FORT WORTH CENTRAL CITY
FORT WORTH, TEXAS

CIVIL / STRUCTURAL PRELIMINARY DESIGN

APPENDIX C
VOLUME II - SUPPLEMENTAL PLANS

MARCH 2008
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<td>Marine Creek Dam Right Abutment Wall Rotational Analysis</td>
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</table>
SITE 5a / 5c
NOTE

EXISTING UTILITY STRUCTURES SUBJECT TO INVASION DURING FLOOD EMERGENCY ARE TO BE MARKED AND Labeled ON SURVEY NOV 5, 2007.

UNDERGROUND UTILITIES AS SHOWN ARE BASED ON CITY OF FORT WORTH SURVEY AND AS SUPPLEMENTED BY FIELD NOTES ON SURVEY AND LOCATIONS. NO SURVEY OR FIELD INVESTIGATION OR SURVEY. ALL UTILITIES SHALL BE CONFIRMED BY SURVEY DURING SUBSEQUENT DESIGN PHASES.

LINE IDENTIFICATION NUMBERS REFER TO CITY OF FORT WORTH NUMERATION AND ARE FOR REFERENCE PURPOSES.

SCALE: 1" = 100'

NOT FOR CONSTRUCTION

US Army Corps of Engineers
Fort Worth District

CG-13
NOTES
1. UNDERGROUND PUBLIC UTILITIES AS SHOWN ARE BASED ON CITY OF FORT WORTH AND TEXAS A & M UNIVERSITY UTILITIES AS SHOWN ARE BASED ON DETAILED FIELD INVESTIGATION ON SURVEY.
2. FRANCHISE UTILITIES AS SHOWN ARE BASED ON TEXAS A & M UNIVERSITY UTILITIES AS SHOWN ARE BASED ON DETAILED FIELD INVESTIGATION ON SURVEY.
3. ALL UTILITIES SHALL BE COVERED BY SURVEY DURING SUBSEQUENT DESIGN PHASES.
NOTES:
1. UNDERGROUND UTILITIES AS SHOWN ARE BASED ON CITY OF FORT WORTH SURVEY DATA AND ARE SUPPLEMENTED BY EXISTING UTILITIES SURVEY AND FIELD INVESTIGATION ON SITE.
   
   2. UTILIZATION NUMBERS REFER TO CITY OF FORT WORTH SURVEY DATA AND ARE FOR REFERENCE PURPOSES ONLY.
   
   3. Franchise UTILITIES ARE BASED ON FORT WORTH UTILITIES DATA AND ARE FOR REFERENCE PURPOSES ONLY.
   
   4. SURVEY DATA HAS BEEN PROVIDED FROM U.S. AERIAL MAPPING.
   
   5. UTILITIES SHALL BE CONFIRMED BY SURVEY DURING SITE DEVELOPMENT PHASES.
   
LEGEND
- WATER LINE
- GAS LINE
- LIQUID FUEL LINE
- PROPANE FUEL LINE

NOT FOR CONSTRUCTION
NOTES:

1. Underground utilities as shown are based on City of Fort Worth GIS data and are supplemented by field surveys and plant visits and are confirmed by detailed field investigation on survey.

2. Line identification numbers refer to City Of Fort Worth Nomenclature and are for preliminary design purposes.

3. Franchise utilities are based on Texas Railroad Commission GIS files (2008) and City Of Fort Worth GIS files.

4. Survey data as produced from CDE aerial mapping.

5. All utilities shall be confirmed by survey during subsequent design phases.

LEGEND

- Water Main
- Natural Gas Line
- Fuel Gas Line

EXISTING NATURAL GAS LINES
ALSO NOT FOR CONSTRUCTION

EXISTING FUEL GAS LINES
ALSO NOT FOR CONSTRUCTION

EXISTING WATER LINES TO BE PROTECTED
DURING CONSTRUCTION

EXISTING LIQUID FUEL LINE
ALSO TO BE PROTECTED
DURING CONSTRUCTION

British Army Corps
of Engineers
Fort Worth
District

CU-05

2008

SCALE=1"=100'
NOTES:
1. BRI
2. ACCESS TO BRIDGE FROM WEST ABUT
3. 3 AND SS-04 FOR DETAILS.
4. ACTUAL END POINT OF SHEETPILING TO ABUTMENT TO BE DETERMINED ON STRUCTURAL ANALYZE.

US Army Corps of Engineers
Fort Worth District

\[ \text{PHASE I} \]
\[ \text{PHASE II} \]
\[ \text{PHASE III} \]

\[ \text{SHEETPILING} \]
Samuel Avenue Dam Plan

Plan of Low Flow Pier

Scale: 1" = 20'

Note: Stop logs to be stored on upstream side of stop log slot. Stop log slot will extend to and be attached to the bridge.
RIGHT TRAINING WALL AT LOCK

T/WALL EL 530.5'

T/PITCH EL 033.6'

DRAIN TO TAILWATER

12'-0" 5'-12" 15'-0"

35'-0"

LEFT AND RIGHT TRAINING WALLS

T/WALL EL 530.0'

T/PITCH EL 033.6'

DRAIN TO TAILWATER

8'-0" 4'-12" 22'-3"

35'-0"

RIGHT ABUTMENT WALL

T/WALL EL 530.5'

T/PITCH EL 033.6'

DRAIN TO TAILWATER

12'-0" 5'-12" 15'-0"

35'-0"
**Rotational Stability Analysis**

**Sliding Stability Analysis**

**Legend:**

- **FX** = SUM OF ALL HORIZONTAL FORCES IN THE GLOBAL X DIRECTION (POSITIVE TOWARD CHANNEL) CONSIDERING ANY UPLIFT EFFECTS BUT WITHOUT SHEAR KEY RESISTANCE.
- **FY** = SUM OF ALL HORIZONTAL FORCES IN THE GLOBAL Y DIRECTION CONSIDERING ANY UPLIFT EFFECTS
- **FZ** = SUM OF ALL VERTICAL FORCES IN THE GLOBAL Z DIRECTION (POSITIVE DOWNWARD) CONSIDERING ANY UPLIFT EFFECTS
- **U** = DISTANCE BETWEEN RESULTANT AND CENTER OF BASE CONSIDERING ANY UPLIFT EFFECTS

**Load Cases Summary**

<table>
<thead>
<tr>
<th>LOAD CASE</th>
<th>WATER @ ELEV.</th>
<th>WATER @ TOE</th>
<th>FX TOTAL (KSF)</th>
<th>FY TOTAL (KSF)</th>
<th>FZ TOTAL (KSF)</th>
<th>BASE IN COMPRESSION (%)</th>
<th>SHEARING PRESSURE (KSF)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>520.0</td>
<td>520.0</td>
<td>32.7</td>
<td>0.0</td>
<td>84.6</td>
<td>100.0</td>
<td>3.25</td>
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<tr>
<td>2</td>
<td>520.0</td>
<td>520.0</td>
<td>32.7</td>
<td>0.0</td>
<td>84.6</td>
<td>100.0</td>
<td>3.25</td>
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<tr>
<td>3</td>
<td>506.8</td>
<td>506.8</td>
<td>33.2</td>
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<td>4</td>
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<td>0.0</td>
<td>86.3</td>
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**Design Parameters:**

- **WATER** = 0.005 KSF
- **CEMENT** = 125 KSF
- **STEEL** = NOT CONSIDERED
- **SEISMIC WALL LOADS** = 0.095
- **WATER TABLE** = 0.0325 KSF/FT

**Loading Conditions:**

- **WEDGE** = 1.404
- **BASE IN BEARING PRESSURE** = 0.028 KSF

**Scale:**

- **BASE PRESSURE** = 2.40 KSF
- **SHEAR** = 0.919 KSF
- **WEDGE** = 0.8 KSF

**Draw Date:** October 11, 2007

**Not for Construction:**

- This document is not intended for construction purposes and should not be used for construction or any other purpose.
ROTATIONAL STABILITY ANALYSIS
NOT TO SCALE

SLIDING STABILITY ANALYSIS
NOT TO SCALE

LEGEND:
FX = SUM OF ALL HORIZONTAL FORCES IN THE GLOBAL X DIRECTION CONSIDERING ANY UPLIFT EFFECTS BUT WITHOUT SHEAR KEY RESISTANCE.
FY = SUM OF ALL HORIZONTAL FORCES IN THE GLOBAL Y DIRECTION CONSIDERING ANY UPLIFT EFFECTS.
FZ = SUM OF ALL VERTICAL FORCES IN THE GLOBAL Z DIRECTION (NEGATIVE DOWNWARD) CONSIDERING ANY UPLIFT EFFECTS.
e = DISTANCE BETWEEN RESULTANT AND CENTROID OF BASE CONSIDERING ANY UPLIFT EFFECTS.

DESIGN PARAMETERS:
WATER = 0.0325 KCF
SOIL = 0.0625 KCF
WIND = NOT CONSIDERED
SEISMIC WALLS = 0.0625 KCF

LOADING CONDITIONS:
THE ANALYSIS WAS RUN FOR A SERIES OF WATER LEVELS DURING STAGE 3 FROM THE TOP OF ELEVATION M.E.D. + H.S. + CASE, WITH RESPECT TO SLIDING, IS PRESENTED IN GRAPHICAL FORM.
ROTATIONAL STABILITY ANALYSIS

NOT TO SCALE

LEGEND:

FS = SUM OF ALL HORIZONTAL FORCES IN THE HORIZONTAL DIRECTION CONSIDERING ANY UPLIFT EFFECTS
FY = SUM OF ALL HORIZONTAL FORCES IN THE GLOBAL Y DIRECTION CONSIDERING ANY UPLIFT EFFECTS
FZ = SUM OF ALL VERTICAL FORCES IN THE GLOBAL Z DIRECTION CONSIDERING ANY UPLIFT EFFECTS

NOTE:

THE DAM AND BASIN ARE ASSUMED TO BE CAPABLE OF RESISTING THE NET SLIDING FORCE ON THE WALL.

LOADING CONDITIONS:

1. EXTREME INUNDATION FOLLOWED BY A RAPID DRAINS TIME, A FLOOD OF 10 FT DEEP IS IMPOSED
2. WAVE FORCES WITH A 7 FT WAVE HEIGHT ARE APPLIED AT THE TOP OF THE WALL
3. THE WAVE ACTION RANGE IS CONSIDERED TO BE 3 TIMES THE HORIZONTAL DISTANCE FROM THE WALL TO THE TOP OF THE BLOCKS

DERIVED MOMENT ANALYSIS

NOT FOR CONSTRUCTION
## Rotational Stability Analysis

### Rotational Analysis Summary

<table>
<thead>
<tr>
<th>Load Case</th>
<th>Water Toe (KSF)</th>
<th>Water Heel (KSF)</th>
<th>FS</th>
<th>Total (KSF)</th>
<th>C (KSF)</th>
<th>μ</th>
<th>Base in Compression (%)</th>
<th>Bearing Pressure (KSF)</th>
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<td>L1</td>
<td>530.0</td>
<td>630.0</td>
<td>26.6</td>
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<td>647.1</td>
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<td>0.371</td>
<td>0.371</td>
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<tr>
<td>L2</td>
<td>515.0</td>
<td>615.0</td>
<td>23.9</td>
<td>531.9</td>
<td>631.9</td>
<td>100.0</td>
<td>0.460</td>
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<tr>
<td>L3</td>
<td>515.0</td>
<td>615.0</td>
<td>23.9</td>
<td>531.9</td>
<td>631.9</td>
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<td>522.4</td>
<td>622.4</td>
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### Sliding Stability Analysis

#### Sliding Analysis Summary

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<th>Water Heel (KSF)</th>
<th>FX (KSF)</th>
<th>FY (KSF)</th>
<th>FZ (KSF)</th>
<th>μ</th>
<th>Slip Angle (Degree)</th>
<th>Wall = 38.3 KLF</th>
<th>Base = 3.808 KSF</th>
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<td>L2</td>
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<tr>
<td>L3</td>
<td>515.0</td>
<td>615.0</td>
<td>23.9</td>
<td>531.9</td>
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<td>100.0</td>
<td>0.574</td>
<td>0.574</td>
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#### Legend
- FX = Sum of all horizontal forces in the Global X direction (positive toward channel) considering any uplift effects but without shear key resistance.
- FY = Sum of all horizontal forces in the Global Y direction considering any uplift effects.
- FZ = Sum of all vertical forces in the Global Z direction (positive downward) considering any uplift effects.
- μ = Distance between resultant and centroid of base considering any uplift effects.

#### Design Parameters
- Water = 0.25 KSF
- Concrete = 3.0 KSF
- Steel = Not Considered
- Seismic Wall = Not Considered

#### Loading Conditions
- Wall Loads due to Soil: 0.025 KSF/FT
- Rock Fill Water Table = 0.025 KSF/FT

#### Sliding Analysis
- Extreme Inversion Followed by a Rapid Gradation Downstream at the Tip of the Sliding Surface.
- Water Line at the Toe. The Analysis Was Run for 5 Series of Water Elevations
  - 0.0325 KSF/FT
  - 0.065 KSF/FT
  - Down to the Tip of the Crest
- Maximum Water Elevation over heel at 285 FT
- Maximum Water Head over toe at 55 FT

### Analysis
- Analysis Was Presented in Graphical Form.
ROTATIONAL STABILITY ANALYSIS
NOT TO SCALE

<table>
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<tr>
<th>LOAD CASE</th>
<th>WATER</th>
<th>W</th>
<th>H</th>
<th>TOTAL (KSF)</th>
<th>FX</th>
<th>FY</th>
<th>FZ</th>
<th>TOTAL (KSF)</th>
<th>a</th>
<th>% BASE IN COMPRESSION</th>
<th>BEARING PRESSURE (KSF)</th>
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<td>530.0</td>
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<td>50.0</td>
<td>1250.0</td>
<td>77.8</td>
<td>72.8</td>
<td>150.6</td>
<td>1500.0</td>
<td>0.19</td>
<td>13.15</td>
<td>3.25</td>
</tr>
<tr>
<td>1c</td>
<td>530.0</td>
<td>500.0</td>
<td>50.0</td>
<td>1250.0</td>
<td>77.8</td>
<td>72.8</td>
<td>150.6</td>
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<td>1d</td>
<td>530.0</td>
<td>500.0</td>
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<td>77.8</td>
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<td>150.6</td>
<td>1500.0</td>
<td>0.19</td>
<td>13.15</td>
<td>3.25</td>
</tr>
</tbody>
</table>

SLIDING STABILITY ANALYSIS
NOT TO SCALE

LEGEND:
FX = SUM OF ALL HORIZONTAL FORCES IN THE GLOBAL X DIRECTION (POSITIVE TOWARDS CHANNEL) CONSIDERING ANY UPLIFT EFFECTS BUT WITHOUT SHEAR KEY RESISTANCE.
FY = SUM OF ALL HORIZONTAL FORCES IN THE GLOBAL Y DIRECTION CONSIDERING ANY UPLIFT EFFECTS
FZ = SUM OF ALL VERTICAL FORCES IN THE GLOBAL Z DIRECTION (POSITIVE DOWNWARD) CONSIDERING ANY UPLIFT EFFECTS
a = DISTANCE BETWEEN RESULTANT AND CENTER OF BASE CONSIDERING ANY UPLIFT EFFECTS

DESIGN PARAMETERS:
WATER = 0.0625 KSF
WIND = NOT CONSIDERED
SEISMIC = NOT CONSIDERED
WALL LOADS 0.0 TO 100.0
ABOVE WATER TABLE = 0.0955
BELOW WATER TABLE = 0.0085

LOADING CONDITIONS:
I EXTREME INUNDATION FOLLOWED BY A 50-YEAR GRAND SLIDE DOWN THE RAMP FROM TOP OF RETAINING WALL TO WATER LEVEL AT THE TOP. THE ANALYSIS WAS RUN FOR A SERIES OF RETAINING WALL ELEVATIONS AND WATER LEVELS TO DETERMINE THE MOST CRITICAL CONDITION THE WALL AND FOOTING CAN WITHSTAND.

NOT FOR CONSTRUCTION PURPOSES.

US Army Corps of Engineers
Fort Worth District

IDENTIFICATION
SS-19

DATE
OCT 21, 1971

AUTHORITY OF BRIDGE
Texas No. 91318

THIS DOCUMENT IS RELEASED FOR CONSTRUCTION PURPOSES.

REVIEWED BY
Charles M. Neff
Engineer

ENGINEER
Paul A. Beinfield

CONSTRUCTION DRAWING
Fort Worth District

REVISION DATE
11/15/71

STABILITY ANALYSIS

A
ROTATIONAL STABILITY ANALYSIS

NOT TO SCALE

LEGEND:
FX = SUM OF ALL HORIZONTAL FORCES IN THE GLOBAL X DIRECTION CONSIDERING ANY UPLIFT EFFECTS
FY = SUM OF ALL HORIZONTAL FORCES IN THE GLOBAL Y DIRECTION CONSIDERING ANY UPLIFT EFFECTS

WALL LOADS DUE TO SOIL:
WATER LOADS DUE TO SOIL:
ABOVE WATER TABLE:
BELOW WATER TABLE:
NOTE:
THE DAM AND BARRIER ARE ASSUMED TO BE CAPABLE OF RESISTING THE NET BENDING FORCE ON THE WALL.

DESIGN PARAMETERS:
WATER = 0.005 KSF
CONCRETE = 135 KSF
WIND = 0 NOT CONSIDERED
SEISMIC = U NOT CONSIDERED
WALL LOADS DUE TO SOIL:
LOADING CONDITIONS:
EXTREME INUNDATION FOLLOWED BY A 500-YEAR DRAIN DOWN EVENT - THE HEIGHT OF RETAINED WATER WAS DETERMINED FROM THE IMPACT OF EXTREME INUNDATION FOLLOWED BY A 500-YEAR DRAIN DOWN EVENT. THE ANALYSIS WAS RUN FOR A SERIES OF 300 FEET ELEVATIONS OVER THE RANGE OF MAXIMUM TOP OF FOOTING ELEVATION. ONLY THE MOST OPTIMUM WATER SITUATION WAS PRESENTED, WHICH IS REFLECTED IN THE PREFERRED BASE PRESSURE FOR THE STABILITY ANALYSIS.
NOTE:
REFERENCE DRAWING IS FROM THE REPORT ENTITLED:
"RIVERSIDE OXBOW, FROM THE INTERIM FEASIBILITY STUDY AND INTEGRATED ENVIRONMENTAL ASSESSMENT (APRIL 2005)"
DRAWING IS NOT TO SCALE.

BEACH STREET ELEVATION
NOTE:
REFERENCE DRAWING IS FROM THE REPORT ENTITLED "RIVERSIDE OXBOW FROM THE INTERIM FEASIBILITY STUDY AND INTEGRATED ENVIRONMENTAL ASSESSMENT (APRIL, 2005)". DRAWING IS NOT TO SCALE.

GENERAL NOTES:
1. ALL REINFORCING STEEL IS ZINC COATED.
2. ALL REINFORCING STEEL IS TO BE errs. (a) 1/2", (b) 3", (c) 4", (d) 6", (e) 8", (f) 10", (g) 12", (h) 14", (i) 16", (j) 18", (k) 20", (l) 22", (m) 24".
3. ALL SECTIONS ARE TO SCALE. 1" = 4'.

TYPICAL TRANSVERSE SECTION

RIVERSIDE OXBOW
BEACH STREET SLAB
REFERENCE DRAWING IS FROM THE REPORT ENTITLED:
"RIVERSIDE OXBOW FROM THE INTERIM FeASIBILITY STUDY AND INTEGRATED ENVIRONMENTAL ASSESSMENT (APRIL 2005)"
DRAWING IS NOT TO SCALE.
NOTE:

REFERENCE DRAWING IS FROM THE REPORT ENTITLED:
"INVERSE OXBOB, FROM THE INTERIM FEASIBILITY STUDY AND INTEGRATED ENVIRONMENTAL ASSESSMENT (APRIL 2005)"
DRAWING IS NOT TO SCALE.

ELEVATION OF BEAM

GENERAL NOTES:

The diagram is not to scale.

All dimensions shown in the diagram are approximate.

The beam is labeled as Type IV beam.

The elevation of the beam is shown in detail.
NOTE:
REFERENCE DRAWING IS FROM THE REPORT ENTITLED:
"RIVERSIDE OXBOW, FROM THE INTERIM FEASIBILITY STUDY AND INTEGRATED ENVIRONMENTAL ASSESSMENT (APRIL 2005)"
DRAWING IS NOT TO SCALE.
NOTE:
REFERENCE DRAWING IS FROM THE REPORT ENTITLED:
"RIVERSIDE OXBOW, FROM THE INTERIM FEASIBILITY STUDY AND INTEGRATED ENVIRONMENTAL ASSESSMENT (APRIL 2005)"
DRAWING IS NOT TO SCALE.
NOTE:
REFERENCE DRAWING IS FROM THE REPORT ENTITLED:
"RIVERSIDE OXBOW, FROM THE INTERIM FEASIBILITY STUDY AND INTEGRATED ENVIRONMENTAL ASSESSMENT (APRIL 2005)"
DRAWING IS NOT TO SCALE.

GENERAL NOTES:
All reinforcing steel shall be Grade 60.
Concrete strength f'c = 4,000 psi.
Bar sizes, when required, shall be as follows:
2-5 = 1-3/8"
NOTE:
REFERENCE DRAWING IS FROM THE REPORT ENTITLED:
"RIVERSIDE OXBOW, FROM THE INTERIM FEASIBILITY STUDY AND INTEGRATED ENVIRONMENTAL ASSESSMENT (APRIL 2005)"
DRAWING IS NOT TO SCALE.