over 6,000 staff, 1,000 faculty, and 2,500 students on an 84-acre campus containing more than 70 major buildings. The campus includes four schools, three institutes for advanced study, a major medical library, a network of hospitals and clinics that provide a full range of primary and specialized medical care, and numerous research facilities.

The proposed CSW would be located in the area bounded by Harborside Drive to the north, Texas Avenue to the south, and west of 6th street at the current location of the Jennie Sealy Hospital (Figure 1-3), the Surgical Research Building, former (Old) Shriner Burn Institute, Carpenter's Shop and Physical Plant Storeroom, and the Surgical Research Annex. These facilities would be demolished to make way for the CSW. The proposed location within UTMB's clinical core area (Figure 1-4) follows the UTMB Master Plan to locate academic, research, clinics/hospital facilities, and support spaces into appropriate zones which better accommodate such activities with respect to access, security, patients, visitors, students, parking and emergency vehicles.



(Source Google Earth)

Figure 1-3: Location Picture



(Source UTMB 2010)

Figure 1-4: Proposed CSW Location within UTMB's Clinical Core Area

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2.0 PURPOSE AND NEED

The objective of the FEMA Public Assistance (PA) Grant Program is to provide assistance to State, Tribal, and local governments, and certain types of Private Nonprofit (PNP) organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the President (FEMA 2011).

Through the PA Program, FEMA provides supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities, and the facilities of certain PNP organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process (FEMA 2011).

FEMA financial disaster support would be used by UTMB to restore the critical clinical complex functions that were lost or damaged due to Hurricane Ike and to avoid the loss of essential health care services as a result of future storm events.

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3.0 ALTERNATIVES

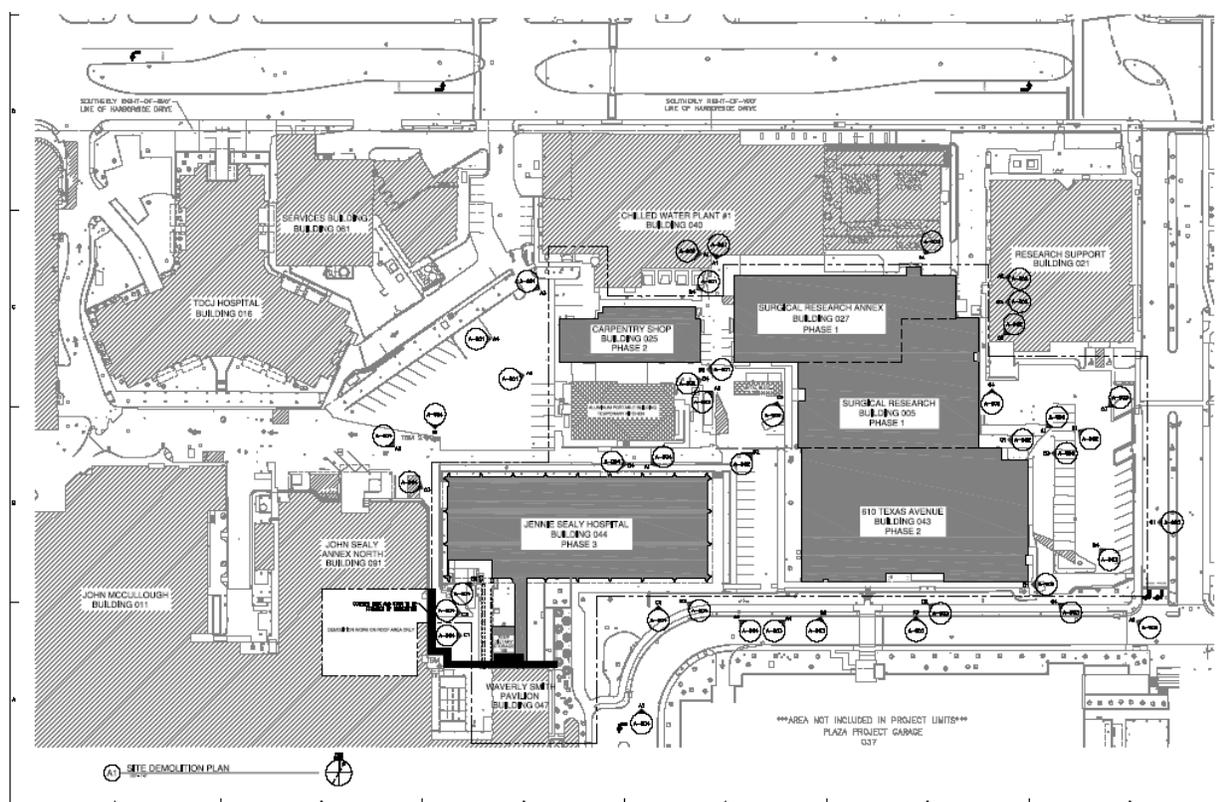
3.1 No Action

The No Action Alternative has been analyzed to comply with the CEQ's NEPA implementing regulations (40 CFR Part 1502.14(d)), to provide a baseline against which the impacts of the Proposed Action can be compared. This analysis provides a benchmark, enabling decision makers to compare the potential environmental effects of the Proposed Action. Under the No Action Alternative FEMA would not fund the CSW construction at the UTMB campus in Galveston, Texas, and the facility would not be built. Therefore, the most critical UTMB clinical complex infrastructure and functions that support the Emergency Medicine Department, Surgery Department, and Patient Beds which were incapacitated from Hurricane Ike would still be located below the base flood elevation and subject to future flooding events. Consequently, UTMB's community health care services could be severely compromised once again.

3.2 Proposed Action

The proposed action involves demolishing the following five buildings (Figure 3-2) to make way for the CSW:

- Carpenter's Shop and Physical Plant Storeroom;
- Jennie Sealy Hospital;
- Old Shriner Burn Institute;
- Surgical Research Building; and
- Surgical Research Annex.



(Source UTMB 2010)

Figure 3-1: Demolition Site Plan

The CSW would then be constructed and operated on the cleared site. The demolition and construction staging area would utilize the parking lot adjacent to the Jennie Sealy Hospital and Carpenter’s Shop and Physical Plant Storeroom, while the construction laydown area would be located in the parking lot immediately adjacent to and north of Harborside Drive (see Figure 1-3). Building demolition and site preparation is estimated to require approximately 6 months and CSW construction would require approximately 39 months. Preliminary project costs for demolition and new construction are estimated at \$102 million. Operational occupancy of the CSW is anticipated for 2015.

3.2.1 Building Demolition and Site Preparation

The buildings proposed for demolition were damaged by Hurricane Ike. Building renovations would be cost prohibitive, subject to future flooding, not serve the best interests of the medical complex and are not compatible with the UTMB Master Plan. It should be noted that these buildings were designated for demolition by UTMB prior to Hurricane Ike. There are no known environmental issues that would limit use of the site. However, an asbestos survey did find asbestos-containing materials to be present. Prior to and during building demolition asbestos abatement measures protective of human health and the environment would be implemented and the asbestos-containing materials disposed of in a legally compliant manner. Similarly, if any contaminated waste is identified during demolition, it would be disposed of according to UTMB’s Environmental and Health and Safety Services guidelines which are compliant with state and Federal regulations.

The new construction would require the relocation of some existing utilities. A detailed site utility survey has been completed. Uninterrupted service to adjacent buildings throughout the demolition and construction process would be maintained. All utility work would occur within the built environment and not occur in undisturbed lands. There is sufficient existing utility capacity to meet CSW operational requirements.

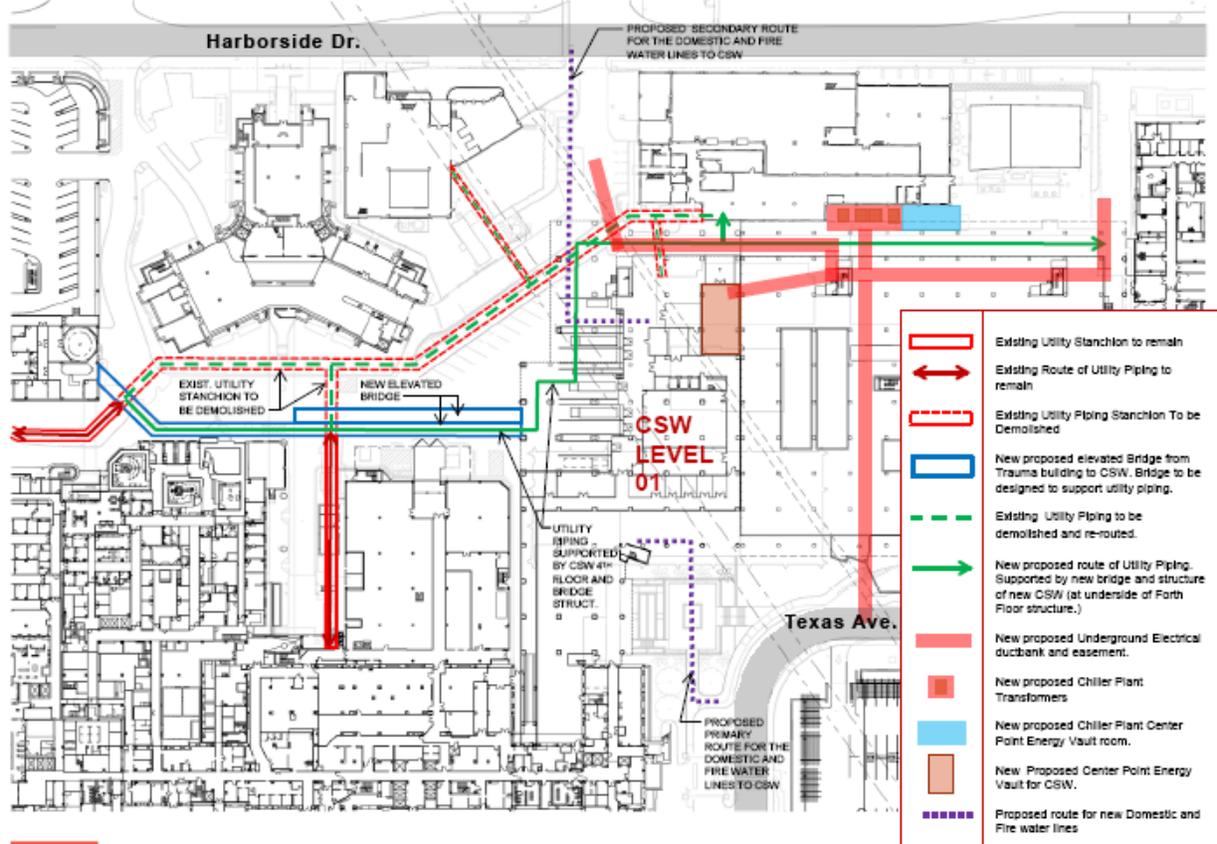


Figure 3-2: Proposed Utility Site Plan for CSW and Surrounding Area

3.2.2 Clinical Services Wing Design

The CSW would be designed to relocate and elevate major clinical support services components, currently located on the ground level of the existing UTMB hospital complex, which were severely damaged by flooding during Hurricane Ike. The facility is proposed as a 6-story building designed to resist a 132-mph wind load and would consist of approximately 240,000 gross square feet (gsf)^b of new building construction, 19,800 gsf of new bridge construction, and approximately 2,470 gsf of renovation within the existing hospital complex. The building’s typical floor plan for the six levels (see Appendix A for the preliminary floor design) would range from 22,300 square feet (sf) to 58,600 sf. To assure safety from future flood events, the “ground floor” or level-1 elevation would be at 12 feet, 5 inches and comprised of transitory

^b Gross Square Feet (gsf) is the total square feet of the building that includes common areas, building core, elevator shafts, equipment areas, ductwork shafts, and stairwells and other areas of the building used for maintenance and operations.

spaces, where items would be left less than 24 hours and easily moved. Utility services for the level-1 equipment rooms would be provided from the second floor, and all level-1 equipment would be located above 14 feet mean sea level^c (msl). All critical building systems, equipment, and functions would be located on levels-2 or above at elevations equal to or greater than 25 feet msl. Elevators serving the level-1 loading dock, would have shafts that are flood-resistant and all elevator doors would be equipped with flood gates.

This new facility would allow for appropriate state-of-the-art building systems which meet the current building code and FEMA requirements and provide efficient and effective patient care support services for the clinical environment at UTMB. The UTMB Master Plan recommendations in regard to Architectural Design Guidelines and Landscape Standards would be incorporated into the design so that the completed building reflects UTMB campus architectural and functional values. The CSW design complies with the Texas Accessibility Standards which have been certified by the Department of Justice as equivalent to or more stringent than the *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities*.

Faculty and student pedestrian access into the new building would probably occur via connections to the existing Waverley Smith Pavilion. Public access is not expected as this is a services building. Two pedestrian bridges are proposed. One would connect the CSW to the existing Trauma Center and the other would connect to the Texas Department of Criminal Justice Hospital via a raised skybridge. Delivery and service vehicles would gain access to the building via the loading dock, located on the west side of the building. Emergency vehicles would be able to access the building via this dock as well. No new parking would be required as part of this project.

The proposed 6-story CSW would consist of a loading dock on level-1 with the upper levels occupied by kitchen and dining space, laboratories, Material Management, mechanical space, pharmacy, and Surgery Support organizations or support functions. Levels which house critical building systems, equipment, and functions, would be located at or above 25 feet msl. The building would be designed for a vertical five-level expansion to accommodate either medical and surgical acute care or intensive care unit universal patient rooms. The top floor, housing interstitial mechanical space, would be designed and constructed for future expansion with no or few disruptions to the operations in the lower levels. This floor would act as a buffer between occupied space and future construction. CSW building foundations would be designed to accommodate five additional floors. (HDR 2010)

Utility needs of the CSW would be met by the existing Central Plant. There is sufficient current utility capacity to meet CSW operational requirements, especially in light of the removal of several existing and inefficient buildings from the campus.

Mechanical, electrical, and plumbing equipment would be located at or above 25 feet msl elevation. The current scheme includes domestic water, a fire suppression system, steam and chilled water utility connections, electrical switchgear, water heater, and a fire pump in the

^c Mean sea level is the average height of the surface of the sea for all stages of the tide and is used as a reference for elevations.

second level mechanical/electrical rooms. A mechanical penthouse would house multiple air handling units, fans, vacuum pump, and medical air compressor. Similarly, all generation and distribution components of the essential electrical system would be located above 25 feet msl. Only those components required to serve a space below 25 feet msl would be located below that point. Any electrical installation required below the 25 feet msl would be designed in such a way that it can be easily isolated and shut down prior to flood waters reaching the building. The CSW would connect and fully integrate into the existing campus network fire alarm system.

Storm water would be removed from the facility by roof drains connected to a grey water storage tank. The storm water would be used to supplement water needed for cooling in the adjacent Central Plant.

It is necessary to provide a safe and secure facility that accommodates the needs of patients, faculty, staff and students alike. Therefore, a Security Assessment was conducted to determine potential threats the building may encounter. This project would utilize and comply with UTMB Security Specifications.

3.2.3 Operations

Designated as a hospital building, the CSW would be inhabited and operational 24 hours a day, 365 days a year. However, general building access would be restricted between 9:00 pm and 5:30 am. This facility would not house high-risk components such as nuclear reactors, chemical or biological agents, or animal holding/research areas. Its intended use is to support the existing hospital complex clinical services. The operations that would be conducted in the proposed CSW would be the consolidated clinical services components that are currently provided and located on the ground level of the existing UTMB medical complex. The relocated services include consolidation of UTMB's maintenance workforce, work stations to support over 60 technicians working on the design, building, and repair of equipment, conference and meeting rooms, blood donor support center, pharmacy, surgical pathology and clinical laboratories, and surgery support services - such as administrative and publication functions.

Trash, hazardous waste, recyclables, and other waste products would be processed or disposed of via the loading dock located on the west side of the building. A separate and secure holding area adjacent to the dock would be utilized for medical waste storage.

3.3 Alternatives Considered and Dismissed

CEQ regulations require federal agencies to analyze all reasonable alternatives. Reasonable alternatives are those that could be carried out based on technical, economic, environmental, and other factors, and meet the Purpose and Need for the proposed action. For this DEA, the following alternatives were considered but eliminated from detailed study.

In the UTMB clinical complex, the most critical functions that support the Emergency Medicine Department, Surgery Department, and Patient Beds were incapacitated from Hurricane Ike because they were and are still located below the base flood elevation. These departments that provide critical support include the Sterile Processing Department, Pharmacy, Respiratory Therapy, Kitchen and Dining, and the Blood Center. In addition to these key clinical functions

supporting the Hospital, several administrative and most of the logistical departments were entirely decimated by flooding. To prevent a similar occurrence, all relocations of these departments' critical building systems, equipment, and functions have to be located a minimum of 25 feet above msl. Several alternative sites were investigated for departments that were damaged. Key to the success of these critical support functions was their relative proximity to the populations served both now and in the foreseeable future. Ultimately, all alternative sites were eliminated from further consideration due to extensive campus infrastructure obstructions, inability to meet flood elevation requirements for critical systems, equipment, and functions, and less than ideal adjacent building connectivity.

Alternative a - Jennie Sealy Hospital Renovation. The Jennie Sealy Hospital suffered severe damage from Hurricane Ike and the necessary and major building renovations to protect the critical building systems, equipment, and functions from future flooding events would be cost prohibitive. This building is now slated for demolition to make way for the CSW. Therefore, this alternative was not carried forth.

Alternative b - John Sealy Annex Renovation. An analysis of the potential relocation of critical support functions above the third floor of the John Sealy Annex building to areas currently occupied by administrative offices and laboratories was conducted. The analysis showed that the low floor to ceiling heights and structural capacity could not provide the necessary infrastructure and that the building age was a concern for long term viability. Therefore, this alternative was not carried forward.

Alternative c - Use of the Children's Hospital and Rebecca Sealy Hospital. Logistical issues, proximity to Galveston National Lab, location off busy Market Street, and remote location rendered this option undesirable due to anticipated increase in response time between facilities and increased liability factors. Therefore, this alternative was not carried forward.

Alternative d - Use of the Shriner Hospital. This facility was investigated since it was being considered for closure. The Shriner Hospital has since reopened eliminating the possibility of this alternative. Therefore, this alternative was not carried forward.

Alternative e - Repair of Facilities to Pre-Disaster Condition. The affected facilities would be repaired to restore function of the damaged hospital divisions. However, restoration would be difficult and costly to bring the facilities into compliance with current codes and standards. Without facility compliance with codes and standards, federal funding to the hospital complex would be jeopardized. Of particular note is that the critical building systems, equipment, and functions, would remain below 25 feet msl and subject to future flooding events. Therefore, this alternative was not carried forward.

(HDR 2010)

4.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

4.1 Physical Resources

4.1.1 Geology, Soils, and Seismicity

The UTMB campus is located on Galveston Island, a low barrier island situated at the southern end of Galveston Bay. Galveston Island is located within the Coastal Plain Physiographic Province, which is topographically characterized as lowlands, coastlines, and barrier islands, indented with small inlets, bays, and marshes. The UTMB campus is located at elevations of 5 to 10 feet above mean sea level (NIAID 2005).

Geology: The geology underlying the Coastal Plain Physiographic Province consists of unconsolidated soils deposited between the Oligocene Epoch (33.7 to 23.8 million years ago) and the Holocene Epoch (10,000 years ago to today). These deposits extend from the land surface to depths of more than 4,000 feet below the surface. Three depositional environments are reflected in the lithology of unconsolidated sediments: alluvial plain (continental); delta, lagoon, and beach (transitional); and continental shelf (marine). The gradual rise of the land surface and dip of the depositional basin results in a wedge-shaped configuration of these depositional environments, which thickens toward the Gulf of Mexico. The heterogeneity of these deposits (an overlapping mixture of sands, silt, and clay) resulted from the oscillations of ancient shorelines (NIAID 2005).

Soils: Soils underlying UTMB and much of the City of Galveston are located in an area containing fill and spoil, formerly classified as the Galveston-Urban Land Complex. Fill is composed of material dredged for raising land surface above Holocene alluvium and barrier island deposits, creating elevated land surfaces. Spoil is dredged material from coastal waterways. These soils are comprised of fine sand to a depth of 5 feet (some of which is dredged material) and are characterized as nonsaline, moderately alkaline, and somewhat excessively drained (NIAID 2005).

Seismicity: The U.S. Geological Survey (USGS) has identified southeastern Texas in the “lowest hazard” category for seismic risk (DHHS 2005 and USGS 2011). Galveston is located within the Gulf Coast Normal Faults Region. This region extends from the Dallas/Fort Worth area, on mainland Texas, into the Gulf of Mexico beyond Galveston Island. The Gulf Coast Normal Faults Region is comprised of a belt of small, individual faults with historically low seismicity and is in seismic zone 0 - the lowest hazard classification. However, in 1956, a 3.8 magnitude earthquake on the Richter Scale occurred within 2 to 3 miles southwest of the UTMB campus. An earthquake of that magnitude would be felt noticeably by persons indoors and create vibrations similar to the passing of a heavy truck (NIAID 2005).

4.1.1.1 Proposed Action

The demolition and construction activities of the proposed project are expected to disturb approximately 7 acres of land within the UTMB campus. Aggregate and other geologic resources (e.g., sand) would be required to support construction activities. The construction site is completely paved with underlying engineered fill and compacted soils. Site investigation

would include preparation of a comprehensive geotechnical report of soil conditions, including foundation design recommendations as well as an updated topographical and survey.

The National Pollutant Discharge Elimination System (NPDES) Stormwater Program regulates stormwater discharges from three potential sources: municipal separate storm sewer systems, construction activities, and industrial activities. Operators of construction sites that are one acre or larger may be required to obtain authorization to discharge stormwater under an NPDES construction stormwater permit. This permitting mechanism is designed to prevent stormwater runoff from washing harmful pollutants into local surface waters such as streams, rivers, lakes, or coastal waters. Texas is authorized to implement the NPDES Stormwater Program and administer their own stormwater permitting programs. In compliance with the NPDES, a Stormwater Pollution Prevention Plan employing best management practices would be developed and utilized to minimize soil erosion during construction.

Demolition and construction and operation of the proposed CSW would not produce any long-term effects on geology and soils and the building would be designed to meet the appropriate UTMB campus structural requirements.

4.1.1.2 No Action Alternative

Under the No Action Alternative, the CSW would not be funded or constructed. Therefore, there would be no effect to geology or soils.

4.1.2 Air Quality and Wind Load

National Ambient Air Quality Standards have been established by the U.S. Environmental Protection Agency (EPA) to designate the legal limitations on six pollutant concentration levels allowed to occur in the ambient air. The six air pollutants are: carbon monoxide, lead, nitrogen dioxide, ozone, particle pollution 10 microns or less in diameter (PM₁₀) and 2.5 microns or less in diameter (PM_{2.5}), and sulfur dioxide. Since health-based criteria have been used to establish the standards, these six pollutants are referred to as “criteria air pollutants.” Areas within a state or the state itself are designated with respect to each of these six pollutants as: attainment (i.e., in compliance with the standards); non-attainment (i.e., not in compliance with the standards); or unclassifiable (i.e., insufficient data to classify). The purpose of the non-attainment designation is to identify air quality problem areas for which solutions must be sought. The Houston-Galveston-Brazoria area holds nonattainment status for ground-level ozone under the 1997 8-hour standard which became effective June 15, 2005. For ozone, the Federal *Clean Air Act* establishes nonattainment area classifications ranked according to the severity of the area’s air pollution problem. These classifications—marginal, moderate, serious, severe, and extreme—translate to varying requirements with which Texas and nonattainment areas must comply. Counties affected under this status are Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller. The region was classified as being in “moderate” nonattainment of the 8-hour standard and was given a maximum attainment date of June 15, 2010. However, due to a 2007 request by Texas Governor Rick Perry, the region has been reclassified as a “severe” nonattainment region with a maximum attainment date of June 15, 2019 (HGAC 2011).

Ground-level ozone is not emitted directly into the air, as it is created by chemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of NO_x and VOC.

The International Building Code® (Code) addresses the design and installation of building systems through requirements emphasizing performance. The Code is designed to meet these needs through model code regulations that safeguard the public health and safety in all communities. The comprehensive building Code establishes minimum regulations for building systems using prescriptive and performance-related provisions. The Code identifies the Galveston area as in a hurricane-prone region. As such, the design wind load is for a nominal 3-second gust wind speed of 130 mph at 33 feet above ground (International Code Council 2009)

4.1.2.1 Proposed Action

An asbestos survey found asbestos-containing materials to be present in the buildings scheduled for demolition. Prior to and during building demolition, appropriate abatement measures would be determined and implemented by a licensed asbestos abatement contractor to prevent the airborne generation of asbestos-containing materials. Additional details regarding asbestos and how it will be managed can be found in Section 4.6.7 for Health and Safety.

During site preparation and construction, the use of heavy equipment, delivery trucks, and worker vehicles would temporarily increase particulate, NO_x, and VOC emissions and would generate fugitive dust in the proposed project area from combustion of gasoline and diesel fuel and disturbance of soils. However, due to the implementation of good engineering and Best Management Practices (BMP) and few large construction vehicles, air emissions would be minor. Site watering practices would limit dust emissions. Additionally, all construction vehicles would be limited to 15 mph and all equipment maintained in good working order to minimize pollution and fugitive dust. Air emissions would be brief and similar to those experienced during any ordinary construction effort. The potential effect on ambient air quality from demolition and construction activities would be temporary and localized, and would not adversely affect the overall air quality of the region. There are no sensitive populations that live in close proximity to the construction area. Hospital staff and patients would not be affected due to the implementation of BMPs, low air emissions, restrictions from entering the construction zone, and lack of exposure as they would reside indoors.

Air quality effects during the operation of the proposed CSW would be primarily from gas combustion engine emissions from private motor vehicles during workers' commutes to and from work (this would not be cumulative to current conditions as most personnel are currently employed at UTMB) and some emissions of greenhouse gases associated with the off-site electrical generation plant that would provide power to the CSW. These emissions would contribute little to regional air pollution.

The CSW would be designed and constructed to meet a 132-mph wind load design specifications. Wind loads of this speed could occur during a Category 4 or greater hurricane. The Saffir-Simpson Hurricane Wind Scale categories^d are:

- **Category 1** – Winds sustained for 1 min from 74-95 mph. Very dangerous winds will produce some damage. Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm.
- **Category 2** – Winds sustained for 1 min from 96-110 mph. Extremely dangerous winds will cause extensive damage. Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm.
- **Category 3** – Winds sustained for 1 min from 111-130 mph. Devastating damage will occur. Numerous windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm.
- **Category 4** – Winds sustained for 1 min from 131-155 mph. Catastrophic damage will occur. Most windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm.
- **Category 5** – Winds sustained for 1 min are greater than 155 mph. Catastrophic damage will occur. Nearly all windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm.

(NOAA 2011)

The CSW would exceed the minimum code requirements for wind load design specifications.

4.1.2.2 *No Action Alternative*

The No Action alternative would have no change to air quality.

4.1.3 *Climate Change*

The release of anthropogenic (human activity) caused greenhouse gases and their potential contribution to global warming are inherently cumulative phenomena. While the scientific understanding of climate change is evolving, the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report stated that the warming of the Earth's climate is unequivocal, and that warming is very likely attributable to increases in atmospheric greenhouse gases caused by human activities (IPCC 2007). The IPCC's Fourth Assessment Report indicates that changes in many physical and biological systems, such as increases in global temperatures, more frequent heat waves, rising sea levels, coastal flooding, loss of wildlife habitat, spread of infectious disease, and other potential environmental impacts are linked to changes in the climate system, and that some changes may be irreversible (IPCC 2007).

^d The Saffir-Simpson scale lists sustained wind speeds and the design Code provides the 3-second gust speed. To convert from a 3-second gust speed to the sustained wind speed, subtract 20 mph from the 3-second gust wind speed.

4.1.3.1 Proposed Action

Greenhouse gas emissions from the proposed CSW would be minor. Additionally, since the CSW is designed to accommodate the relocation of several major clinical support services components into one building the current air emissions would not substantially change, and may be reduced given higher building and equipment energy efficiencies. Thus, compared to the 8,026 million tons (7,282 million metric tons) of CO₂ equivalent greenhouse gases emitted in the U.S. in 2007 (DOE 2008) and the 54 billion tons (49 billion metric tons) of CO₂-equivalent anthropogenic greenhouse gases emitted globally in 2004 (IPCC 2007), CSW emissions would be extremely small. At present, there is no methodology which would allow FEMA to estimate the specific impacts (if any) this increment of climate change would produce in the vicinity of Galveston, Texas, or elsewhere.

4.1.3.2 No Action Alternative

There would be no change to existing conditions.

4.2 Water Resources

4.2.1 Water Quality

Water quality is a measure of the suitability of water for a particular use based on selected physical, chemical, and biological characteristics such as temperature, dissolved mineral content, and number of bacteria. Selected characteristics are then compared to numeric standards and/or guidelines to determine the water's suitability for a particular use.

4.2.1.1 Proposed Action

The demolition and construction activities of the proposed project are expected to disturb approximately 7 acres of land within the UTMB campus. A Stormwater Pollution Prevention Plan employing best management practices would be developed and utilized to minimize soil erosion and avoid impacts to surface water quality during construction.

There would be no increase in the impermeable surface area or direct waste water discharges from CSW operations. Thus, the proposed action would have no effect to water quality.

4.2.1.2 No Action Alternative

There would be no change to water quality under the No Action Alternative.

4.2.2 Wetlands

The current site is completely paved and therefore, does not support any surface water, e.g., streams, ponds, or wetlands. In a letter dated June 30, 2011, the U.S. Army Corps of Engineers has indicated that the designated site is not subject to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act and/or any work or the discharge of fill material onto the tracts does not require a Department of the Army permit (Appendix C).

4.2.2.1 Proposed Action

During construction a Stormwater Pollution Prevention Plan employing best management practices would be developed and utilized to minimize soil erosion and avoid impacts from any storm water discharges that have the potential to reach any wetlands.

There would be no direct waste water discharges from CSW operations. Thus, the proposed action would have no effect on wetlands.

4.2.2.2 No Action Alternative

There would be no effect to wetlands under the No Action Alternative.

4.2.3 Floodplains

Floodplains are lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands. At a minimum, these areas are subject to a 1 percent or greater chance of flooding in any given year, commonly referred to as a 100-year floodplain and a 0.2 percent chance of a 500-year flood event occurring in any given year. *Executive Order 11988, Floodplain Management* directs each Federal agency to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, including the direct and indirect support of floodplain development, whenever there is a practicable alternative. The construction of this project would take place within the 500-year floodplain. Based on the most recent FEMA Flood Insurance Rate Maps (Community Panel Numbers 4854690027E and 4854690009F, both dated December 6, 2002), the project site is located in a Shaded Zone X defined as “Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood”. The FEMA 100-year water surface elevation at UTMB is 11.1 feet and the floodplain elevation for a 500-year storm is 14 feet with a potential wave crest of 20 feet. Federal guidelines promulgated in 44 CFR 9.4 define the new construction or substantial improvement of facilities, such as hospitals, as a critical action. Critical action involves activities and facilities, that even a slight chance of flooding poses too great a threat. As a result, these actions are given special consideration when formulating regulatory alternatives and floodplain management plans. These facilities are to be elevated to or above the 500-year flood level or the utility and sanitary facilities that are below the 500-year flood level have walls that are substantially impermeable to the passage of water and with structural components having the capacity of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. To comply with *Executive Order 11988, Floodplain Management*, FEMA is required to follow the procedure outlined in 44 CFR Part 9 to assure that alternatives to the proposed action have been considered. This process, also known as the Floodplain Management – Checklist (Eight-Step Planning Process for Floodplains), has been completed for the proposed action and is included in Appendix B.

The current site is completely paved and therefore, does not support any surface water, e.g., streams, ponds, or wetlands. Drainage ditches and gutters along adjacent streets and parking lots

provide drainages for storm water runoff. From these primary drainages, storm water drains into the Galveston Channel and the Gulf of Mexico.

A stormwater box culvert is located under Texas Avenue. The culvert runs west along Texas Avenue, and turns northwest under the existing Jennie Sealy Hospital. The final outfall is to the harbor just north of UTMB near the heliport pad on Harborside Drive.

4.2.3.1 Proposed Action

To assure safety from future flood events, the ground floor elevation would be at 12 feet, 5 inches with utilities provided from the second floor and all equipment within this floor located above 14 feet. The CSW critical functions and components would be elevated above the 500-year flood stage as defined in the FEMA Flood Insurance Rate elevation maps. The proposed design specifies housing critical building systems, equipment, and functions, above 25 feet msl, which would exceed the 500-year flood level by 11 feet. Based on the Floodplain Management – Checklist prepared for this project, there is no practicable engineering alternative to avoid CSW construction and operation in the 500-year floodplain (see Appendix B). The floodplain administrator for the City of Galveston, Department of Planning and Community Development has indicated in a letter dated June 29, 2011 that the Proposed Action to be in compliance with the City of Galveston Flood Damage Prevention Ordinance and has approved the project in the floodplain (Appendix C).

The stormwater box culvert under Texas Avenue would be protected in place during demolition and CSW construction, as it is the main drainage line for this part of the campus. Drainage requirements for this project are still under review pending receipt of a final survey. However, because the current site is completely paved, the installation of this new facility would have little affect on stormwater runoff rates and volumes. In a letter dated June 30, 2011, the U.S. Army Corps of Engineers has indicated that the designated site is not subject to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act and/or any work or the discharge of fill material onto the tracts does not require a Department of the Army permit (Appendix C).

4.2.3.2 No Action Alternative

There would be no effect to existing conditions.

4.3 Coastal Resources

The Texas General Land Office (GLO) and the Coastal Coordination Council (CCC) regulates development in the designated coastal zone under the requirements of the *Coastal Zone Management Act* (CZMA). A central requirement of the CZMA is for each state to develop a management program for its coastal zone. To meet this requirement, Texas established a coastal zone boundary and a system of permits to regulate uses and activities in the coastal zone. These permits are required for those projects which have a direct impact on coastal waters.

The USFWS regulates federal funding in Coastal Barrier Resource System (CBRS) Units under the *Coastal Barriers Resources Act* (CBRA). The Act protects undeveloped coastal barriers and related areas by prohibiting direct or indirect federal funding of projects in these areas that might

support development. The purpose is to promote more appropriate use and conservation of coastal barriers along the Gulf of Mexico.

4.3.1 Proposed Action

The UTMB campus is located in the designated Texas Coastal Management Zone. Based on consultation with the GLO and review of the CCC, General Concurrence #5, FEMA has determined that this project is deemed consistent with the goals and policies of the Texas Coastal Management Program and consistency review procedures as implemented by the GLO (Appendix C).

The UTMB campus is not part of a CBRS. Therefore, CBRA does not apply.

4.3.2 No Action Alternative

The No Action alternative would have no effect on the coastal zone or the Coastal Barrier Resource System.

4.4 Biological Resources

In March 2011, as part of this EA analysis, a biologist toured the proposed CSW location and surrounding area. As evidenced by the Figure 1-2 and Figure 1-3 photographs, and confirmed during the site tour, the area where demolition and construction work would occur is within a completely paved and built environment in the heart of the UTMB campus. This location does not support any natural habitat. Wildlife present are common species (e.g., pigeons, rats, and feral animals) that have adapted to a landscaped and built environment bustling with human activity. Habitat for Federal or state protected plant or animal species is not present.

4.4.1 Threatened and Endangered Species and Critical Habitat

The United States Fish and Wildlife Service (USFWS) and State of Texas Parks and Wildlife Department (TPWD) have administrative and legal authority to study, list, and take actions to protect plant and animal species in the Texas coastal region under the *Endangered Species Act* of 1973 and the TPWD Code. State endangered and threatened plant species are governed under 31 TAC 69.1 through 69.9.

4.4.1.1 Proposed Action

Federal or state listed species and their critical habitat are not present within the proposed site location or any area potentially affected by construction activities. FEMA has made a determination of “No Effect” to listed species and/or designated critical habitat present so no further consultation is required.

4.4.1.2 *No Action Alternative*

The No Action alternative would have no effect on threatened or endangered species or their habitat.

4.4.2 *Wildlife and Fish*

Wildlife present are common species (e.g., pigeons, rats, and feral animals) that have adapted to a landscaped and built environment bustling with human activity. There is no aquatic habitat present.

4.4.2.1 *Proposed Action*

Demolition, construction, and CSW operations would have no long-term effect on any plant or animal species within the region.

4.4.2.2 *No Action alternative*

The No Action alternative would have no effect on wildlife or fish.

4.5 **Cultural Resources**

Cultural resources are those aspects of the physical environment that relate to human culture, society, and cultural institutions that hold communities together and link them to their surroundings. Cultural resources include prehistoric and historic archaeological sites, architectural properties, and ethnographic resources^e. Archaeological sites are the tangible remains of past activities that show use or modification by people. Architectural properties such as buildings and structures can be part of larger archaeological sites or can be considered alone.

A number of Federal statutes address the identification of cultural resources and Federal responsibilities with regard to cultural resources. Foremost among these statutes is the *National Historic Preservation Act* (NHPA) and its implementing regulations. The NHPA and associated regulations describes the process for identification and evaluation of cultural resources, assessment of effects of Federal actions on important resources, and consultation to avoid, reduce, or mitigate adverse effects. Resources that are at least 50 years old, retain seven aspects of integrity, and are determined to meet one or more of four criteria of significance are considered to be eligible for listing on the National Register of Historic Places (NRHP) and are termed historic properties. The NHPA does not require preservation of historic properties, but does ensure that Federal agency decisions concerning the treatment of these properties result from meaningful consideration of cultural and historic values and identification of options available to protect the properties. Under the provisions of NHPA Sections 106 and 110b, federal agencies must take into account the effects that their projects have on historic properties. If a project is determined to have an adverse effect to a historic property that is eligible for or listed on the NRHP, steps must be taken in order to mitigate the adverse effect. It is FEMA's

^e Ethnographic resources is the branch of anthropology that deals with the scientific description of specific human cultures

responsibility to assess the possible adverse effects of an undertaking to historic properties. An "adverse effect" is an effect of an undertaking that may alter a historic property's characteristics in a way that could jeopardize its inclusion in the National Register. Typical examples of adverse effect often involve the physical destruction of all or part of a property, change in the property's use, transfer, introduction of elements that diminish integrity, alteration of a property, etc.

If impacts to historic properties cannot be avoided, FEMA makes the determination of adverse effects, and informs the (State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO) and other consulting parties of the decision. Typically as a result, a Memorandum of Agreement (MOA) per 36 CFR, § 800.6 (Resolution of adverse effects) will be prepared. The MOA is a legally binding agreement document, which outlines the treatment measures to minimize or mitigate the adverse effects. This document defines the terms and conditions agreed upon to resolve the adverse effects of an undertaking upon historic properties.

4.5.1 Proposed Action

The proposed demolition and construction site is located in the heart of the UTMB campus surrounded by other campus buildings. The area has been heavily and completely disturbed through previous construction activities. Thus, it is likely that no intact archaeological resources are located within or near the demolition and construction sites. However, two of the facilities, the Surgical Research building and the Old Shriners Burn Institute, proposed for demolition have been determined eligible for listing in the NRHP under Criteria A and B for having exceptional historical significance in the area of Health and Medicine as the first Shriners Burn Institute in America, as well as their association with Truman Blocker, a pioneer in the medical field and UTMB's first president. The Shriners Burn Institute also meets Criteria Consideration G for have gained significance within the last 50 years.

An MOA has been prepared between FEMA, the Texas State Historic Preservation Office (SHPO), the Texas Department of Emergency Management (TDEM), and UTMB (Appendix D). The MOA has established the treatment measures to mitigate the adverse effect to historic properties. These treatment measures include a recordation of buildings and a historical narrative.

UTMB will acquire a Secretary of the Interior (SOI) Qualified individual to complete the treatment measures listed above. The recordation of building will include Historic American Building Survey (HABS) quality photographs. Each building will be thoroughly documented with digital images. These images will be taken to record the environmental setting, elevations, and significant details, both inside and out. These photographs will comply with the National Park Service's photographic policy and will be printed on archival standard photographic paper. The written historical narrative will include an architectural description and a history of the people and events that are associated with the Buildings. This narrative will contain information on Dr. Truman Graves Blocker Jr.'s role in securing the location of the Shriners Burn Institute in Galveston, his role in the care and research associated with the treatment of victims of the 1947 Texas City Disaster, significant methods of treatment pioneered by Dr. Blocker and his colleagues, and the role that these two buildings played in the history of Health and Medicine. These treatment measures will convey important pieces of information that will weave together a comprehensive understanding of the facility. As part of the MOA, UTMB has agreed to store the

completed historic narrative and a complete set of photographic prints at the Truman Blocker Archives located in the Mary Moody Library.

In the event that archeological deposits, including any Native American pottery, stone tools, bones, or human remains, are uncovered, the project shall be halted and the applicant shall stop all work immediately in the vicinity of the discovery and take reasonable measures to avoid or minimize harm to the finds. All archeological findings will be secured and access to the sensitive area restricted. The applicant will inform FEMA immediately and FEMA will consult with the SHPO or THPO and Tribes and work in sensitive areas cannot resume until consultation is completed and appropriate measures have been taken to ensure that the project is in compliance with the National Historic Preservation Act.

4.5.2 No Action Alternative

The Surgical Research building and Old Shriners Burn Institute would continue to deteriorate and remain unoccupied.

4.6 Socioeconomic Resources

4.6.1 Socioeconomics

The socioeconomic environment evaluated for this DEA encompasses Galveston County and the City of Galveston. This geographic location forms the basic economic region of influence and defines the area in which the predominant social and economic impacts are likely to take place. The 2009 Census data for Galveston County indicate a total population of 286,814. The population is comprised of: 80.8 percent White persons, of which 21.8 percent were persons of Hispanic or Latino origin; 14.3 percent Black persons; 0.5 percent American Indian and Alaska Native persons; 2.9 percent Asian persons; and Native Hawaiian and other Pacific Islanders at 0.1%. 2008 Census data indicate that persons below the poverty level made up 11.9 percent of the population (Census Bureau 2011a). In 2005-2009, the median income of households in Galveston County was \$54,398 with 13 percent of people living in poverty (American Community Survey 2005-2009a).

For the City of Galveston the 2006 population was 57,523. 2000 Census data indicate that White persons comprised 58.7 percent. Persons of Hispanic or Latino origin 25.8 percent, Black persons 25.5 percent, followed by American Indian and Alaska Native persons 0.4 percent, Asian persons 3.2 percent, and Native Hawaiian and other Pacific Islanders at 0.1 percent. Persons living below the poverty line comprised 22.3 percent of the population (U.S. Census Bureau 2011). In 2005-2009, the median income of households in Galveston city was \$35,637 with 22 percent of people in poverty (American Community Survey 2005-2009).

4.6.1.1 Proposed Action

Building demolition and site preparation is estimated to require approximately 6 months and CSW construction would require approximately 39 months. Preliminary project costs for demolition and new construction are estimated at \$102 million. Operational occupancy of the CSW is anticipated for 2015.

The economic benefits of demolition and construction impacts would be temporary and diminish as the project reaches completion at the end of the third year. The project is estimated to employ more than 400 direct workers during the construction period and generate additional employment in associated sectors. Total annual employment (direct, indirect, and induced) created during the construction phase would benefit the retail trade and professional services, with living accommodations and food services sectors generating most of the indirect jobs. The increase in employment would be modest relative to the size of the county's economy and workforce. The regional labor force would likely be able to fill all construction employment requirements generated by the project.

Operation of the proposed CSW would commence in the year 2015 and would continue for at least 30 years. The proposed CSW workforce would consist of a mix of administrative, UTMB facilities maintenance staff, and scientific technicians and research staff, including students. Most of these positions already exist and would be staffed by personnel who would be relocated from other facilities within the UTMB health complex. Therefore, there would be little change to the existing socioeconomic conditions. However, should future storm events similar to Hurricane Ike occur, the CSW would not suffer damage that could result in the long-term shut down or compromise of support functions, thereby avoiding major and adverse economic consequences.

4.6.1.2 No Action Alternative

Health care at UTMB could be substantially compromised should a similar flooding event to Hurricane Ike occur.

4.6.2 Environmental Justice

Under Executive Order 12898 *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, the Federal agency, in this case FEMA, is responsible for identifying and addressing potential disproportionately high and adverse human health and environmental impacts on minority and low income populations and to identify alternatives that could mitigate these impacts. Minority persons are those who identify themselves as Hispanic or Latino, Asian, Black or African American, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, or multi-racial (with at least one race designated as a minority race under CEQ Guidelines). Persons whose income is below the federal poverty threshold are designated as low income.

4.6.2.1 Proposed Action

There are no adverse impacts identified from building demolition or CSW construction and operation. Therefore, there would be no disproportionately high and adverse human health effects on minority and low income populations.

4.6.2.2 No Action Alternative

There would be no disproportionate high and adverse human health effects on minority and low income populations under current conditions. However, should the current support service areas again undergo severe flooding, these populations may be disproportionately and adversely affected. Disproportionate and adverse effects could result from lack of access to health care facilities and services because of the difficulty in arranging for or general lack of transportation, associated travel costs, and availability and potential cost of medical services outside the Galveston region.

4.6.3 Land Tenure and Use

The construction and operation of the proposed CSW were compared against the existing land use categories in the area that surrounds the proposed site. Effects were identified based on determinations of compatibility among land use reasonably anticipated to occur as a result of the Proposed Action and existing adjacent land uses.

4.6.3.1 Proposed Action

The proposed CSW would be located on the UTMB campus, a major health science center in the southwestern United States with more than 70 major buildings, over 2,500 students, medical interns, residents, and fellows, and 1,000 full-time faculty members. The UTMB campus and the area immediately surrounding the campus have a mix of urbanized residential, commercial, and industrial land uses (e.g., Port of Galveston). The proposed location of the CSW is compatible with UTMB's Master Plan concept of locating Academic, Research, Clinics/Hospital, and Support Spaces into appropriate zones.

The proposed CSW site is located on land wholly owned by the University of Texas System. Currently, University and Sealy & Smith Foundation real estate exchanges are in process. The real estate exchanges would result in the University's obtainment of sufficient land adjacent to the site that would ensure unimpeded CSW access.

During construction there would be no change in land use designation as effects would be temporary. The operation of the proposed CSW would be consistent with the current land use patterns on and within the immediate vicinity of the UTMB campus. There would be no alteration of current land use patterns or planning resulting from the proposed CSW because it would be replacing existing buildings. Therefore, there would be no change in land use designation.

There would be no long-term effects from the construction and operation of the proposed CSW because there would be no change in the land use under the UTMB Master Plan. In addition, since the proposed CSW facility would be constructed on an already built site, the amount of open space on the UTMB campus would not decrease.

4.6.3.2 *No Action Alternative*

Under the No Action Alternative, the CSW would not be funded or constructed. Therefore, there would be no effect to land use.

4.6.4 *Waste Management*

Current activities at the UTMB campus generate construction debris, sanitary solid, medical, hazardous, and radiological wastes. Construction debris includes asphalt, concrete, scrap metal, and paper. Sanitary solid waste consists of general trash collected from offices, restrooms, patient waiting rooms, classrooms, and cafeterias. Medical waste is termed “special waste from health care related facilities” by Texas waste regulations. This waste includes: (1) microbiological waste; cultures of specimens from medical, pathology, research, and clinical laboratories; discarded live and attenuated vaccines; and disposable culture dishes and devices used to transfer, inoculate, and mix cultures; (2) bulk human blood and blood products; (3) pathological waste; (4) sharps; and (5) animal waste from animals intentionally exposed to pathogens. UTMB’s many clinics, laboratories, and research facilities use a variety of hazardous materials. The handling and storage of hazardous materials is addressed in the UTMB Safety Manual. The manual notes that almost all laboratory chemicals are considered hazardous waste when discarded and provides instructions for hazardous waste management. The hazardous wastes generated by UTMB facilities are regulated in Texas by a combination of federal laws and state laws. UTMB manages its radiological waste in accordance with the Texas Radioactive Substances Rules (30 TAC 336).

4.6.4.1 *Proposed Action*

There are no known environmental issues that would limit use of the site. Construction activity would generate construction, solid, and/or hazardous waste. Waste material would be salvaged when economically feasible to decrease the amount of material to be disposed. Asbestos containing materials were found to be present in the buildings proposed for demolition. Prior to demolition, any necessary abatement measures would be implemented and the asbestos containing materials would be disposed of in a legally compliant manner per the Texas Commission on Environmental Quality and Texas Department of State Health Services rules and guidelines. Additional details regarding asbestos and how it will be managed can be found in Section 4.6.7 for Health and Safety. Similarly, if any contaminated waste is identified during demolition, it would be disposed of according to UTMB’s Environmental and Health and Safety Services guidelines. Hazardous waste generated during construction would be the general contractor’s responsibility to dispose of in accordance with all applicable regulations.

Waste streams generated by CSW operations would be well understood and managed and disposed of in the same manner as such waste at other UTMB clinical facilities. Additionally, since CSW operations would only change the waste generation location(s) and not increase operational waste, there would be little, if any, effect to the future UTMB waste stream from CSW operations.

4.6.4.2 *No Action Alternative*

Under the No Action Alternative the types and amounts of waste currently generated on the UTMB campus would not change. Similarly, the management of those wastes would not change.

4.6.5 *Noise*

Current ambient noise conditions are primarily the result of roadway commuter and worker traffic and building functions (e.g., heating, ventilation, and air conditioning systems). There are no residences, schools, or noise-sensitive land uses within close proximity to the proposed construction area.

4.6.5.1 *Proposed Action*

During construction, expected noise levels would be typical of an active building site and occur primarily during daylight hours during the demolition and construction period. Demolition and construction noise may be evident for persons in transit to other UTMB buildings in the immediate area. However, once inside a building the demolition and construction noise would not be intrusive.

CSW building operations would generate noise primarily from the heating, ventilation, and air conditioning system. The CSW would contribute negligibly to ambient noise levels and would have little to no effect on the public.

4.6.5.2 *No Action Alternative*

The No Action alternative would not change the ambient noise level in the area.

4.6.6 *Traffic*

Site vehicle traffic in the vicinity of the proposed construction site primarily utilizes Harborside Drive – a State Highway, 6th Street, and Texas Avenue (see Figure 1-3).

4.6.6.1 *Proposed Action*

During site construction, Harborside Drive would be unobstructed, as would 6th Street. When necessary and for short duration, a flagman would control traffic to allow construction vehicles access and delivery of building materials to the construction site. The north half of the existing Texas Avenue loop would be converted to a construction vehicle only section and would allow construction traffic to enter and exit via this portion of Texas Avenue. Additionally, the south half of the Texas Avenue loop would be converted from a two-lane one-way loop to two-way traffic for unimpeded access to the Waverley Smith Pavilion drop-off and entry way. Texas Avenue would remain open to general traffic and UTMB campus services. Hospital access will be maintained during the construction period as shown in Figures 4.6-1, 4.6-2, and 4.6-3. The construction site will have fenced and controlled vehicle access.

4.6.6.2 No Action Alternative

There would be no changes to traffic flow patterns.

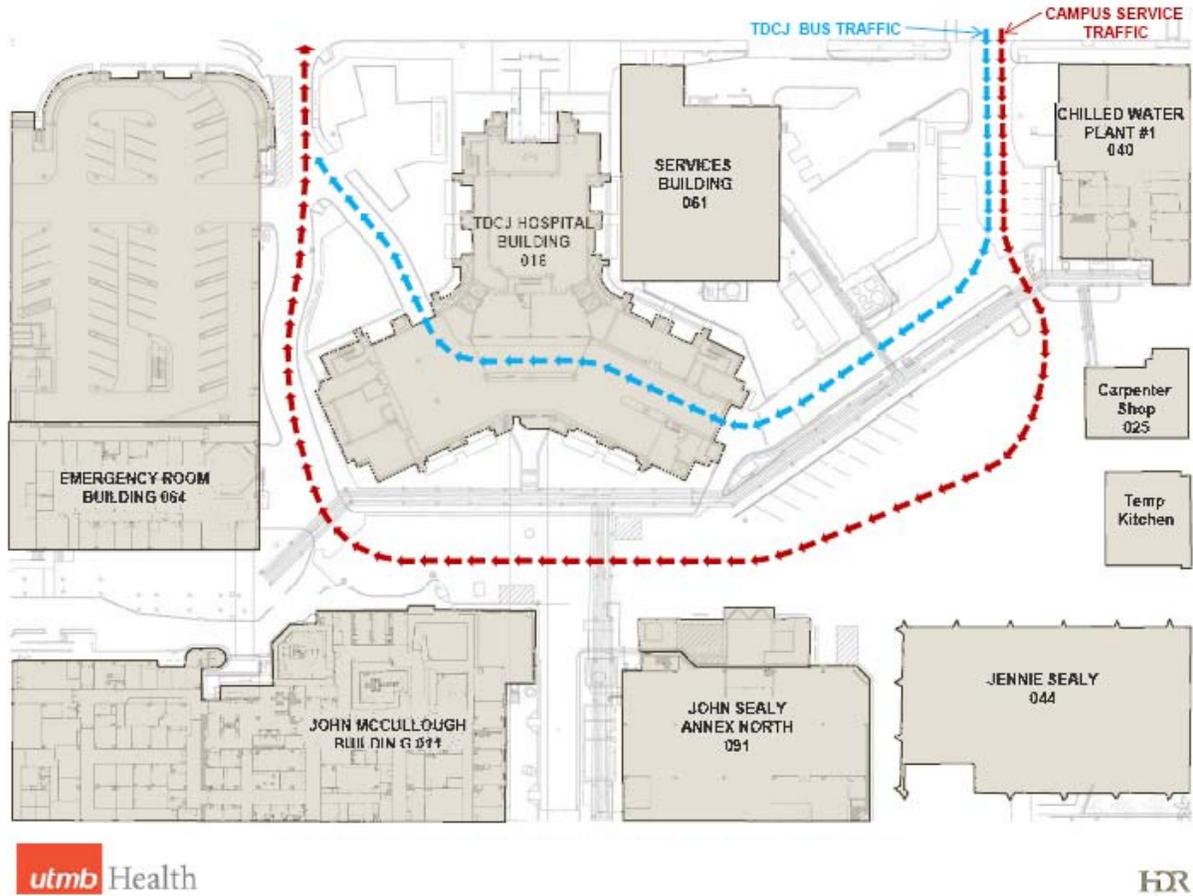


Figure 4-1: Existing Service Yard Plan – Traffic Flows

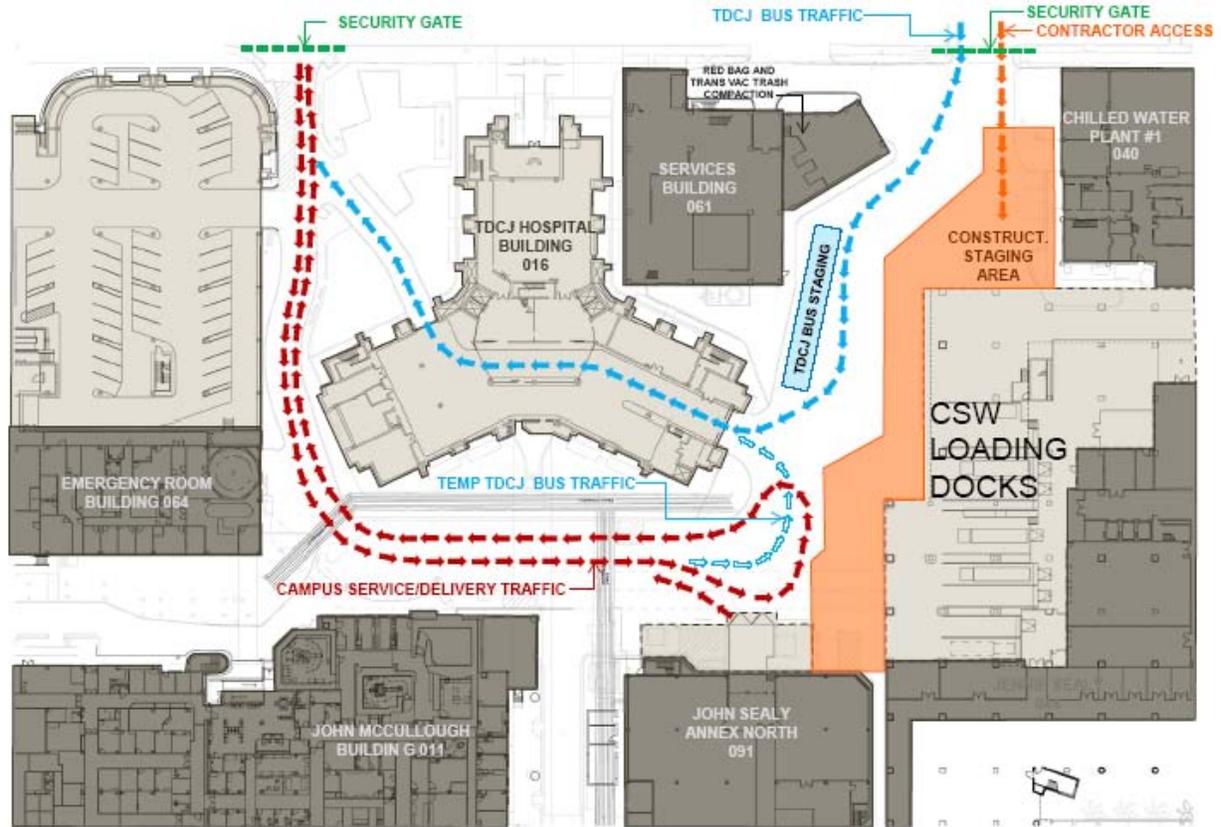


Figure 4-2: Interim Construction Service Yard Plan – Traffic Flows

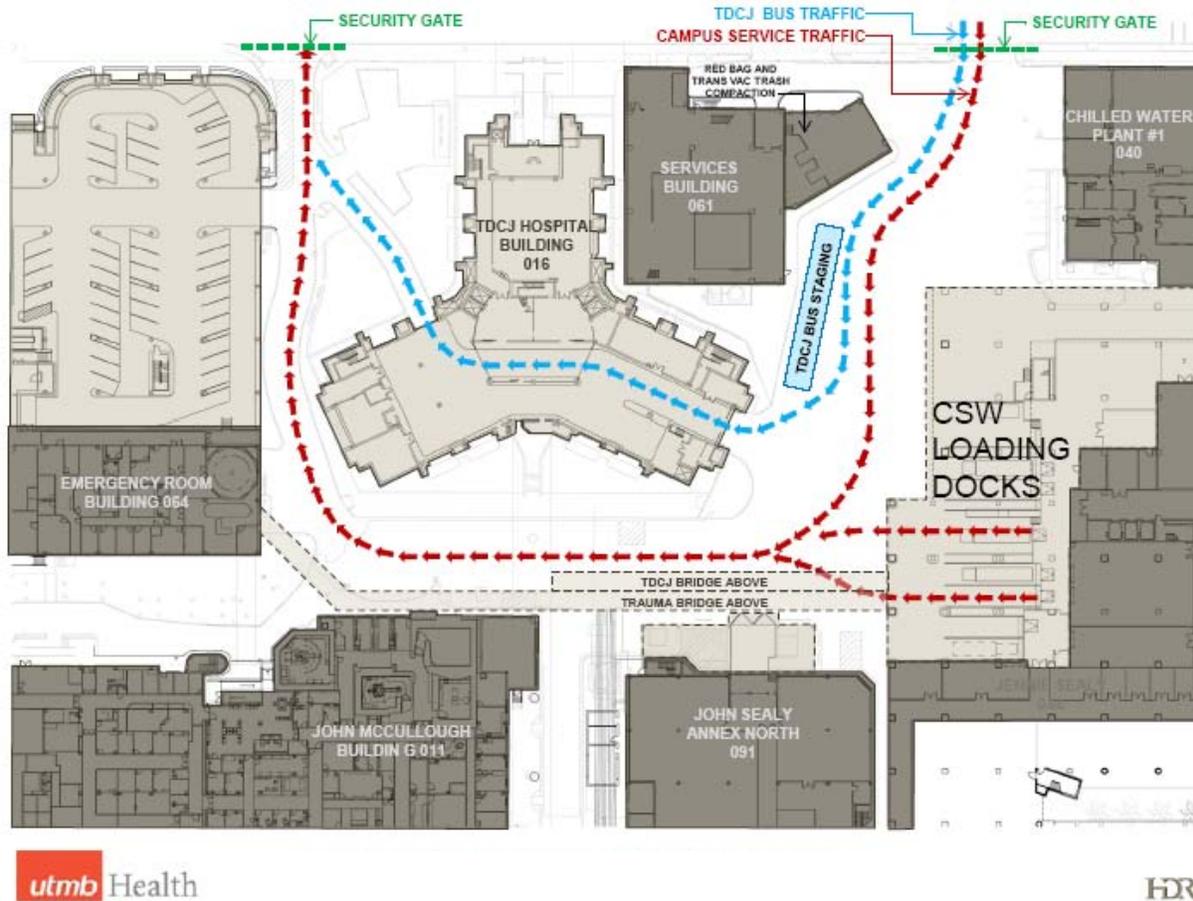


Figure 4-3: Final Service Yard Plan – Traffic Flows

4.6.7 Health and Safety

The State of Texas Uniform General Conditions (UGC) and University of Texas System Supplementary General Conditions (SGC) make safety during construction the responsibility of the contractor. Also, the prevailing state and federal law for health and safety, such as Occupational Safety and Health Administration regulations, apply to the contractor.

4.6.7.1 Proposed Action

The Project Architect would, in addition to the UGC and SGC, include requirements of the UTMB Environmental Health and Safety Department in the construction contract. The University of Texas System, Office of Facilities Planning and Construction would assign a Resident Construction Manager whose job function would include overseeing the safe conduct of construction operations.

Potential human health effects during site demolition, preparation and construction of the proposed CSW would be similar to that of any major construction project. However, asbestos is present in the buildings scheduled for demolition. Asbestos is a group of naturally occurring silicate minerals. Mined and milled from native rock, asbestos is fibrous, thin, and strong.

Characteristics, like heat resistance, chemical inertness, and insulating capacity, coupled with the flexibility to be woven, make asbestos suitable for use in many industrial applications. Breathing asbestos-containing air into the lungs is the exposure route of greatest concern. Exposure to asbestos may result in the slow build-up of scar-like tissue in the lungs called asbestosis. This scarred tissue state impairs the ability of the lungs and heart to adequately provide oxygen to the body. This is a serious disease, and can eventually lead to disability or death in people exposed to high amounts of asbestos. Lung cancer starts within the respiratory tissues, and mesothelial cancer grows from the thin membranes that surround the lung or the abdominal cavities. Both lung cancer and mesothelioma are usually fatal. These asbestos-related diseases do not appear immediately, but may develop 20 to 50 years after exposure (DSHS 2011).

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) require that prior to renovation or demolition a survey be conducted to determine the presence of asbestos. The Asbestos Program of the Texas Department of State Health Service (DSHS) regulates the removal of asbestos from public buildings within the state. The two main sets of rules and regulations enforced by DSHS are the Texas Asbestos Health Protection Rules (TAHPR) and the Federal NESHAP. TAHPR applies to all buildings that are subject to public occupancy, or to which the general public has access, and to all persons disturbing, removing, encapsulating, or enclosing asbestos within public buildings for any purpose. NESHAP applies to the abatement of any friable [readily crumbled; brittle] asbestos-containing building material or to the demolition of a facility (DSHS 2011). Both of these regulations require that written notification be submitted before beginning renovation or demolition projects. The DSHS Demolition/Renovation form combines the requirements of the NESHAP and the TAHPR. The DSHS has been (asbestos survey has been completed) and would be notified (asbestos abatement) of this work. Asbestos abatement would be performed by a licensed asbestos abatement contractor who would determine the appropriate removal and containment process. Typically, the part of the building from which asbestos is being removed is sealed off to prevent contamination of the other areas. Sealing methods could include the use of polyethylene film, duct tape, and negative air pressure machines which are fitted with high efficiency particulate air filters to draw in fresh air and prevent the release of asbestos fibers to the surrounding environment. Asbestos abatement measures would prevent exposure of the worker and the public to asbestos.

Routine construction activities have the potential to expose workers or site visitors to common hazards such as slips-trips-falls, electrical shock, heat stress, or fire and explosion hazards. Workers could be potentially exposed to high noise levels from heavy equipment operation and activities such as cutting metal or grinding operations. Many construction accidents can and are avoided with proper training and adequate safety equipment. To ensure a safe working environment during construction, construction contractors would be required to comply with the Federal and state health and safety regulations and UTMB construction safety contract standards. All site contractors would be required to submit and adhere to a Construction Safety and Health Plan (Plan). This Plan would be reviewed and approved by the Resident Construction Manager prior to the start of construction activities. During construction, the UTMB Resident Construction Manager would routinely verify that construction contractors are adhering to the Plan and Federal and State health and safety standards. Compliance with the Plan and health and

safety standards would minimize the potential adverse effects to worker health and safety during construction.

The proposed CSW operations would be tasks transferred from within the existing medical complex. CSW start-up activities and permanent duties would benefit from existing and validated standard operation procedures and personnel already familiar with and having the operational experience with work that would be conducted within the CSW. Thus, the operational requirements and hazards are well understood.

The general public would be one of the beneficiaries, as the proposed CSW would provide state-of-the-art building systems for efficient and effective patient care support services. Additionally, the CSW would be protected and elevated from future flooding events which would help prevent a medical care disruption to the public should a similar flooding event compared to Hurricane Ike occur.

During extreme and forecasted storm events (hurricanes) CSW personnel would be evacuated from Galveston Island to locations of safe refuge.

There would be no adverse effects expected from CSW operations.

4.6.7.2 *No Action Alternative*

Health care at UTMB could be substantially compromised should a similar flooding event to Hurricane Ike occur.

4.7 Summary Table

The following table summarizes the potential impacts of the Proposed Action Alternatives and mitigation measures or best management practices (BMPs) to reduce or avoid those impacts.

Table 4-1: Summary Table of Potential Impacts, Coordination/Permit, and Mitigation/BMP

Affected Environment/ Resource Area	Potential Impacts	Agency Coordination/Permits	Mitigation/BMPs
Geology, soils, and Seismicity	Potential for soil erosion and runoff during construction.	UTMB would obtain from the Texas Commission on Environmental Quality a General Permit to Discharge Wastes under the provisions of Section 402 of the <i>Clean Water Act</i> and Chapter 26 of the Texas Water Code. This would require the preparation of a Storm Water Pollution Prevention Plan to address discharges that would reach Waters of the United States to identify and address potential sources of pollution that are reasonably expected to affect the quality of discharges from the construction site, including off-site material storage areas, overburden and stockpiles of dirt, borrow areas, equipment staging areas, vehicle repair areas, fueling areas, etc., used solely by the permitted project.	A Stormwater Pollution Prevention Plan would be implemented to minimize soil erosion during construction.
Air Quality and Wind Load	Asbestos containing materials are present in the buildings scheduled for demolition. During site preparation and construction, the use of heavy equipment, delivery trucks, and worker vehicles would temporarily increase particulate, NO _x and VOC emissions and would generate fugitive dust in the proposed project area from combustion of gasoline and diesel fuel and disturbance of soils.	Notification to the Texas Department of State Health Services.	Prior to and during demolition activities, abatement measures would be implemented by a licensed asbestos abatement contractor to avoid the generation of airborne asbestos particles. Best Management Practices and site watering practices would limit dust emissions.
Climate Change	Insignificant potential impacts to climate change.	None	None

Chapter 4: Affected Environment and Potential Impacts

Affected Environment/ Resource Area	Potential Impacts	Agency Coordination/Permits	Mitigation/BMPs
Water Quality	Potential minor impacts to water during construction.	UTMB would obtain from the Texas Commission on Environmental Quality a General Permit to Discharge Wastes under the provisions of Section 402 of the Clean Water Act and Chapter 26 of the Texas Water Code. This would require the preparation of a Storm Water Pollution Prevention Plan to address discharges that would reach Waters of the United States to identify and address potential sources of pollution that are reasonably expected to affect the quality of discharges from the construction site, including off-site material storage areas, overburden and stockpiles of dirt, borrow areas, equipment staging areas, vehicle repair areas, fueling areas, etc., used solely by the permitted project.	A Stormwater Pollution Prevention Plan would be implemented to minimize soil erosion during construction.
Wetlands	Insignificant potential impacts to wetlands offsite.	UTMB would obtain from the Texas Commission on Environmental Quality a General Permit to Discharge Wastes under the provisions of Section 402 of the Clean Water Act and Chapter 26 of the Texas Water Code. This would require the preparation of a Storm Water Pollution Prevention Plan to address discharges that would reach Waters of the United States to identify and address potential sources of pollution that are reasonably expected to affect the quality of discharges from the construction site, including off-site material storage areas, overburden and stockpiles of dirt, borrow areas, equipment staging areas, vehicle repair areas, fueling areas, etc., used solely by the permitted project.	A Stormwater Pollution Prevention Plan would be implemented to minimize soil erosion during construction.

Draft Environmental Assessment for the Proposed Construction and Operation of the Clinical Services Wing and Associated Site Demolition Activities

Affected Environment/ Resource Area	Potential Impacts	Agency Coordination/Permits	Mitigation/BMPs
Floodplains	The CSW is located in the 500-year flood plain.	The City of Galveston, Department of Planning and Community Development, Floodplain Administrator.	<p>The proposed design specifies housing critical building systems, equipment, and functions, above 25 feet msl, which would exceed the 500-year flood level by 11 feet.</p> <p>The City of Galveston, Department of Planning and Community Development Floodplain Administrator has indicated that the Proposed Action to be in compliance with the City of Galveston Flood Damage Prevention Ordinance and has approved the project in the floodplain</p>
Coastal Resources	The UTMB campus is located in the designated Texas Coastal Management Zone.	Based on consultation with the GLO and review of the CCC, General Concurrence #5, FEMA has determined that this project is deemed consistent with the goals and policies of the Texas Coastal Management Program and consistency review procedures as implemented by the GLO (Appendix C).	None
Threatened and Endangered Species and Critical Habitat	None	Based on the SOW, FEMA has made a determination of “No Effect” to listed species and/or designated critical habitat present so no further consultation is required.	None
Wildlife and Fish	Insignificant potential impacts wildlife and fish.	None	None

Chapter 4: Affected Environment and Potential Impacts

Affected Environment/ Resource Area	Potential Impacts	Agency Coordination/Permits	Mitigation/BMPs
Cultural Resources	Two of the facilities, the Surgical Research building and Old Shriners Burn Institute, proposed for demolition have been determined eligible for listing on the National Register of Historic Places.	The State Historic Preservation Officer (SHPO) and Texas Historic Commission approval is required prior to building demolitions.	<p>Compliance with the NHPA has already commenced with a contract to prepare a Historical American Building Survey Report for the Surgical Research building and Old Shriners Burn Institute. Building demolitions would not occur without the required approvals.</p> <p>In the event that archeological deposits, including any Native American pottery, stone tools, bones, or human remains, are uncovered, the project shall be halted and the applicant shall stop all work immediately in the vicinity of the discovery and take reasonable measures to avoid or minimize harm to the finds. All archeological findings will be secured and access to the sensitive area restricted. The applicant will inform FEMA immediately and FEMA will consult with the SHPO or THPO and Tribes and work in sensitive areas cannot resume until consultation is completed and appropriate measures have been taken to ensure that the project is in compliance with the National Historic Preservation Act.</p>
Socioeconomics	Temporary beneficial impacts to regional workforce during construction. Long-term beneficial impacts to regional healthcare.	None	None
Environmental Justice	All populations would benefit from the Proposed Action.	None	None
Land Tenure and Use	None. Proposed Action is consistent with current land use patterns and municipal zoning ordinances.	None	None

Draft Environmental Assessment for the Proposed Construction and Operation of the Clinical Services Wing and Associated Site Demolition Activities

Affected Environment/ Resource Area	Potential Impacts	Agency Coordination/Permits	Mitigation/BMPs
Waste Management	Asbestos-containing materials are present in the building scheduled for demolition.	Notification to the Texas Department of State Health Services.	Asbestos abatement measures would be implemented prior to demolition. After recovery of the asbestos-containing material the waste would be disposed in a legally compliant manner.
Noise	Temporary increase of noise during construction	None	None
Traffic	Temporary traffic re-routing and control during construction	None	Traffic management with flagman, fencing, and controlled vehicle access.
Health and Safety	Routine construction activities have the potential to expose workers or site visitors to common hazards such as slips-trips-falls, electrical shock, heat stress, or fire and explosion hazards and potential asbestos exposure.	Notification to the Texas Department of State Health Services.	Construction contractors would be required to comply with the Federal and state health and safety regulations and UTMB construction safety contract standards. All site contractors would be required to submit and adhere to a Construction Safety and Health Plan. Construction contractors will be required to follow both the TAHPR and the Federal NESHAP rules for handling asbestos.

5.0 CUMULATIVE IMPACTS

Section 1508.7 of the CEQ regulations implementing the procedural provisions of NEPA defines cumulative effects as “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 what agency (federal or non-federal) or person undertakes such actions.” The regulations further explain that “cumulative effects can result from individually minor, but collectively significant actions taking place over a period of time.”

The impact of Hurricane Ike was campus-wide and all of the buildings on the campus received either wind or flood damage. There are numerous other projects to replace buildings or repair facilities to pre-disaster condition with upgrades to codes and standards.

5.1 Proposed Action

The cumulative impact to the natural resources on the campus is negligible as new construction and renovation would and is occurring within an already built environment. In general, new construction replaces old and/or damaged facilities and does not entail hiring large numbers of staff. Renovation efforts result in facilities that are more efficient and up to code. Thus, this is a benefit to the human environment. In the future, new buildings, such as the CSW, would be able to withstand an event similar to Hurricane Ike without substantial damage, thereby avoiding prolonged impacts to health care services.

5.2 No Action Alternative

The hurricane damaged buildings would continue to compromise efficient health care services. In the future, storm events would jeopardize UTMB health care services as buildings would be susceptible to major flooding from storm events.

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6.0 AGENCY COORDINATION AND PERMITS

As part of the development of early interagency coordination related to the Hurricane Ike response and recovery efforts at UTMB, state and federal resource protection agencies were contacted. These agencies included the U.S. Army Corps of Engineers, Texas Commission on Environmental Quality, TPWD, and Texas Historical Commission. Agency correspondence is presented in Appendix C.

Under Executive Order 12372 *Intergovernmental Review of Federal Programs* Federal agencies are required to provide opportunities for consultation by state and local governments that would provide non-Federal funds for, or that would be directly affected by, proposed Federal financial assistance or direct Federal development. At the state level this task is accomplished by identifying those state agencies that should be involved in the planning and development of activities in compliance with Executive Order 12372, and providing those agencies with the opportunity to evaluate proposals in a timely, effective fashion. Texas has chosen to participate in the intergovernmental review process and a copy of this DEA has been provided to the Director, State Grants Team, Governor's Office of Budget and Planning located in Austin, Texas (OMB 2011).

In addition to the coordination and permits specified below it is anticipated that only utility permits or similar permits or approvals would be needed from any other regulatory agencies.

FEMA has provided copies of this DEA to Federal, state, and local elected and appointed government officials and agencies. The proposed project would be reviewed by other governmental agencies during certain permit and approval review processes.

Based upon the studies and consultations undertaken in this DEA, several conditions and mitigation measures must be taken by the UTMB prior to and during project implementation.

- UTMB would obtain from the Texas Commission on Environmental Quality a General Permit to Discharge Wastes under the provisions of Section 402 of the *Clean Water Act* and Chapter 26 of the Texas Water Code. This would require the preparation of a Storm Water Pollution Prevention Plan to address discharges that would reach Waters of the United States. The Storm Water Pollution Prevention Plan would identify and address potential sources of pollution that are reasonably expected to affect the quality of discharges from the construction site, including off-site material storage areas, overburden and stockpiles of dirt, borrow areas, equipment staging areas, vehicle repair areas, fueling areas, etc., used solely by the permitted project. The Storm Water Pollution Prevention Plan would describe the implementation of practices that would be used to minimize to the extent practicable the discharge of pollutants in storm water associated with construction activity and non-storm water discharges (TCEQ 2008).
- The UTMB campus is located in the designated Texas Coastal Management Zone. Based on consultation with the GLO and review of the CCC, General Concurrence #5, FEMA has determined that this project is deemed consistent with the goals and policies of the Texas Coastal Management Program and consistency review procedures as implemented by the GLO (Appendix C).

- The floodplain administrator for the City of Galveston, Department of Planning and Community Development has indicated in a letter dated June 29, 2011 that the Proposed Action to be in compliance with the City of Galveston Flood Damage Prevention Ordinance and has approved the project in the floodplain (Appendix C).
- In a letter dated June 30, 2011, the U.S. Army Corps of Engineers has indicated that the designated site is not subject to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act and/or any work or the discharge of fill material onto the tracts does not require a Department of the Army permit (Appendix C).
- Two of the facilities, the Surgical Research building and Old Shriners Burn Institute, proposed for demolition have been determined eligible for listing on the NRHP. Compliance with the NHPA requires that a MOA be prepared and building recordation completed. These tasks would be performed prior to demolition activities on the two eligible building and demolition would not proceed prior to FEMA and SHPO approval.

7.0 PUBLIC INVOLVEMENT

The public was invited to comment on the proposed action for a period of thirty days that commenced on the date the legal notice was published in the local newspaper, *The Galveston County Daily News* and provided on the FEMA and UTMB websites at <http://www.fema.gov/plan/ehp/envdocuments/ea-region6.shtm> and <http://www.utmb.edu/>, respectively. The notice provided information as to how any interested individual or group could provide comments on the DEA or request additional project information. The DEA has been made available on the UTMB website, at Galveston City Hall, and the following Galveston County Public Libraries:

Dickinson Public Library
1837 Hwy 517 E
Dickinson, TX 77539

La Marque Public Library
1011 Bayou Rd
La Marque, TX 77568

Friendswood Public Library
416 S Friendswood Dr
Friendswood, TX 77546

Helen Hall Library
100 W Walker St
League City, TX 77573

Rosenberg Library
2310 Sealy Ave
Galveston, TX 77550

Mae S. Bruce Library
13302 6th St
Santa Fe, TX 77510

Genevieve Miller Hitchcock Public
Library
8005 Barry Ave
Hitchcock, TX 77563

Moore Memorial Public Library
1701 9th Ave N
Texas City, TX 77590

A copy of the Public Notice is attached in Appendix D. The Final EA will include a summation of comments received on the DEA.

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8.0 CONCLUSION

The findings of this Draft Environmental Assessment provide the analysis necessary to demonstrate that there are no significant environmental impacts to the human or natural environment from the proposed building demolitions and construction and operation of the Clinical Services Wing. Therefore, it is anticipated that the proposed action will meet the requirements for a FONSI under NEPA and the preparation of an EIS will not be required.

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9.0 REFERENCES

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10.0 LIST OF PREPARERS

JACQUELINE K. BOLTZ

Affiliation: Tetra Tech, Inc., Senior Project Manager / Public Outreach Manager

EA Role: Technical Reviewer

Education: M.B.A., General Business, 1991, Boston University

B.A., French Language and Literature, 1991, Boston University

Years of Relevant Experience: 20

Years of Experience: 20

STEPHEN DELHOMME, P.E.

Affiliation: Tetra Tech, Inc., Vice president / Engineering Director

EA Role: Project Manager

Education: M.B.A., 2003, Regis University

B.S. Civil Engineering, 1982 University of Houston

Years of Relevant Experience: 29

CHARLES PERGLER

Affiliation: Tetra Tech, Inc., Senior Program Manager / NEPA Project Manager

EA Role: Lead NEPA Analyst and Technical Author

Education: M.S., Range Management, 1983, University of California at Davis

B.S., Range and Wildlands Science with Honors, 1982, University of
California at Davis

Years of Relevant Experience: 27

JACK D. TARPLEY CFI, CHMM

Affiliation: University of Texas Medical Center at Galveston, Institutional Safety Officer
/ Program Director / Environmental Protection Management / Environmental Health &
Safety

EA Role: Lead UTMB Oversight and Technical Liaison

Education: M.S., Environmental Management, University of Houston Clear Lake

B.S., Chemistry, University of Houston Clear Lake

Years of Relevant Experience: 24

Government Contributors

Kevin Jaynes, CHMM, Regional Environmental Officer, FEMA Region 6

Leah Anderson, Deputy Environmental Officer, FEMA Region 6

Ashley Bechtold, Environmental Specialist, FEMA Region 6

Alan Hermely, Environmental Specialist, FEMA Region 6

Lauran Brewer, Environmental Specialist, FEMA Region 6

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APPENDIX A: PRELIMINARY BUILDING DESIGN

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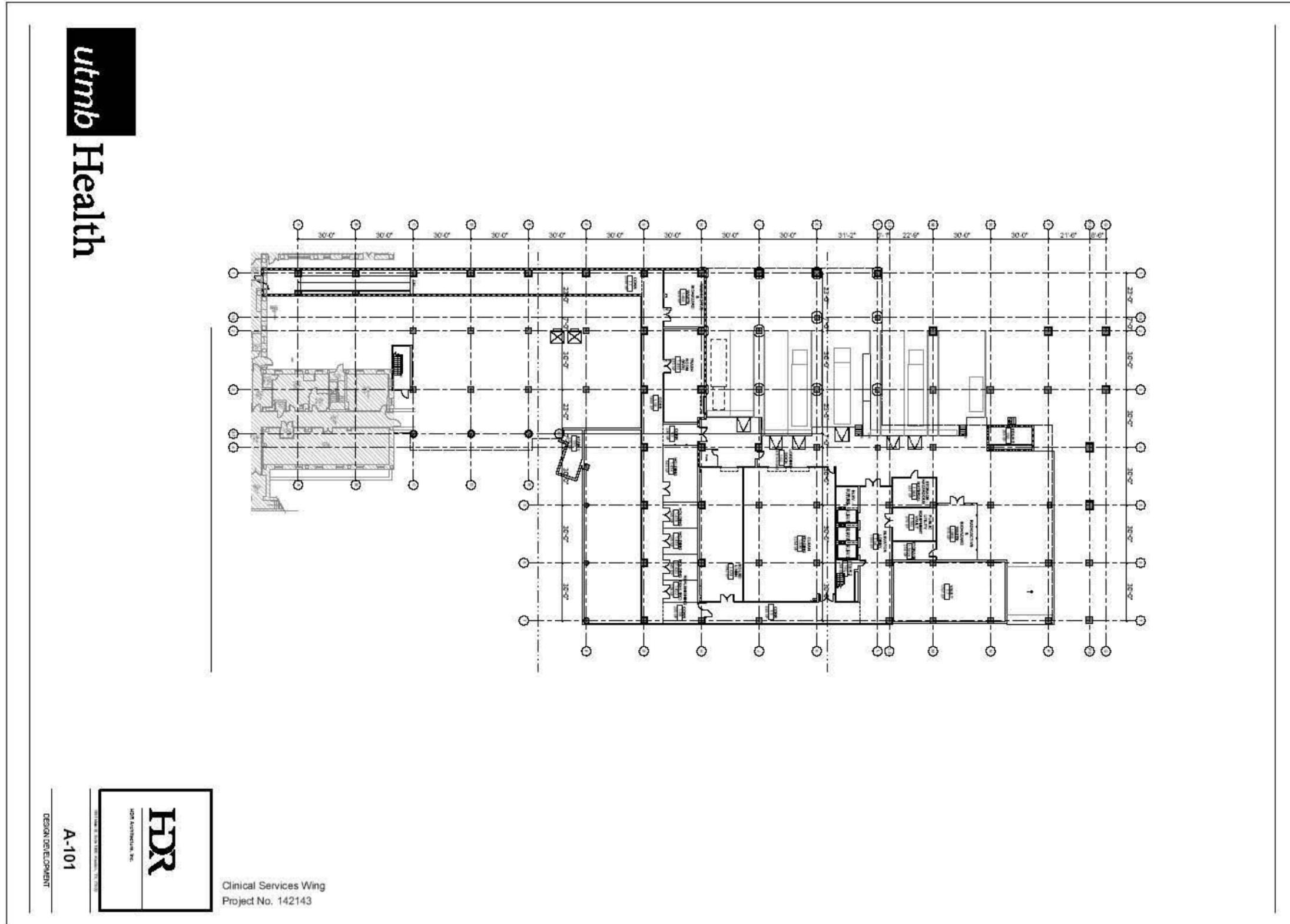


Figure A-1: Floor Plan Level 1

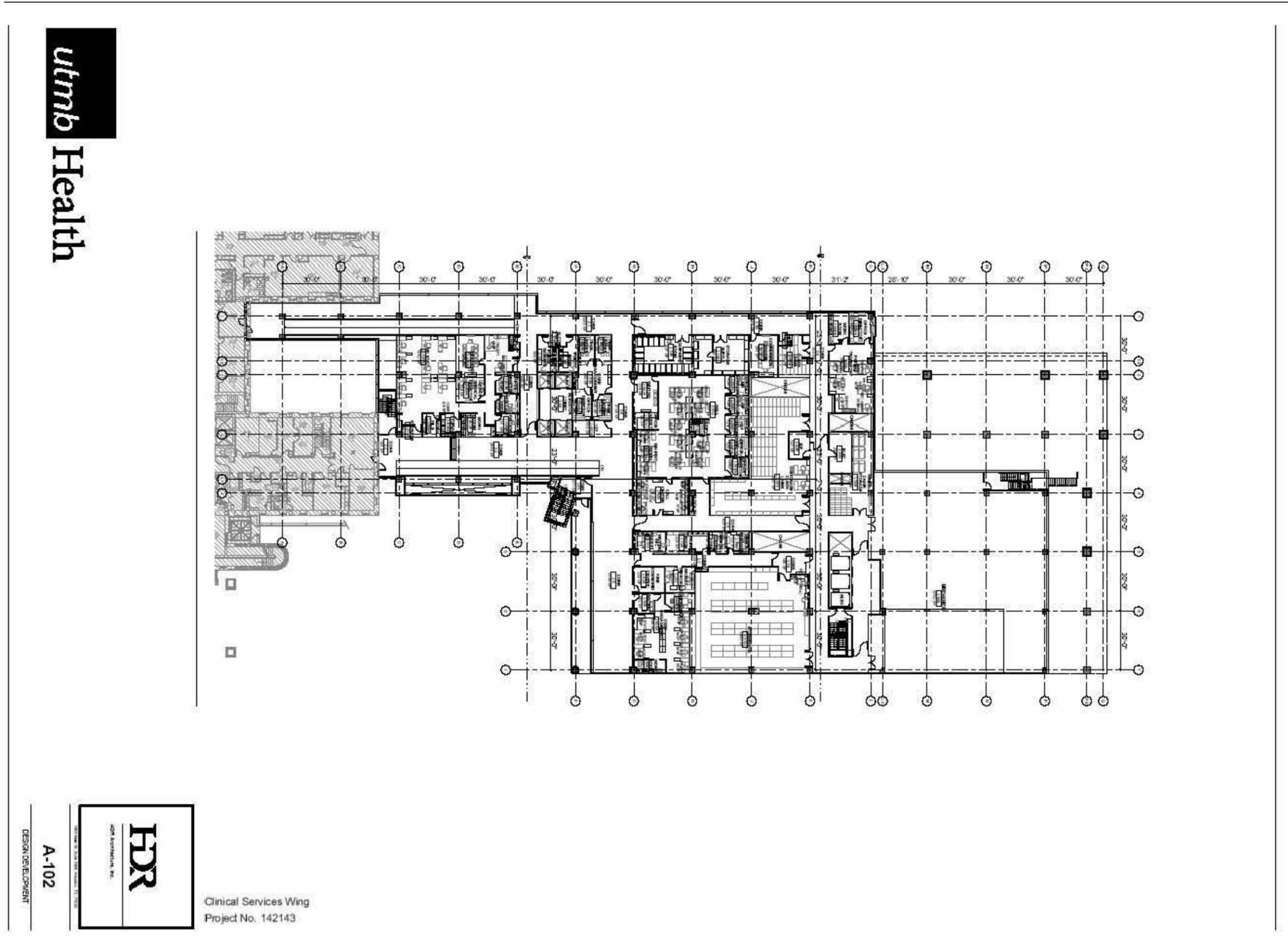


Figure A-2: Floor Plan Level 2

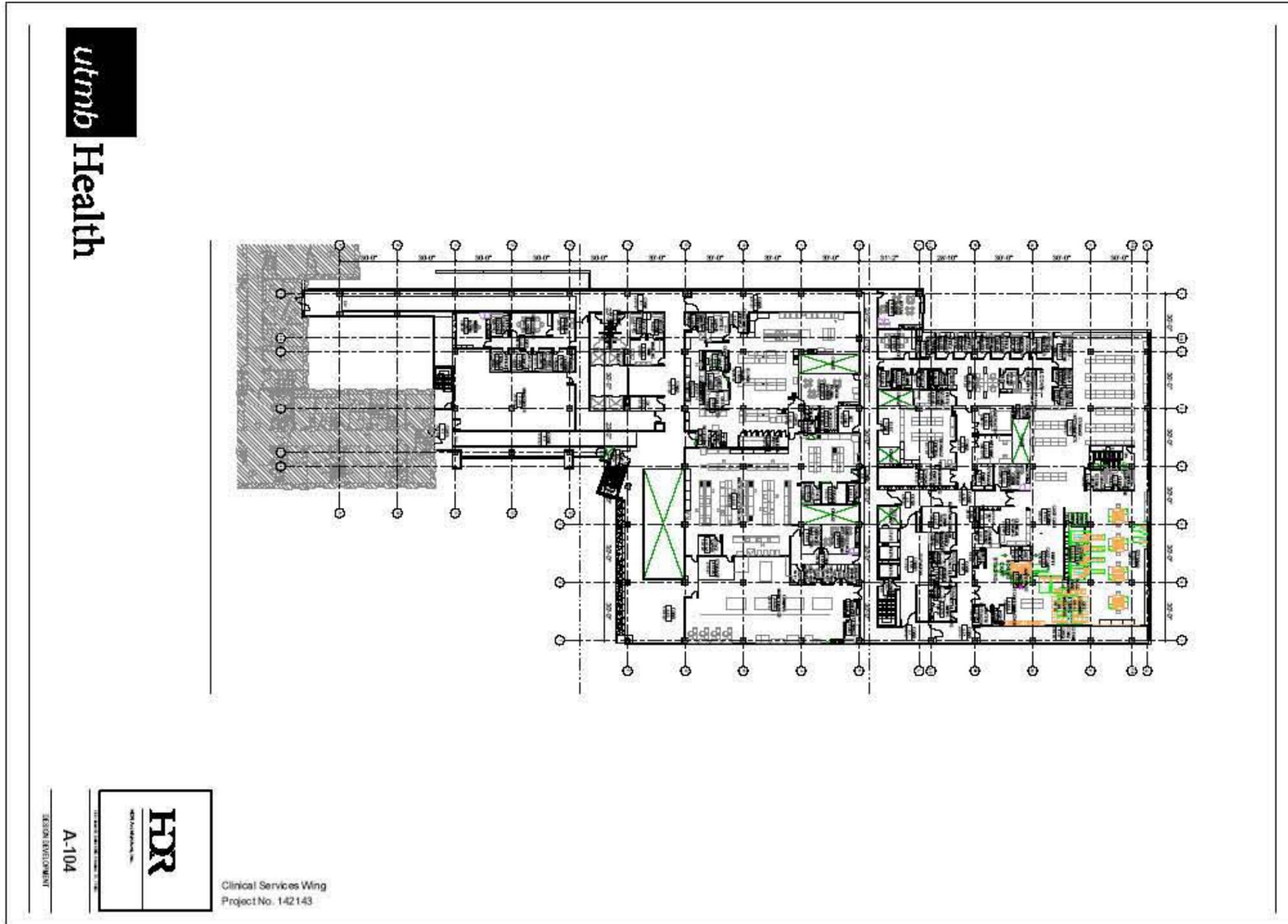


Figure A-3: Floor Plan Level 3

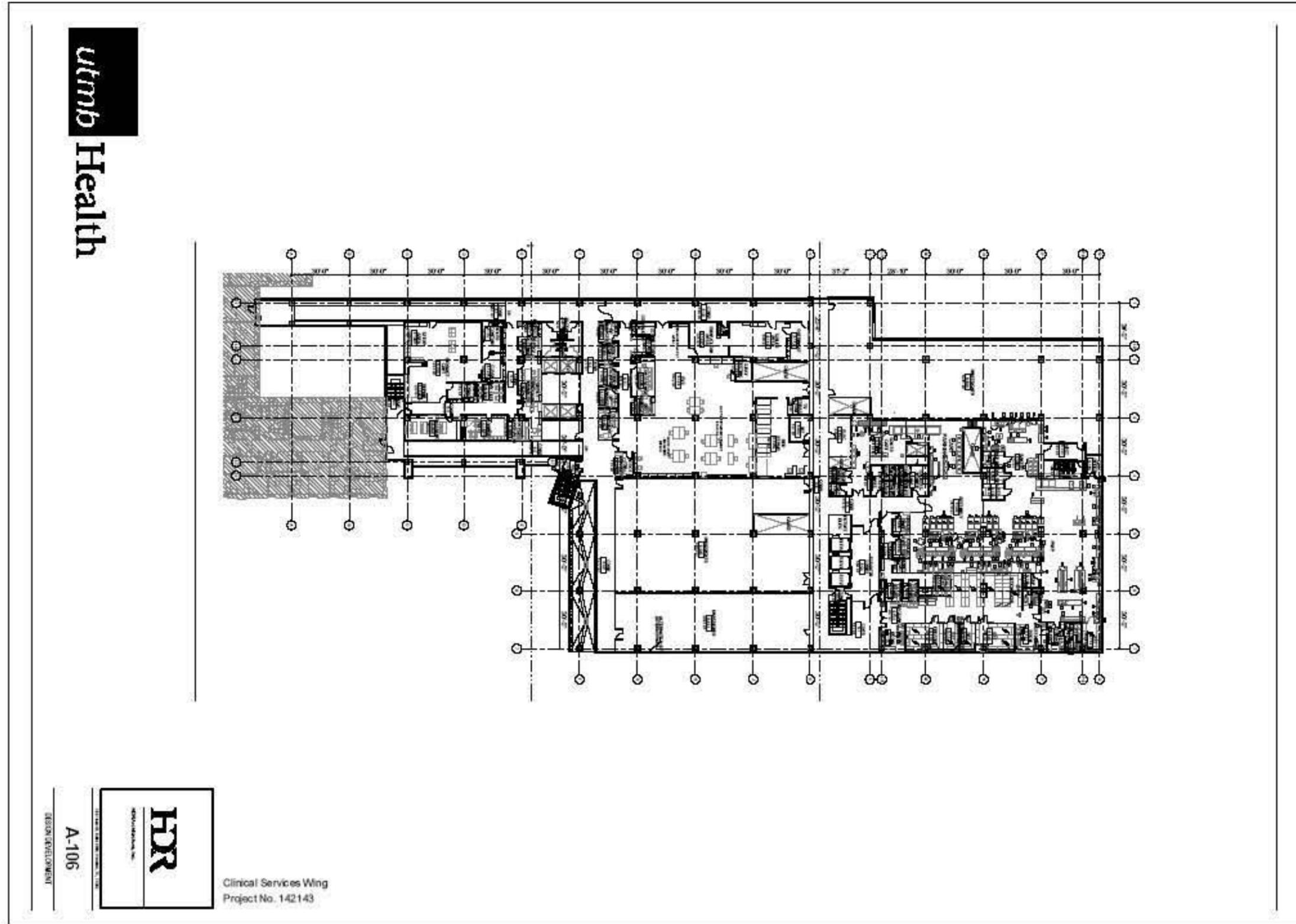


Figure A-4: Floor Plan Level 4

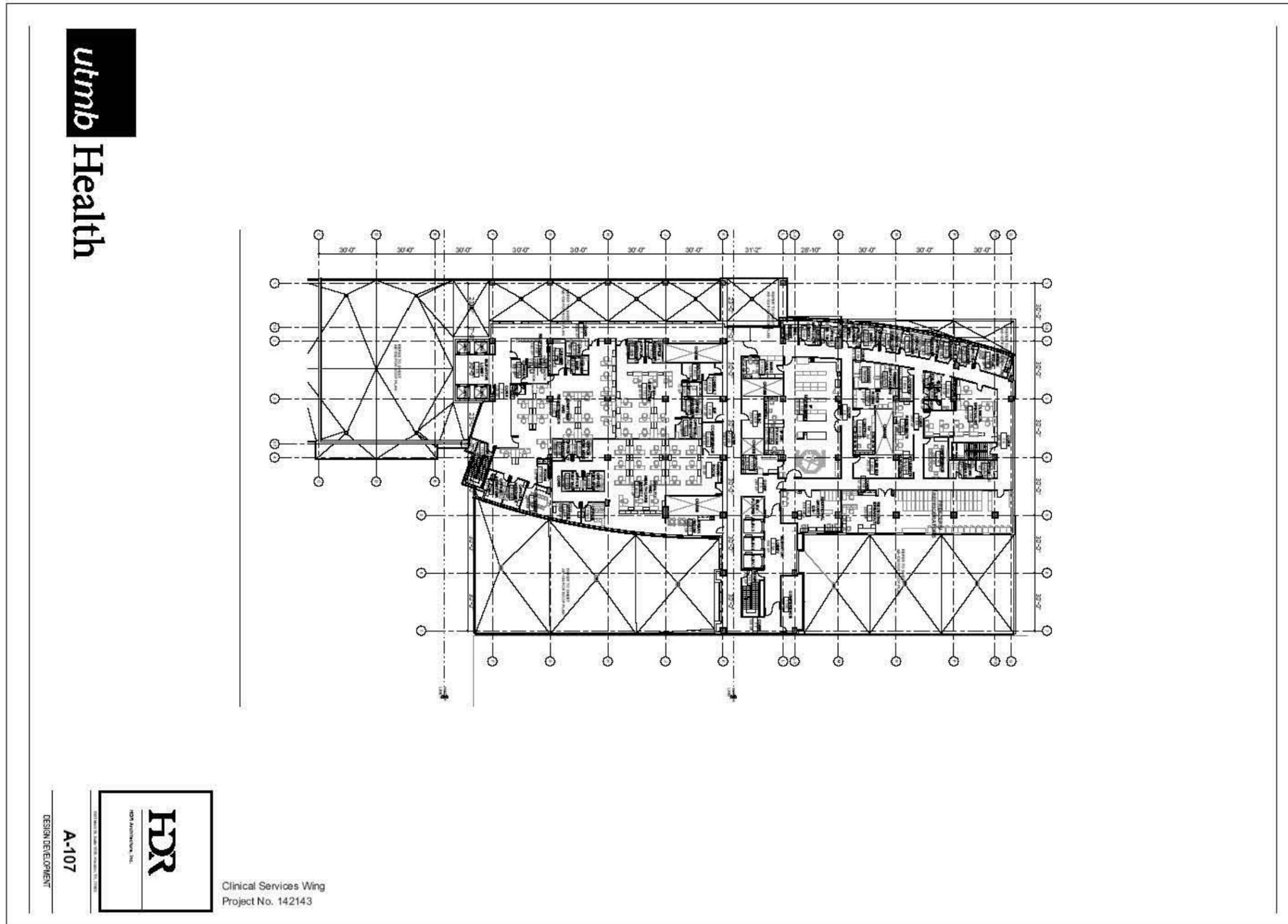


Figure A-5: Floor Plan Level 5

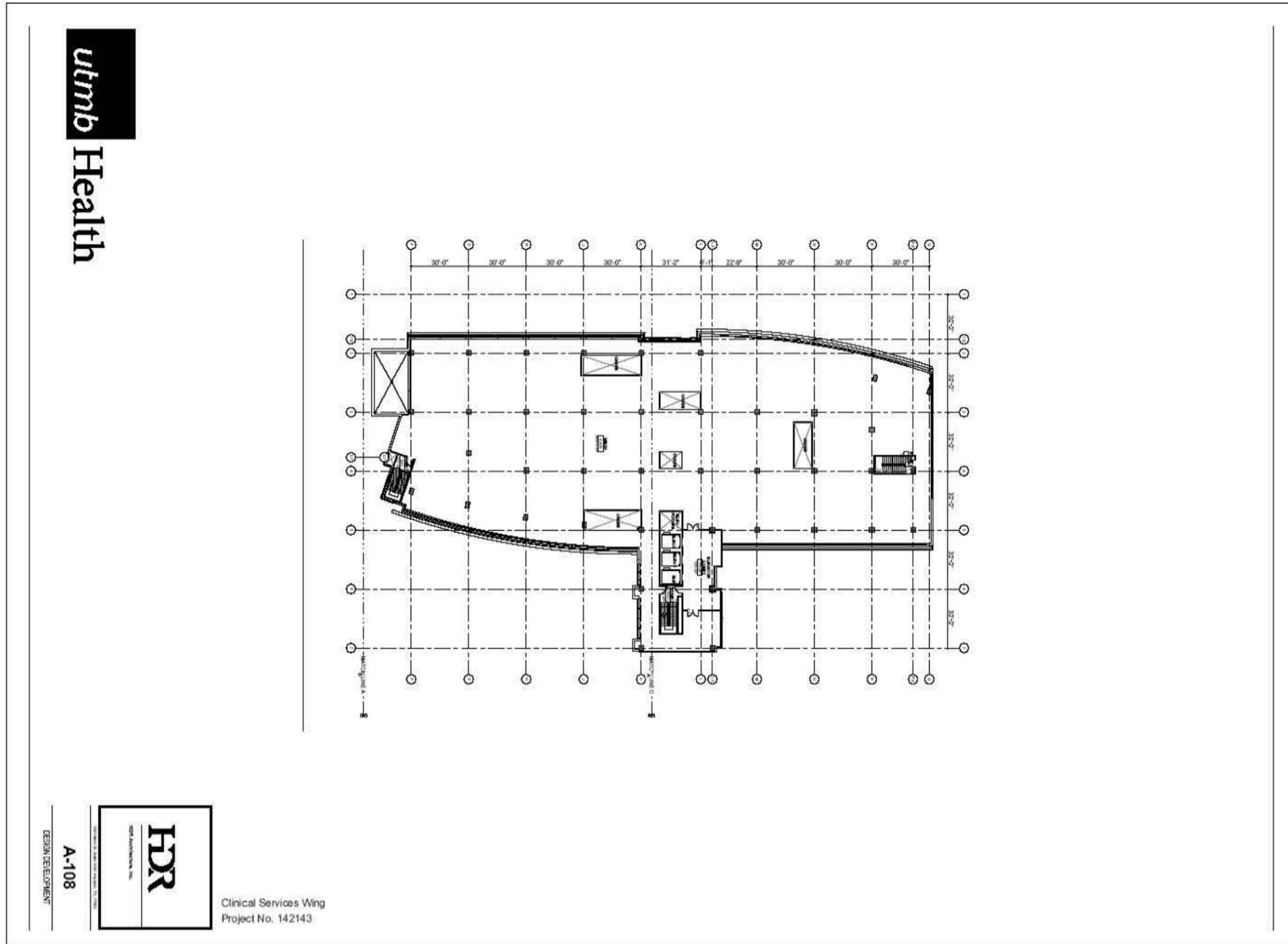


Figure A-6: Floor Plan Level 6

**APPENDIX B: EXECUTIVE ORDER 11988
FLOODPLAIN MANAGEMENT – CHECKLIST**

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EXECUTIVE ORDER 11988
FLOODPLAIN MANAGEMENT – CHECKLIST (44 CFR Part 9)

Project Name: UTMB Proposed CSW Construction and Associated Site Demolition Activities

APPLICABILITY: Actions which have the potential to affect floodplains or their occupants, or which are subject to potential harm by location in floodplains.

YES NO

The proposed action could potentially adversely affect the floodplain.

Remarks:

YES NO

The proposed action could potentially be adversely affected by the floodplain.

Remarks: The City of Galveston, Department of Planning and Community Development Floodplain Administrator has indicated that the Proposed Action to be in compliance with the City of Galveston Flood Damage Prevention Ordinance and has approved the project in the floodplain.

IF ANSWER IS NO, REVIEW IS COMPLETED, OTHERWISE CONTINUE WITH REVIEW.

Mark the review steps required per applicability: 1 2 3 4 5 6 7 8

CRITICAL ACTION:

YES

Review against 500 Year floodplain

NO

Review against 100 Year floodplain

STEP NO. 1 Determine whether the proposed action is located in the 100-year floodplain (500-year floodplain for critical actions);

Flood Hazard data available (check the box that applies)

- YES NO The project is located in a 100-Year floodplain as mapped by FIRM Panel No: _____, Dated _____.
- YES NO The project is located in a Shaded Zone X 500-Year floodplain as mapped by FIRM Panel No. 4854690027E and 4854690009F, Dated. December 6, 2002
- YES NO The project is located in a floodplain as mapped by a FEMA draft/preliminary study. Name _____ Dated _____.
- YES NO The project is located in a floodplain as mapped by the local community. Name _____ Dated _____.
- YES NO The project is located in a floodplain as mapped by another Agency (State, Corps, USGS, NRCS, and etc.) Agency, Name _____ Dated _____,

Flood Hazard data not available

- YES NO The proposed action is subject to flooding based on evaluation from soil surveys, aerial photos, site visits and other available data. Evaluation material used in determination:
- YES NO FEMA assumes the proposed action is subject to flooding based upon on previous flooding of the facility/structure.

IF ANY OF THE ANSWERS ARE YES, CONTINUE WITH THE FOLLOWING STEPS, OTHERWISE REVIEW IS COMPLETE.

STEP NO. 2 Notify the public at the earliest possible time of the intent to carry out an action in a floodplain, and involve the affected and interested public in the decision-making process.

- Notice was provided as part of a disaster cumulative notice.
- Project Specific Notice was provided by: FEMA
- Type of Public Notice: The public notice for this project was incorporated into the notice of availability for the Environmental Assessment that was prepared for the project in compliance with NEPA. This 8 Step Review has been incorporated into that document.

- Newspaper, (name): The notice of availability for the EA was printed in The Galveston County Daily News
- Post Site, (location:) The EA, including a scope of work, was made available at the Galveston City Hall and the Galveston County Regional Public Libraries.
 - Broadcast, (station:)
 - Direct Mailing, (area:)
- Public Meeting,
- Other: The notice of availability for the EA and the EA itself, including a scope of work, was made available <http://www.fema.gov/plan/ehp/envdocuments/ea-region6.shtm> and <http://www.utmb.edu/>.

Date of Public Notice: September 1 and 2, 2011

STEP NO. 3 Identify and evaluate practicable alternatives to locating the proposed action in a floodplain (including alternatives sites, actions and the "no action" option). If a practicable alternative exists outside the floodplain, FEMA must locate the action at the alternative site.

Alternative Options

- YES NO Is there a practicable alternative site location outside of the 100-Year floodplain?
Site location:
- YES NO For Critical Actions, is there a practicable alternative site location outside of the 500-Year floodplain?
Site location:
- YES NO Is there a practicable alternative action outside of the 100-Year floodplain that will not affect the floodplain?
Alternative action:
- YES NO Is the NO Action alternative the most practicable alternative?

IF ANY ANSWER IS YES, THEN FEMA SHALL TAKE THAT ACTION AND THE REVIEW IS CONCLUDED.

STEP NO. 4 Identify the potential direct and indirect impacts associated with the occupancy or modification of floodplains and the potential direct and

indirect support of floodplain development that could result from the proposed action. 44CFR Part 9.10

YES NO

Is the Proposed Action based on incomplete information?

YES NO

Is the proposed action in compliance with the NFIP?

Remarks: The City of Galveston, Department of Planning and Community Development Floodplain Administrator has indicated that the Proposed Action to be in compliance with the City of Galveston Flood Damage Prevention Ordinance and has approved the project in the floodplain.

YES NO

Does the proposed action increase the risk of flood loss?

YES NO

Will the proposed action result in an increased base discharge or increase the flood hazard potential to other properties or structures?

YES NO

Does the proposed action minimize the impact of floods on human health, safety and welfare?

YES NO

Will the proposed action induce future growth and development, which will potentially adversely affect the floodplain?

YES NO

Does the proposed action involve dredging and/or filling of a floodplain?

YES NO

Will the proposed action result in the discharge of pollutants into the floodplain?

YES NO

Does the proposed action avoid long and short-term adverse impacts associated with the occupancy and modification of floodplains?

YES NO

Will the proposed action result in any indirect impacts that will affect the natural values and functions of floodplains?

NOTE: If wetlands are near or potentially affected, refer review to the Environmental Section.

YES NO

Will the proposed action forego an opportunity to restore the natural and beneficial values served by floodplains?

YES NO

Does the proposed action restore and/or preserve the natural and beneficial values served by floodplains?

YES NO

Will the proposed action result in an increase to the useful life of a structure or facility?

STEP NO. 5

Minimize the potential adverse impacts and support to or within floodplains to be identified under Step 4, restore and preserve the natural and beneficial values served by floodplains.

YES NO

Were flood hazard reduction techniques (see technical bulletins) applied to the proposed action to minimize the flood impacts if site location is in the 100-Year floodplain?

If No, Identify Flood Hazard Reduction Techniques required as a condition of the grant:

YES NO

Were avoidance and minimization measures applied to the proposed action to minimize the short and long term impacts on the 100-Year floodplain?

If no, identify measures required as a condition of the grant:

YES NO

Were measures implemented to restore and preserve the natural and beneficial values of the floodplain.

If no, identify measures required as a condition of the grant: The proposed action does not change existing conditions or basic use of the area. The action would protect the UTMB critical functions from future flood events.

If any answer is no, explain why:

STEP NO. 6

Reevaluate the proposed action to determine first, if it is still practicable in light of its exposure to flood hazards, the extent to which it will aggravate the hazards to others, and its potential to disrupt floodplain values and second, if alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5. FEMA shall not act in a floodplain unless it is the only practicable location.

- YES NO The action is still practicable at a floodplain site in light of the exposure to flood risk and ensuing disruption of natural values;
- YES NO The floodplain site is the only practicable alternative.
- YES NO There is no potential for limiting the action to increase the practicability of previously rejected non-floodplain sites and alternative actions.
- YES NO Minimization of harm to or within the floodplain can be achieved using all practicable means.
- YES NO The action in a floodplain clearly outweighs the requirement of E.O. 11988.
-

STEP NO. 7 Prepare and provide the public with a finding and public explanation of any final decision that the floodplain is the only practicable alternative.

- Final Notice was provided as part of the floodplain notice.
- Notice was provided as part of a disaster cumulative notice.
- Project Specific Notice was provided by: FEMA
- Type of Public Notice: The final notice will be provided in a FONSI once the EA is finalized.
- Newspaper, (name): **The Galveston County Daily News**
- Post Site, (location): The EA, including a scope of work, was made available at the **Galveston City Hall and the Galveston County Regional Public Libraries.**
- Broadcast, (station:)
- Direct Mailing, (area:)
- Public Meeting, (dates:)
- Other:

<http://www.fema.gov/plan/ehp/envdocuments/ea-region6.shtm> and <http://www.utmb.edu/>.

Date of Public Notice: September 1 and 2, 2011

After providing the final notice, FEMA shall, without good cause shown, wait at least 15 days before carrying out the proposed action per 44 CFR Part 9.12(b)(3).

STEP NO. 8

Review the implementation and post - implementation phases of the proposed action to ensure that the requirements stated in Section 9.11 are fully implemented. Oversight responsibility shall be integrated into existing processes.

YES **NO**

Was Grant conditioned on review of implementation and post-implementation phases to insure compliance of EO 11988?

APPENDIX C: AGENCY CORRESPONDENCE



DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON TX 77553-1229

June 30, 2011

Compliance Section

SUBJECT: **SWG-2011-00574**; Jurisdictional Determination, UTMB Health, Proposed UTMB Clinical Services Wing, Galveston, Galveston County, Texas

Mr. Michael R. Shriner
Business Operations and Facilities
UTMB Health
301 University Boulevard
Galveston, Texas 77555-1116

Dear Mr. Shriner:

This letter is in reference to the request dated June 22, 2011, for a jurisdictional determination for a proposed Clinical Services Wing. We have determined that the approximately 3.2-acre site, located at 301 University Boulevard in Galveston, Galveston County, Texas, does not contain waters of the United States, including jurisdictional wetlands. **Therefore, the designated site is not subject to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act and/or any work or the discharge of fill material onto the tracts does not require a Department of the Army permit.** In addition, the site is composed entirely of uplands, and, as such, would not be subject to the requirements of Executive Order 11990.

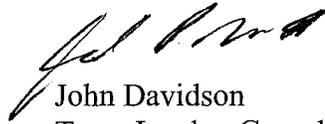
This letter contains an approved jurisdictional determination for your subject site, which is valid for 5 years from the date of this letter unless new information warrants a revision prior to the expiration date. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeals Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination, you must submit a completed RFA form to the Southwest Division Office at the following address:

Mr. Elliott Carman
Appeal Review Officer, CESWD-ETO-R
U.S. Army Corps of Engineer Division, Southwestern
1100 Commerce Street, Room 831
Dallas, Texas 75242-1317
Telephone: 469-487-7061; FAX: 469-487-7190

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete; that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within **60 days** of the date of the NAP. It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

If you have questions concerning this matter, please reference file number **SWG-2011-00574** and contact Ms. Emilee Stevens at the letterhead address or by telephone at 409-766-3980. To assist us in improving our service to you, please complete the survey found at <http://per2.nwp.usace.army.mil/survey.html> and/or, if you would prefer a hard copy of the survey form, please let us know, and one will be mailed to you.

Sincerely,



John Davidson
Team Leader, Compliance Section

City of Galveston



Department of Planning and Community Development

P. O. Box 779 / Galveston, Texas 77553-0779 / Ph (409) 797-3660 / Fax (409) 797-3661

June 29, 2011

Michael R. Shriner
Business Operations and Facilities
301 University Boulevard
Galveston, Texas 77555-1116

RE: Request for concurrence for UTMB Clinical Services Wing project

Dear Mr. Shriner:

Please be advised, I have reviewed the University of Texas Medical Branch request for the Clinical Services Wing project, and determined the project to be in compliance with the City of Galveston's Flood Damage Prevention Ordinance.

As Floodplain Administrator for the City of Galveston, I concur with the proposed project as it relates to flood plain regulations.

If I can be of any further assistance to you, please feel free to contact me at 409-797-3620 or email at planningcounter@cityofgalveston.org

Sincerely,


David Ewald, CBO, CFM
City of Galveston

**COASTAL COORDINATION COUNCIL
GENERAL CONCURRENCE #5**

**Regarding Federal Emergency Management Agency (FEMA) assistance to areas of
Texas designated as major disaster areas**

Pursuant to 31 Texas Administrative Code (TAC) §§506.28 & 506.35 and 15 Code of Federal Regulations (CFR) §930.53(b), the Coastal Coordination Council (Council) issues the following General Concurrence #5 (GC5) for FEMA assistance in federally declared disaster areas.

Section 1: Purpose and Intent

- A. The purpose of this GC5 is to assist FEMA by expediting consistency review of certain FEMA-funded activities under the Texas Coastal Management Program (CMP) and to identify the certain activities affecting certain coastal natural resource areas (CNRAs) that must undergo a full consistency determination. The purpose of the GC5 is to minimize the number of consistency reviews that must be performed for activities that are minor in scope and that do not have significant adverse effects on CNRAs within the Texas CMP boundary. The CMP boundary is depicted in Appendix A of this document and is more particularly described in 31 TAC §503.1.
- B. FEMA and the Council acknowledge that the implementation of disaster assistance will be more effective if specific procedures are developed to expedite consistency review activities by the Council for activities with little potential to affect CMP Areas. This GC5 should shorten the time needed to comply with the Texas CMP for FEMA-funded projects and allow FEMA to more readily provide assistance following a federally declared disaster on the Texas coast.
- C. FEMA and DEM implement the Individual and Public 'grants' under FEMA's Individual and Public Assistance programs, as defined in 44 CFR §206.2(15)&(20). FEMA has determined that the implementation of the programs in 44 CFR Part 206 may have an effect upon properties within the Texas CMP boundary. Therefore, FEMA and the Council agree that these disaster assistance programs shall be administered in accordance with the following Sections, which will ensure compliance under the CMP.

Section 2: Activities Covered

- A. This GC5 is intended to incorporate FEMA's existing process for providing assistance for projects in major disaster areas. FEMA proposes to administer federal programs pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206 (Stafford Act), and its implementing regulations contained in Title 44 CFR Part 206, regarding assistance for the repair or replacement of damaged facilities and structures,

including approved Stafford Act Section 404 and 406 mitigation measures, 42 U.S.C. §§5170c & 5172.

- B. The Council finds that the following assistance activities will not have direct or significant adverse effects on CNRAs and determines that FEMA or its grantees and subgrantees need not submit consistency findings for the following activities within the Texas CMP boundaries:
1. Funding of emergency response activities as provided under Stafford Act Section 403 (42 U.S.C. §5170b), Category A: Debris Removal and Category B: Emergency Protective Measures that are necessary when there is an unacceptable hazard to life, when there is an immediate threat of significant loss of property, or where an immediate and unforeseen economic hardship is likely if corrective action is not taken within a time period less than the normal time needed under standard procedures in 31 TAC §506.51. This includes activities that are necessary to protect public health and safety, as defined in Emergency 44 CFR §206.2(9), including direct federal assistance, funded by FEMA, such as water, ice, and power generation teams.
 2. Individual 'grants' under FEMA's Individual Assistance Program, as defined in 44 CFR § 206.2(15).
 3. Repair and construction projects that are covered under Categories C: Roads and Bridges, D: Water Control Facilities, E: Buildings and Equipment, F: Utilities, and G: Parks, Recreational Facilities, and other Items included in Stafford Act Section 403 (42 U.S.C. §5170b), and that have the same function, capacity, and footprint as existed prior to the major disaster, including upgrades to current codes and standards, provided that all three conditions are met. These projects are only exempt from the consistency requirements if they do not fall within the CNRAs listed in subsection "C" below. Even if all three conditions are met, a project may require a consistency determination, as outlined in subsection "C" below.
 4. Repair or replacement of automobiles and equipment.
 5. Repairs and construction inside or outside of structures in the same footprint, even if the repairs have a different function and capacity than previously existed; and which may occur in previously disturbed areas around the exterior of the structure.
 6. Reconstruction of Coastal Historic Areas. A historic area is defined as a site that is specially identified in rules adopted by the Texas Historical Commission as being coastal in character and that is: (A) a site on or eligible for the National Register of Historic Places, designated under 16 USC §470a and 36 CFR, Part 63, Chapter 1; or (B) a state archaeological landmark, as defined by Texas Natural Resource Code (TNRC), Subchapter D, Ch. 191. These are governed by the *Programmatic Agreement Among the Federal Emergency Management Agency, the Texas State Historic Preservation Office, the Texas Department of Public*

Safety, Division of Emergency Management, and the Advisory Council on Historic Preservation (PA) or any subsequent replacement documents. Compliance with the PA satisfies the requirements of 31 TAC §501.14(o), and no separate consistency review is required.

- C. Consistency determinations are required for activities over which the Council has jurisdiction, if they occur in certain CNRA areas within the CMP boundary, even if the project has the same function, capacity, and footprint as existed prior to the major disaster. FEMA may fund a necessary emergency response activity within a CNRA without a consistency determination when the emergency response activity was performed to prevent an unacceptable hazard to life, an immediate threat of significant loss of property, or where an immediate and unforeseen economic hardship is likely if corrective action were not taken within a time period less than the normal time needed under standard procedures in 31 TAC §506.51. Maps and information on all of the CNRA areas below may be found on the General Land Office's web site at <http://www.glo.state.tx.us/gisdata/gisdata.html>. FEMA must provide consistency determinations for projects that fall within the following CNRA areas.
1. **Critical Areas.** These are defined in TNRC §33.203(8) and 31 TAC §501.3(a)(8) as a coastal wetland, oyster reef, hard substrate reef, submerged aquatic vegetation, or tidal sand or mud flat. Each of these critical areas is more specifically described under 31 TAC §501.3(b) (See Appendix B). Dredging and construction of structures in, or the discharge of dredged or fill material into critical areas must comply with the policies in 31 TAC §501.14(h).
 2. **Submerged Lands** "Submerged land" means land located under waters under tidal influence or under waters of the open Gulf of Mexico, without regard to whether the land is owned by the state or a person other than the state. TNRC §33.203(15) and 31 TAC §501.3(b)(12). Development on submerged lands must comply with the policies in 31 TAC §501.14(i).
 3. **Beach/Dune System and Critical Dune Areas.** "Critical dune area" is defined as a protected sand dune complex on the Gulf shoreline within 1,000 feet of Mean High Tide in TNRC §33.203(9) and 31 TAC §501.3(b)(6). Construction in critical dune areas and adjacent to Gulf beaches must comply with the policies in 31 TAC §501.14(k).
 4. **Coastal Hazard Areas.** These are defined in 31 TAC §501.3(a)(4) as special hazard areas and critical erosion areas. Definitions of special hazard areas and critical erosion areas may be found in Appendix C. Goals and policies for determining the consistency of development in coastal hazard areas are found in 31 TAC §501.14(l).
 5. **Coastal Barriers.** These are defined in TNRC §33.203(2) and 31 TAC §501.3(b)(1) as an undeveloped area on a barrier island, peninsula, or other protected area, as designated by United States Fish and Wildlife Service maps. Development of new infrastructure or major repair of

existing infrastructure within or supporting development within Coastal Barrier Resource System Units and Otherwise Protected Areas designated on maps dated October 24, 1990, under the Coastal Barrier Resources Act, 16 United States Code Annotated, §3503(a), must comply with the policies in 31 TAC §501.14(m).

6. State Parks, Wildlife Management Areas or Preserves. "Coastal preserve" is defined in 31 TAC §501.3(b)(3) as any land, including a park or wildlife management area, that is owned by the state and that is subject to Chapter 26, Parks and Wildlife Code, because it is a park, recreation area, scientific area, wildlife refuge, or historic site; and designated by the Texas Parks and Wildlife Commission as being coastal in character. Under 31 TAC §501.14(n), development by a person other than the Parks and Wildlife Department that requires the use or taking of any public land in such areas must comply with Texas Parks and Wildlife Code, Chapter 26.
7. Coastal shore areas, defined in TNRC §33.203(5) as an area within 100 feet landward of the highwater mark on submerged land.
8. Water under tidal influence, defined in TNRC §33.203(19) as water in this state, as defined by Section 26.001(5), Water Code, that is subject to tidal influence according to the Texas Commission on Environmental Quality's (formerly the Texas Natural Resource Conservation Commission's) stream segment map. The term includes coastal wetlands. The Council shall provide FEMA a detailed map indicating these areas influenced by tidal waters.

Section 3: Notification Procedures

For those proposed activities that will be reviewed for consistency with the CMP under the Council's rules (31 TAC §§506.50-506.52), FEMA shall submit to the Council Secretary FEMA's project worksheet, proposed work, and the name, address and telephone number for a point of contact. A description of the project must include at least the application, and location map, and supporting material required by FEMA, as well as the information required by Council rules at 31 TAC §506.50(c), which includes a brief evaluation on the relationship of the proposed activity to the CMP goals and policies and an evaluation of any reasonably foreseeable coastal effects. Under 31 TAC §506.51(d), if three members do not refer an application to the Council within 30 days of the date the Council Secretary receives a copy of the application, then the application is conclusively presumed to be consistent with the CMP.

Section 4: Interagency Coordination Procedures

The Council will work with FEMA and DEM in scoping meetings to identify CMP concerns and CMP applicability to FEMA activities following a federally declared disaster. FEMA and the Council may adopt amendments to this GC5 based on the scope of an individual disaster.

Section 5: Termination

- A. The Council may modify this GC5 by issuing another general concurrence, amendment or further revision. Prior to issuing any general concurrence or amendment that modifies or revises this GC5, the Council shall coordinate any modifications or revisions with FEMA.
- B. After consultation with FEMA, the Council may terminate this GC5 by publishing notice of the termination in the *Texas Register* at least thirty days prior to the termination date.
- C. FEMA may terminate this GC5 by providing 30 days written notice to the Council, provided that FEMA and the Council will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. This GC5 may be terminated by the execution of a subsequent GC that explicitly terminates or supersedes its terms.

Coastal Coordination Council
General Concurrence #5

David Dewhurst
Chairman
Coastal Coordination Council

Date

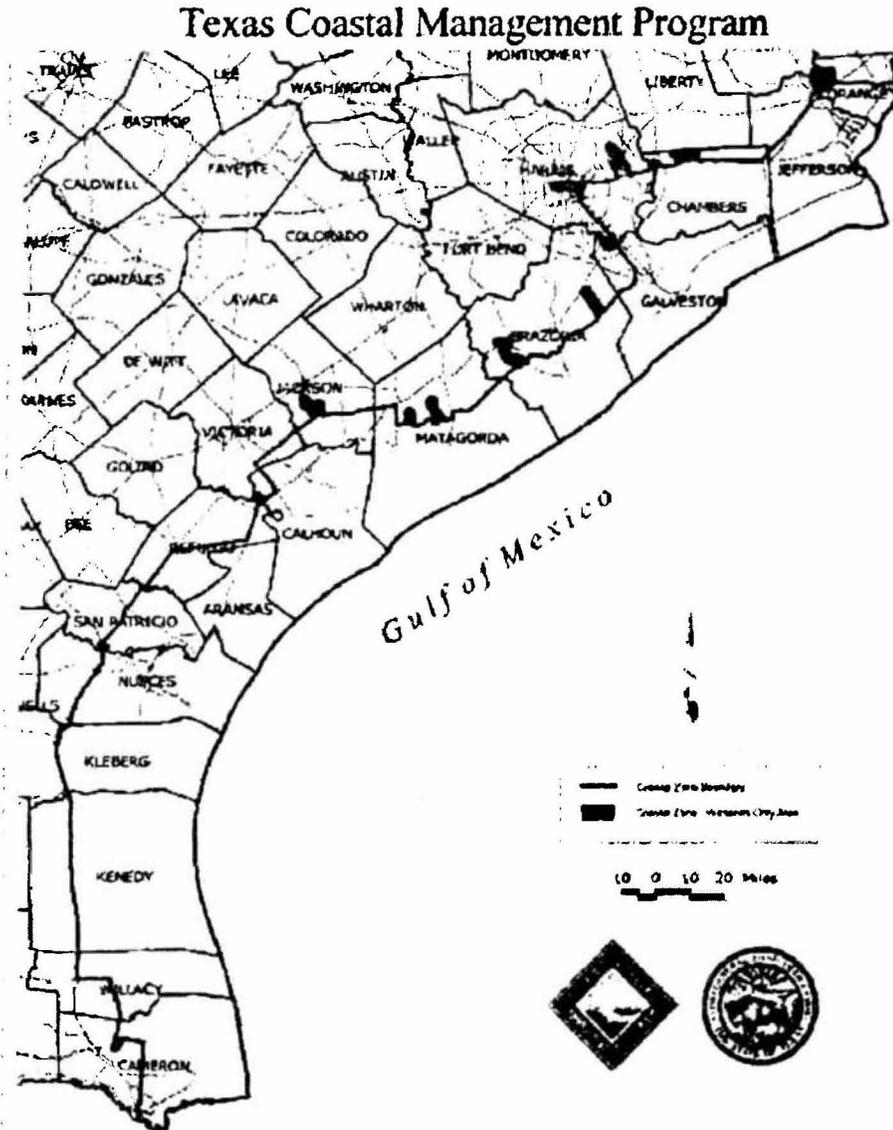
Ron Castleman
Regional Director
FEMA, Region VI

Date

Jack Colley
State Coordinator
Texas Department of Public Safety
Division of Emergency Management

Date

FEMA General Concurrence 5
APPENDIX A - MAP OF COASTAL MANAGEMENT PROGRAM BOUNDARY



FEMA General Concurrence 5
APPENDIX B – CRITICAL AREAS

Critical Areas. Defined in Texas Natural Resource Code (TNRC) §33.203(8) and 31 TAC §501.3(a)(8) as a coastal wetland, oyster reef, hard substrate reef, submerged aquatic vegetation, or tidal sand or mud flat. Dredging and construction of structures in, or the discharge of dredged or fill material into critical areas must comply with the policies in 31 TAC §501.14(h).

a. **Coastal Wetlands.** Defined in TNRC §33.203(7) and 31 TAC §501.3(b)(5), are Wetlands, as the term is defined by Texas Water Code §11.502, located:

(1) seaward of the Coastal Facility Designation Line, established by rules adopted under Texas Natural Resources Code, Chapter 40;

(2) within rivers and streams to the extent of tidal influence, as shown on the Texas Natural Resource Conservation Commission's stream segment maps and described as follows:

(a) Arroyo Colorado from FM Road 1847 to a point 100 meters (110 yards) downstream of Cemetery Road south of the Port of Harlingen in Cameron County;

(b) Nueces River from US Highway 77 to the Calallen Dam 1.7 kilometers (1.1 miles) upstream of U.S. Highway 77 in Nueces/San Patricio County;

(c) Guadalupe River from State Highway 35 to the Guadalupe-Blanco River Authority Salt Water Barrier at 0.7 kilometers (0.4 miles) downstream of the confluence with the San Antonio River in Calhoun/Refugio County;

(d) Lavaca River from FM Road 616 to a point 8.6 kilometers (5.3 miles) downstream of US Highway 59 in Jackson County;

(e) Navidad River from FM Road 616 to Palmetto Bend Dam in Jackson County;

(f) Tres Palacios Creek from FM Road 521 to a point 0.6 kilometer (0.4 mile) upstream of the confluence with Wilson Creek in Matagorda County;

- (g) Colorado River from FM Road 521 to a point 2.1 kilometers (1.3 miles) downstream of the Missouri-Pacific Railroad in Matagorda County;
 - (h) San Bernard River from FM Road 521 to a point 3.2 kilometers (2.0 miles) upstream of State Highway 35 in Brazoria County;
 - (i) Chocolate Bayou from FM Road 2004 to a point 4.2 kilometers (2.6 miles) downstream of State Highway 35 in Brazoria County;
 - (j) Clear Creek from Interstate Highway 45 to a point 100 meters (110 yards) upstream of FM Road 528 in Galveston/Harris County;
 - (k) Buffalo Bayou (Houston Ship Channel) from Interstate Highway 610 to a point 400 meters (440 yards) upstream of Shepherd Drive in Harris County;
 - (l) San Jacinto River from Interstate Highway 10 upstream to the Lake Houston dam in Harris County;
 - (m) Cedar Bayou from Interstate Highway 10 to a point 2.2 kilometers (1.4 miles) upstream of Interstate Highway 10 in Chambers/Harris County;
 - (n) Trinity River from Interstate Highway 10 to the border between Chambers and Liberty Counties;
 - (o) Neches River from Interstate Highway 10 to a point 11.3 kilometers (7.0 miles) upstream of Interstate Highway 10 in Orange County;
 - (p) Sabine River from Interstate Highway 10 upstream to Morgan Bluff in Orange County; or
- (3) within one mile of the mean high tide line of the portion of rivers and streams described by subparagraph (2) of this paragraph, except for the Trinity and Neches rivers.
- (a) For the portion of the Trinity River described by subparagraph (2) of this paragraph, coastal wetlands include those wetlands located between the mean high tide line on the western shoreline of that portion of the river and FM Road 565 and FM Road 1409 or located between the mean high tide line on the eastern shoreline of that portion of the river and FM Road 563.

(b) For the portion of the Neches River described by subparagraph (2) of this paragraph, coastal wetlands include those wetlands located within one mile of the mean high tide line of the western shoreline of that portion of the river or located between the mean high tide line on the eastern shoreline of that portion of the river and FM Road 105.

b. Oyster reef. Defined in TNRC §33.203(13) and 31 TAC §501.3(b)(10), as a natural or artificial formation that is:

- (1) composed of oyster shell, live oysters, and other living or dead organisms;
- (2) discrete, contiguous, and clearly distinguishable from scattered oyster shell or oysters; and
- (3) located in an intertidal or subtidal area.

c. Hard substrate reef. A naturally occurring hard substrate formation, including a rock outcrop or serpulid worm reef, living or dead, in an intertidal or subtidal area. TNRC §33.203(12) and 31 TAC §501.3(b)(9).

d. Submerged aquatic vegetation. Rooted aquatic vegetation growing in permanently inundated areas in estuarine and marine systems. TNRC §33.203(16) and 31 TAC §501.3(b)(13).

e. Tidal sand or mud flat. A silt, clay, or sand substrate, without regard to whether it is vegetated by algal mats, that occur in intertidal areas and that are regularly or intermittently exposed and flooded by tides, including tides induced by weather. TNRC §33.203(17) and 31 TAC §501.3(b)(14).

FEMA General Concurrence 5
APPENDIX C – COASTAL HAZARD AREAS

Coastal Hazard Areas are defined in 31 TAC §501.3(a)(4) as special hazard areas and critical erosion areas. Goals and policies for determining the consistency of development in coastal hazard areas are found in 31 TAC §501.14(l).

a. A “special hazard area” is defined in TNRC §33.203(14) and 31 TAC §501.3(b)(11) as an area designated under 42 USCA §4001 et seq. as having special flood, mudslide or mudflow, or flood-related erosion hazards and shown on a Flood Hazard Boundary Map or Flood Insurance Rate Map as Zone A, AO, A1-30, AE, A99, AH, VO, V1-30, VE, V, M, or E. Under 31 TAC §501.14(l)(1), subdivisions participating in the National Flood Insurance Program shall adopt ordinances or orders governing development in special hazard areas.

b. A “critical coastal erosion area” or “critical erosion area” is defined in TNRC §33.601(4) and 31 TAC §501.3(b)(7) as a coastal area that is experiencing historical erosion, according to the most recently published data of the Bureau of Economic Geology of The University of Texas at Austin, that the commissioner finds to be a threat to:

1. Public health, safety, or welfare;
2. Public beach use or access;
3. General recreation;
4. Traffic safety;
5. Public property or infrastructure;
6. Private commercial or residential property;
7. Fish or wildlife habitat; or
8. An area of regional or national importance.

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APPENDIX D: MEMORANDUM OF AGREEMENT

MEMORANDUM OF AGREEMENT

AMONG

**THE U.S. DEPARTMENT OF HOMELAND SECURITY,
FEDERAL EMERGENCY MANAGEMENT AGENCY;
THE TEXAS STATE HISTORIC PRESERVATION OFFICER;
THE TEXAS DIVISION OF EMERGENCY MANAGEMENT; AND
THE UNIVERSITY OF TEXAS MEDICAL BRANCH;**

*TEXAS Department of
Public Safety*

REGARDING

**THE DEMOLITION OF THE OLD SHRINERS BURN INSTITUTE AND
SURGICAL RESEARCH BUILDING
LOCATED AT 610 & 626 TEXAS AVENUE, GALVESTON, TX**

WHEREAS, The University of Texas Medical Branch (UTMB) proposes to use Public Assistance (PA) grant program funds provided by the U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) through the Texas Division of Emergency Management (TDEM) to construct two new hospitals; the Clinical Service Wing and the New Jennie Sealy Hospital. The construction of these two hospitals will result in the demolition of two campus buildings that are eligible for listing in the National Register of Historic Place (NRHP), the Old Shriners Burn Institute and the Surgical Research Building (Undertaking).

WHEREAS, FEMA initiated consultation with the Texas State Historic Preservation Officer (SHPO), in accordance with Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f) (NHPA) and its implementing regulations located in 36 CFR Part 800; and

WHEREAS, FEMA, in consultation with SHPO, determined that the Old Shriners Burn Institute and Surgical Research Building are individually eligible for listing in the National Register of Historic Places and that the Undertaking would have an adverse effect on the properties; and

WHEREAS, in accordance with 36 CFR 800.6(a)(1), FEMA notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination, and on July 28, 2011, the ACHP notified FEMA that it had chosen not to participate in consultation for this Undertaking at this time; and

WHEREAS, FEMA has invited TDEM, the grantee, and UTMB, the sub-grantee, to participate in this consultation and execute this Memorandum of Agreement (MOA) as Invited Signatories; and

NOW, THEREFORE, FEMA, SHPO, TDEM, and UTMB, hereafter referred to as "Consulting Parties," agree that the Undertaking will be implemented in accordance with the following Stipulations in order to take into account the adverse effects of the Undertaking on historic properties and to satisfy FEMA's Section 106 responsibilities for the Undertaking.

STIPULATIONS

To the extent of its legal authority and in coordination with SHPO, TDEM, and UTMB, FEMA shall ensure that the following measures are implemented:

I. RECORDATION OF BUILDING

UTMB shall be responsible for completing the following treatment measures:

- A. Within 30 days of execution of this Agreement, UTMB shall digitally photograph the Shriners Burn Institute and Surgical Research Building. The photography shall comply with the requirements of the National Park Service's (NPS's) March 2005 *National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion* and February 2009 *Photograph Policy Update* or the latest guidance from NPS.
 1. Image files shall be saved as uncompressed Tagged Image File Format (TIFF) files on appropriate CD-R media.
 2. Image size shall be 1600x1200 pixels at 300 pixels per inch (ppi) or larger.
 3. Images shall be saved in an 8-bit or larger color format.
 4. Images of the Shriners Burn Institute and Surgical Research Building shall be saved according to NPS's 2009 *Photograph Policy Update* with a separate photo log created that contains the following information for each image:
 - a) Name and address of building;
 - b) Date of photograph;
 - c) Name of photographer; and
 - d) Description of the view, including the direction of the camera.
 5. Photographic prints of each image shall be provided. Prints shall be 4"x6" or larger, and must meet NPS's 75-year permanence standard.

- B. Images taken of the Shriners Burn Institute and Surgical Research Building shall include:
1. One (1) view of each façade;
 2. Two (2) oblique views, taken from opposing corners to show all facades;
 3. One (1) contextual view; and
 4. Additional images of exterior character-defining features, outbuildings, or other exterior elements, as appropriate.
 5. Select available existing architectural or general construction drawings as designated and approved by FEMA and the SHPO shall be photographed. A site plan of the property shall be included to provide an orientation for the photographed drawings.
- C. UTMB shall submit 1 CD-R containing the digital images, a photo log, and photography prints to FEMA for review and approval. FEMA will submit the package to SHPO and SHPO shall advise FEMA within 15 calendar days of receipt if the submitted documentation is satisfactory or request specific revisions. SHPO shall also advise FEMA if any revised documentation is to be submitted to SHPO for a second 15-day review. Upon acceptance by SHPO, FEMA shall notify TDEM of this acceptance and that the demolition of the Buildings may proceed.

II. HISTORIC NARRATIVE

UTMB shall be responsible for completing the following:

- A. UTMB shall develop a historic narrative on the Shriners Burn Institute and Surgical Research Building. This narrative will include an architectural description and a history of the people and events associated with the Buildings. The architectural description and historic significance will use research from primary resources, assessing the reliability and limitations of sources, footnotes, a methodology section stating name of researcher, date of research, and source searches and limitations of the project. The historic narrative will be printed on archival bond paper. This narrative may contain, but is not limited to, information on Dr. Truman Graves Blocker Jr.'s role in securing the location of the Shriners Burn Institute in Galveston, his role in the care and/or research associated with the treatment of victims of the 1947 Texas City Disaster, any significant methods of treatment pioneered by Dr. Blocker and his colleagues, the role that these two buildings played in the

history of Health and Medicine in Galveston and the State of Texas, copies of historic photographs and current images of the buildings.

- B. The historic narrative shall provide a list of archival resources for future research efforts.
- C. The historic narrative shall identify areas for future research and survey efforts.
- D. Any staff or contractor hired to complete these measures will be a Secretary of the Interior (SOI) Qualified individual, as defined in 36 CFR Part 61, Appendix A for Section 106 review of the Undertakings.
- E. Within 180 days of execution of this Agreement, UTMB shall submit one (1) hard copy of the completed historic narrative and one (1) CD-R containing the completed historic narrative with the digital images and photo log to FEMA for review. Within 30 days of receipt FEMA will advise UTMB if the submitted documentation is satisfactory or request specific revisions. FEMA will then send to SHPO for review and approval. SHPO shall advise FEMA within 30 days of receipt if the submitted documentation is satisfactory or request specific revisions. SHPO shall also advise FEMA if any revised documentation is to be submitted to SHPO for a second 30-day review.
- F. UTMB shall provide one (1) hard copy of the completed historic narrative and the complete set of photographic prints, and one (1) CD-R containing the completed historic narrative, digital images and photo log for placement in the Truman Blocker Archives located in the Mary Moody Library. In addition, UTMB will post the historic narrative and photography documentation on their public website for 30 days prior to placement in the Truman Blocker Archives.

III. CHANGES TO APPROVED SCOPE OF WORK

- A. UTMB shall immediately notify TDEM if there are proposed changes to the Undertaking. When notified by UTMB, TDEM shall notify FEMA as soon as possible of any proposed change to the approved scope of work for an undertaking related to a historic property. FEMA shall then consult with SHPO to determine if the change will have an effect on the Undertaking.

IV. DISCOVERIES AND UNANTICIPATED EFFECTS

- A. UTMB shall notify TDEM immediately if it appears that the Undertaking has affected a previously unidentified property, including archaeological deposits, during the implementation of this Agreement. TDEM shall require UTMB to immediately stop all activities in the vicinity of the discovery and shall require

UTMB to take all reasonable measures to avoid or minimize harm to the property until TDEM notifies UTMB in writing that the project can proceed.

- B. TDEM shall notify FEMA immediately regarding the previously unidentified property or unexpected effects.
- C. FEMA shall notify SIPO and other parties that may have an interest in the previously unidentified property or unexpected effects at the earliest possible time, but no later than 72 hours after FEMA is notified by TDEM, and FEMA will initiate consultation to develop actions that will take into account the effects of the Undertaking.

V. ANTICIPATORY ACTIONS

- A. FEMA will not grant assistance to UTMB should it, with the intent to avoid the requirements of this Agreement or Section 106 of the NHPA, adversely affect a historic property to which the assistance would relate, or having the legal power to prevent it, allow such an action to occur. After consultation with the ACHP, FEMA may determine that the circumstances justify granting such assistance despite an adverse effect created or permitted by UTMB, and FEMA shall complete consultation for the Undertaking pursuant to 36 CFR § 800.9(c).

VI. DISPUTE RESOLUTION

- A. Should any Consulting Party or a member of the public raise an objection in writing to FEMA, to the manner in which the terms of this Agreement are being implemented, or to any documentation prepared in accordance with and subject to the terms of this Agreement, FEMA shall notify the Consulting Parties of the objection in writing, requesting their comments within 14 days of receipt of notification. FEMA shall consult with the objecting party, and if that party so requests, any other Consulting Party, for no more than 30 days. FEMA shall seek resolution by the most expeditious and appropriate method and may transmit its written notice and accept comments via e-mail.
- B. If the objection is resolved within 30 days, the Consulting Parties shall proceed in accordance with the resolution.
- C. If FEMA determines within 30 days that the objection cannot be resolved as described above, FEMA shall forward all documentation relevant to the dispute to the ACHP, including FEMA's proposed resolution of the dispute. FEMA shall request comments from the ACHP and will take the ACHP's response into account when reaching a final decision regarding the dispute. If the ACHP does not provide FEMA with recommendations of comments within 30 calendar days of receipt of documents, FEMA may assume that the ACHP does not object to its recommended approach. Within 14 additional

days, FEMA shall render a final written decision to the other Consulting Parties.

- D. Any recommendation or comment provided by a Consulting Party or the ACHP shall be understood to pertain only to the subject of the dispute. The Parties will not be required to cease work on activities unrelated to the objection while the objection is being reviewed and resolved.
- E. FEMA may authorize TDEM to notify UTMB that they may implement any portion of the Undertaking subject to dispute after completing the requirements of this Stipulation.

VII. AMENDMENTS, TERMINATION, AND DURATION

- A. If FEMA determines that it is not feasible to complete the Undertaking or fulfill the requirements of this Agreement, FEMA shall immediately notify SHPO and TDEM in writing. Within 30 days of this notice, FEMA shall meet with the other Consulting Parties, in person or by telephone, to determine if the Agreement must be amended or terminated and proceed accordingly.
- B. If any Signatory determines that the Agreement should be amended, the Signatory shall submit a written request to FEMA. Within 30 days of this request, FEMA shall meet with the other Consulting Parties, in person or by telephone, to consider this request.
 - 1. The Consulting Parties shall make a good faith effort to amend the Agreement prior to taking steps to terminate it, as outlined in Stipulation C below.
 - 2. The Agreement may only be amended upon the written agreement of all Signatories and the process shall comply with 36 CFR § 800.6(c)(7).
- C. Termination: Any Signatory may terminate this Agreement by providing a 30-day written notice to the other Consulting Parties. During this 30 day time frame, the Consulting Parties shall meet in person or by telephone to seek amendments or other actions that would prevent termination. Should consultation fail, FEMA shall promptly notify the other parties in writing of the termination of this Agreement.
 - 1. Termination of this Agreement prior to fulfillment of its requirements will require compliance with 36 CFR Part 800.

2. This Agreement may be terminated without further consultation by the execution of a subsequent agreement that explicitly terminates or supersedes its terms.

D. Duration: Unless amended or terminated in accordance with Stipulations A and B above, this Agreement will remain in effect for one (1) year from the date of execution or until FEMA determines it has been satisfactorily fulfilled. FEMA will notify the other Consulting Parties in writing if FEMA determines that this Agreement has been fulfilled and is terminated.

VIII. EXECUTION

A. This Agreement will become effective on the date of final signature.

B. This Agreement shall be executed in counterparts, with a separate page for each signatory and concurring party, and FEMA shall ensure that each party is provided with a fully executed copy, including original signature pages.

EXECUTION AND IMPLEMENTATION of this Agreement by all Signatories evidences that FEMA has afforded the ACHP a reasonable opportunity to comment on the Undertaking and its effects on historic properties, that FEMA has taken into account the effects of the Undertaking on historic properties, and that FEMA has satisfied its responsibilities under Section 106 of the National Historic Preservation Act and its implementing regulations.

**MEMORANDUM OF AGREEMENT
AMONG
THE U.S. DEPARTMENT OF HOMELAND SECURITY,
FEDERAL EMERGENCY MANAGEMENT AGENCY;
THE TEXAS STATE HISTORIC PRESERVATION OFFICER;
THE TEXAS DIVISION OF EMERGENCY MANAGEMENT; AND
THE UNIVERSITY OF TEXAS MEDICAL BRANCH;
REGARDING
THE DEMOLITION OF THE OLD SHRINERS BURN INSTITUTE AND
SURGICAL RESEARCH BUILDING
LOCATED AT 610 & 626 TEXAS AVENUE, GALVESTON, TX**

SIGNATORY:

FEDERAL EMERGENCY MANAGEMENT AGENCY

By: 
Kevin Jaynes
Environmental Officer
Region VI

Date: 8/10/11

By: 
Tony Russell
Regional Administrator
Region VI

Date: 8-11-11

MEMORANDUM OF AGREEMENT
AMONG
THE U.S. DEPARTMENT OF HOMELAND SECURITY,
FEDERAL EMERGENCY MANAGEMENT AGENCY;
THE TEXAS STATE HISTORIC PRESERVATION OFFICER;
THE TEXAS DIVISION OF EMERGENCY MANAGEMENT; AND
THE UNIVERSITY OF TEXAS MEDICAL BRANCH;
REGARDING
THE DEMOLITION OF THE OLD SHRINERS BURN INSTITUTE AND
SURGICAL RESEARCH BUILDING
LOCATED AT 610 & 626 TEXAS AVENUE, GALVESTON, TX

SIGNATORY:

THE TEXAS STATE HISTORIC PRESERVATION OFFICER

By: Mark Wolfe
Mark Wolfe
Executive Director, Texas Historical Commission

Date: 8/18/11

**MEMORANDUM OF AGREEMENT
AMONG
THE U.S. DEPARTMENT OF HOMELAND SECURITY,
FEDERAL EMERGENCY MANAGEMENT AGENCY;
THE TEXAS STATE HISTORIC PRESERVATION OFFICER;
THE TEXAS DIVISION OF EMERGENCY MANAGEMENT; AND
THE UNIVERSITY OF TEXAS MEDICAL BRANCH;
REGARDING
THE DEMOLITION OF THE OLD SHRINERS BURN INSTITUTE AND
SURGICAL RESEARCH BUILDING
LOCATED AT 610 & 626 TEXAS AVENUE, GALVESTON, TX**

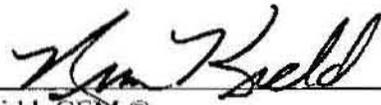
Texas Department of Public Safety

SIGNATORY:

TEXAS DIVISION OF EMERGENCY MANAGEMENT

By: 
Ben Patterson
State Coordinating Officer

Date: 8-16-11

By: 
Nim Kidd, CEM®
Assistant Director
Texas Department of Public Safety
Chief
Texas Division of Emergency Management

Date: 8/17/11

**MEMORANDUM OF AGREEMENT
AMONG
THE U.S. DEPARTMENT OF HOMELAND SECURITY,
FEDERAL EMERGENCY MANAGEMENT AGENCY;
THE TEXAS STATE HISTORIC PRESERVATION OFFICER;
THE TEXAS DIVISION OF EMERGENCY MANAGEMENT; AND
THE UNIVERSITY OF TEXAS MEDICAL BRANCH;
REGARDING
THE DEMOLITION OF THE OLD SHRINERS BURN INSTITUTE AND
SURGICAL RESEARCH BUILDING
LOCATED AT 610 & 626 TEXAS AVENUE, GALVESTON, TX**

SIGNATORY:

UNIVERSITY OF TEXAS MEDICAL BRANCH

By: 
William R. Elger, CPA
Executive Vice President,
Chief Business and Finance Officer

Date: 8/10/11

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APPENDIX E: PUBLIC NOTICE

Federal Emergency Management Agency
PUBLIC NOTICE
Notice of Availability of the Draft Environmental Assessment (Draft EA)
for the Proposed Construction and Operation of the Clinical Services Wing and Associated Site
Demolition Activities
University of Texas Medical Branch at Galveston, Texas

The Federal Emergency Management Agency (FEMA) hereby gives notice to the public of its intent to reimburse eligible applicants for eligible costs to repair and/or replace facilities damaged by Hurricane Ike beginning on September 13, 2008. This notice applies to the Public Assistance (PA) program implemented under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121-5206.

Interested persons are hereby notified that The University of Texas Medical Branch (UTMB), located at 301 University Boulevard, Galveston, Texas, has applied to FEMA for assistance with the proposed construction and operation of a 6-story Clinical Services Wing (CSW) and associated site demolition activities after sustaining an estimated \$1 billion in damages, including lost revenue due to the closure of UTMB's hospital's facilities.

The proposed UTMB project will involve demolishing 5 buildings (Jennie Sealy Hospital, the Surgical Research Building, former (Old) Shriner Burn Institute, Carpenter's Shop and Physical Plant Storeroom, and the Surgical Research Annex) to prepare the site for construction of the CSW. The CSW would be designed to relocate and elevate major clinical support services components, currently located on the ground level of the existing UTMB hospital complex, which were severely damaged by flooding during Hurricane Ike. The facility is proposed as a 6-story building designed to resist a 132-mph wind load and would consist of approximately 240,000 gross square feet (gsf) of new building construction, 19,800 gsf of new bridge construction, and approximately 2,470 gsf of renovation within the existing hospital complex. This new facility would allow for appropriate state-of-the-art building systems that meet the current building code and FEMA requirements and would provide efficient and effective patient care support services for the clinical environment at UTMB. Building demolition and site preparation is estimated to require approximately 6 months and CSW construction would require approximately 39 months. Preliminary project costs for demolition and new construction are estimated at \$102 million. Operational occupancy of the CSW is anticipated for 2015.

The purpose and need for the project is to restore the critical clinical complex functions at UTMB that were lost or damaged due to Hurricane Ike, and to avoid the loss of essential health care services as a result of future storm events.

In accordance with the National Environmental Policy Act (NEPA) of 1969 and the implementing regulations of FEMA, a Draft Environmental Assessment (EA) was prepared to assess the potential impacts of the proposed action on the human and natural environment. The Draft EA summarizes the purpose and need, alternatives, affected environment, and potential environmental consequences for the proposed action. The Draft EA is available for comment and can be viewed and downloaded from FEMA's website at <http://www.fema.gov/plan/ehp/envdocuments/ea-region6.shtm> or at the UTMB website at <http://www.utmb.edu/>. The Draft EA can also be viewed at the Galveston City Hall, Dickinson Public Library, La Marque Public Library, Friendswood Public Library, Helen Hall Library,

Rosenberg Library, Mae S. Bruce Library, Genevieve Miller Hitchcock Public Library, and the Moore Memorial Public Library.

The comment period will end 30 days from the initial notice publication date of September 1, 2011. Written comments on the Draft EA can be mailed or faxed to the contact below. Verbal comments are being accepted at (877) 287-9804.

If no substantive comments are received, the Draft EA will become final and a Finding of No Significant Impact (FONSI) will be issued for the project. Substantive comments will be addressed as appropriate in the final documents.

Federal Emergency Management Agency, Region VI
c/o Alan Hermely
800 North Loop 288, Denton, TX 76209
Fax: 940-383-7299

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FEMA