Great Lakes Dredge & Dock Company

John Redmond Design-Dredge Contract

Closure of CDF “F” Beneficial Reuse of Dredge Material

NOVEMBER 2018

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Closure of CDF F Status

John Redmond Design-Dredge Contract

1. WHO WE ARE
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7. PROJECT SAFETY

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WHO WE ARE

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1 WHO WE ARE

GREAT LAKES DREDGE & DOCK COMPANY, LLC

- Providing dredging services since 1890
- Largest dredging contractor in the U.S.
- Annual sales of $700M+
- Completed dredging projects on six (6) continents
- Largest volume dredging contract completed → 104,600,000 CY
- On average GLDD dredges 51,000,000+ CY per year
- Operate CSD (hydraulic dredges), trailing suction hopper dredges (hoppers), and mechanical (clamshell & backhoe)

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DREDGE FLEET

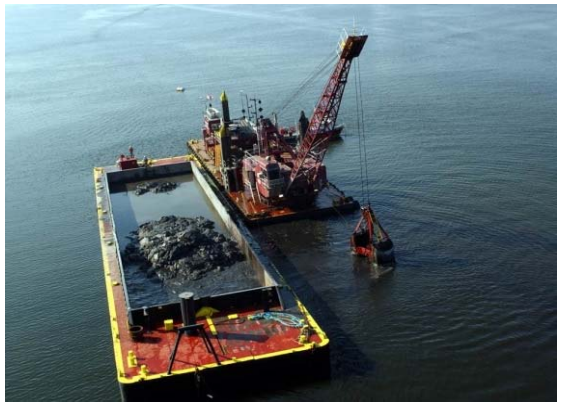
GREAT LAKES DREDGE & DOCK COMPANY, LLC

6 FIXED HULL CUTTER SUCTION DREDGES

4 PORTABLE CUTTER SUCTION DREDGES

6 HOPPER DREDGES

3 CLAMSHELL DREDGES



BACKHOE DREDGE *NEW YORK*

DRILL BOAT *APACHE*

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PROJECT TYPES

GREAT LAKES DREDGE & DOCK COMPANY, LLC

CAPITAL

COASTAL PROTECTION

MAINTENANCE

INTERNATIONAL

RIVERS & LAKES

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JOHN REDMOND PROJECT DETAILS

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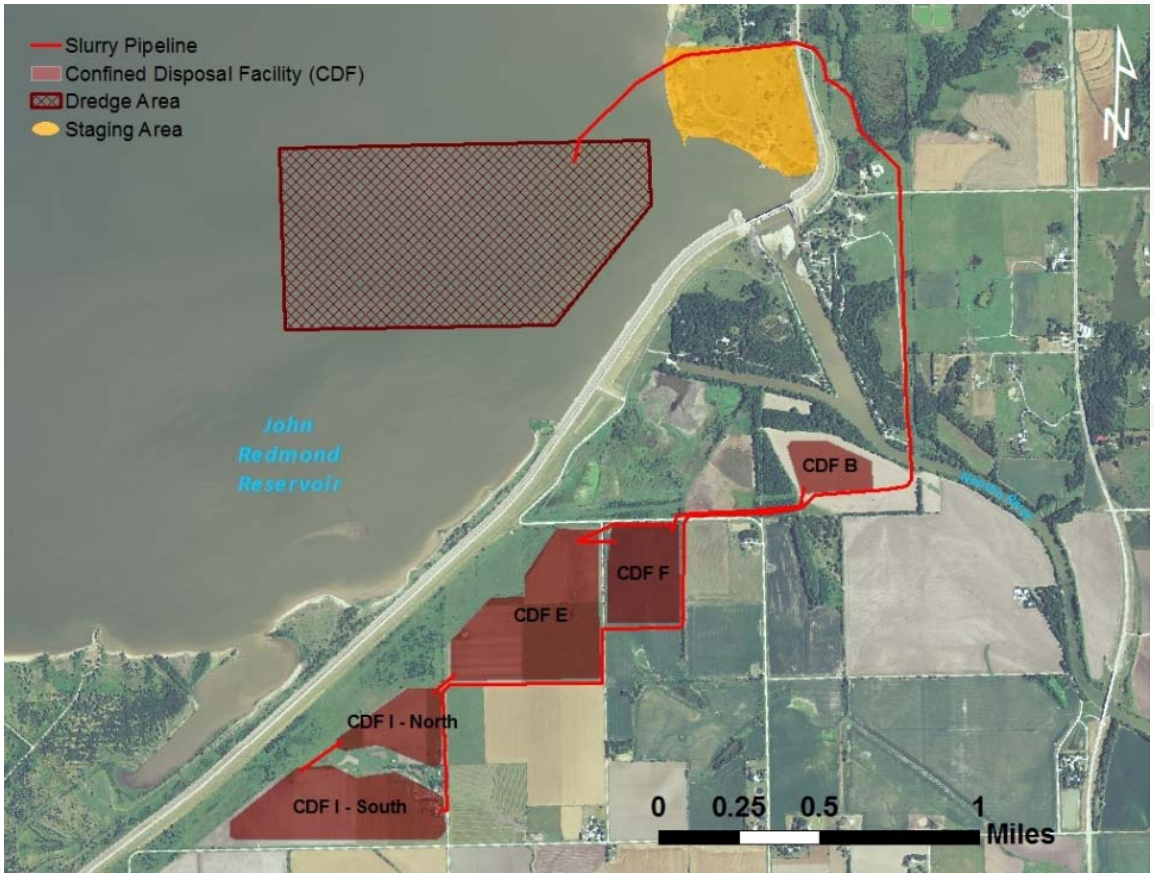
2 John Redmond Reservoir Design Dredge Details



- ✓ 3,000,000 cubic yards Dredged
- ✓ $20,000,000 price tag includes costs associated with design, permitting, mobilization, CDF construction, dredging, demobilization, and land reclamation
- ✓ The Kansas Water Office entered into lease agreements for land used for 4 of the 5 disposal sites. The other site, CDF B, is on Corps of Engineers property and was provided at no cost

2 CDF Design - Permit Considerations

REQUIRED PERMITS THAT SUPPORTED THE DESIGN EFFORT

- Section 408 Request/Programmatic EIS Finding of No Significant Impact
- Supplemental Environmental Assessment Finding of No Significant Impact for CDFs
- Section 106 Programmatic Agreement to ensure compliance of the National Historic Preservation Act
- Dam Safety Permits from DWR for all CDFs
- Floodplain Fill Permit from DWR for CDFs B and F
- Water Term Permit from DWR to use water from Redmond for dredging purposes
- Notice of Intent for Storm Water Runoff from Construction Activities from KDHE
- NPDES Permit for discharge of effluent water to the Neosho River

ARCHEOLOGICAL SURVEY & GEOARCHEOLOGICAL INVESTIGATIONS of CDF F, CDF I-NORTH, and CDF I-SOUTH for The John Redmond Reservoir Dredging Project - Coffey County, Kansas

2 CDF Design – Dredge Material Considerations

COLUMN SETTLEMENT TESTING

- 30 vibrio-cores were taken of the dredge area.
- Test proved material could be placed throughout the farm land and acceptable for farm application.
- The overriding conclusion from these tests is that the slurry compresses under self-weight only very, very slowly.
- In Summary…
    - Test verified that it took until 80 days to reach 1.20 g/ml.
    - Extrapolation - density increases beyond 1.20 are small not likely without assistance.
- Testing of the free water on top of the consolidating sediment (i.e., the water that gets discharged from the CDF, suggests that it does indeed clear up to TSS<55 mg/L.

GEOTECHNICAL ENGINEERING REPORT
PROPOSED CONFINED DISPOSAL FACILITIES
for the John Redmond Reservoir - New Strawn, Kansas
Prepared for: EBH & Associates, P.A.
Prepared by: Terracon Consultants, Inc.

2 CDF Construction

- 5 CDF – four (4) placement sites; one (1) polishing pond
- 290 acres, 41,350 LF of dikes - 775,000 CY
- Stripping of topsoil - 450,000 CY
- Designed dredge volume to fill ratio – 1.50
- Design, fabricate, and install six (6) Weir Structures
- Design challenges: Limited land available and flat topo for gravity drain system

2 DREDGING OPERATIONS

2 CONSTRUCTION TIMELINE

TIME FRAME	ACTIVITY
August 2013 through January 2016	Project Design / Permitting
November 2015 through June 2016	Confined Disposal Facility (CDF) Construction
May 2016	Dredging Operations Begin
October 2016	Dredging Operations Completed
Late 2016	CDF Dewatering Efforts Begin
Late 2018 / early 2019	Close-out of CDF “F” & “B”

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CONSTRUCTION CDF “F” PLAN

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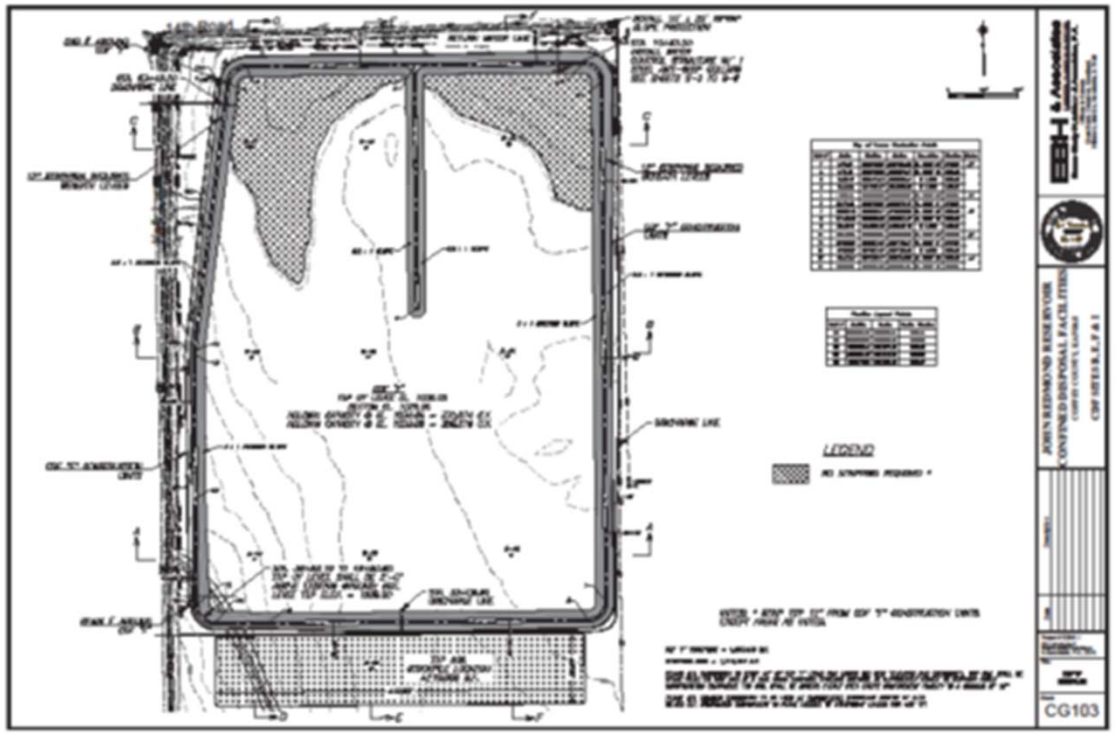
3 CONSTRUCTION PLAN FOR CDF “F”

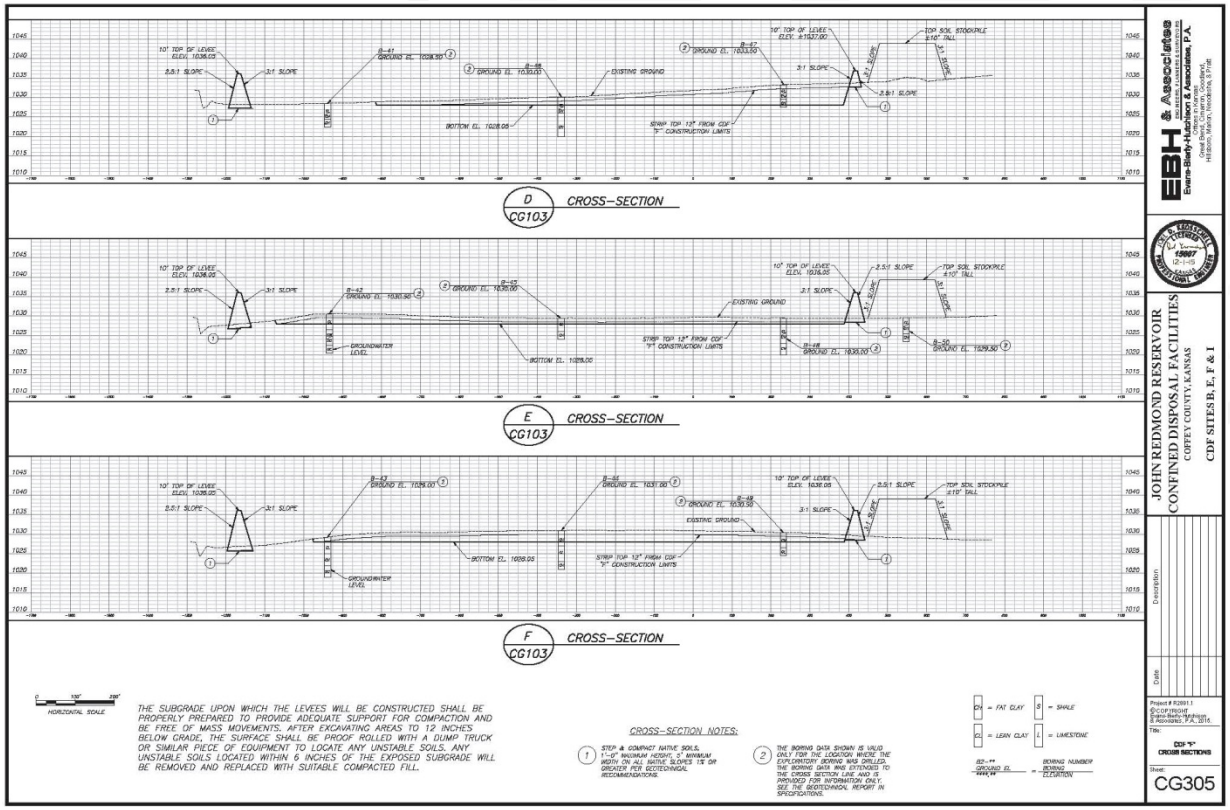
3 OVERVIEW - CDF COMPLETION PLANS

- ✓ Total Area of CDF 30 Acres
- ✓ Remove Topsoil - Excavate top 12” 72,100 CY to be placed in stockpile
- ✓ Dike Borrow Material - Clay Material 68,600 CY
- ✓ Dike Construction - Construct 8 foot dikes Compacted 52,800 CY
- ✓ CDF Capacity - 2 FT of Freeboard 375,000 CY
- ✓ Designed for 6.0 foot of dredge slurry/material



3 STEPS FOR CDF CONSTRUCTION

1. Prep site for erosion control
2. Strip topsoil for placement in stockpile area
3. Excavate clay material from interior borrow area
4. Place clay material on dike in foot lifts
5. Compact each lift
6. Seed exterior dikes



3 CDF CONSTRUCTION

HENDERSON GRADING, INC.

SCHMIDT EXCAVATING

MIES CONSTRUCTION INC.

EBH ENGINEERS SURVEYORS & Associates, P.A.
Evans-Bierly-Hutchison & Associates, P.A.
Offices in Cimarron, Goodland, Hillsboro, Marion, Neodesha, Pratt, and Great Bend, Kansas

3 CDF F CONSTRUCTION

BEFORE CDF CONSTRUCTION

FILLED WITH DREDGE MATERIAL

4

DEWATERING EFFORTS TO ACHIEVE CDF "F" PLAN

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4 CDF F DEWATERING EFFORTS

Extrapolation from settling column testing of dredge material - density increases beyond 1.20 g/ml are small and not likely without assistance.

CURRENT PLANS FOR CDF'S

- ✓ CDF "F" to return to agriculture use
- ✓ CDF "B" create prairie lands
- ✓ CDF "E" create wetlands
- ✓ CDF "I-N" create wetlands
- ✓ CDF "I-S" create wetlands

4 CDF “F” - IN PLACE DEWATERING EFFORTS

1st STEP – DRAIN & PUMP OFF SURFACE WATER

- ✓ Gravity Drain through Weir Box
- ✓ Started November 2016
- ✓ By end of January 2017, ready for trench development

4 CDF "F" – IN PLACE DEWATERING EFFORTS

2nd STEP – DEVELOP TRENCHES TO BLEED WATER

- ✓ Long reach marsh buggy, capable of working in 3 foot of water
- ✓ Dig perimeter trench to circle entire dredge fill
- ✓ Dig interior ditches at 100 FT centers for water to perimeter
- ✓ Acknowledge our friends who make it work:

SUN, WIND & GRAVITY!

4 2017 CDF "F" – IN PLACE DEWATERING EFFORTS

2nd STEP – DEVELOP TRENCHES TO BLEED WATER
3 PASSES IN 2017

TRACK TRENCHING PASS

2017
1ST TRENCH PASS

NOV 2017
2ND / FINAL TRENCH PASS

4 2018 CDF "F" – IN PLACE DEWATERING EFFORTS

GOALS for 2018 – CLOSE OUT CDF "F" & RETURN TO KWO

COMPLETED

- ✓ 1. Deepening trenches to encourage natural dewatering
- ✓ 2. Turn dredge material to accelerate dry process
- ✓ 3. Removed Weir Structures

4. Level dredge material / trenches
Scheduled for completion Sept / Oct 2018

5. Degrade dike and level CDF area to receive top soil

6. Spread top soil

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STATUS REPORT

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5 CDF “F” CLOSURE PLAN *STATUS*

ON TARGET!

THEN…

9”

SW QUADRANT OF CELL “F”

NE CORNER OF CELL “F”

SW CORNER OF CELL “F”

5 CDF "F" CLOSURE PLAN STATUS OCTOBER 2018

GOALS FOR 2018 – CLOSE OUT CDF "F" and RETURN TO KWO

4. Level dredge material / trenches - *Almost complete*

THEN…

5. Degrade dike and level CDF area to receive top soil

6. Spread top soil

Before the October rains we prepared the site to manage the water.

5 CDF "F" CLOSURE PLAN OCT – DEC 2018

GOALS FOR 2018 – CLOSE OUT CDF "F" and RETURN TO KWO

CHANGES TO THE PLAN DUE TO THE RAINS

➔ Split resources

- Dozer crew leveling CDF "B" Dike - CDF "B" now is our focus to close before 2019
- Marsh Buggy back in CDF "F" to support dewatering and accelerate material drying

4. Level dredge material / trenches – *before Thanksgiving*

5. Degrade dike and level CDF area to receive top soil – *before Christmas*

6. Spread top soil – (weather depending) *1 qtr. 2019* (We built the dike in the winter)

7. Prepare area to return to farming – *Spring 2019*

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RESULTS OF IN PLACE DEWATERING

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6 MEASURED RESULTS of PASSIVE DEWATERING

10/19/18

John Redmond Reservoir

Results of In Place Dewatering Effort (By the numbers)

Item	Description	Unit	Volume	Date of Survey	Ratio to Item B	Ratio to Item C	Ratio to Item A	Total Months	Change by Month from Item C	Change by Month from Item D
A	Designed Capacity of CDF "F"	CY	349,100							
B	Volume of material pumped into the CDF - Cut measure from the dredge area	CY	213,134	8/9/2016	1.00	0.67				
C	Dredge Material measured by Survey placed in the CDF	CY	315,800	11/1/2016	1.48	1.00	1.11	2.76		
D	Dredge Material measured by Survey placed in the CDF	CY	260,617	6/11/2017	1.22	0.83		10.06	5,485	
E	Dredge Material measured by Survey placed in the CDF	CY	166,800	9/16/2018	0.78	0.53		25.25	5,901	6,177

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PROJECT SAFETY

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7 SAFETY TOOLS

REINFORCING GLDD PROJECT SITES TODAY

- ✓ IIF® Kickoff Meeting
- ✓ IIF® Operations Orientation
- ✓ Stop-Work Authority
- ✓ JSA
- ✓ Company-wide Good Catch, Near Miss, and Incident Broadcasts
- ✓ Support from Site Health & Safety Officers (SHSO's)
- ✓ Systems-Focused Incident Response
- ✓ Save A Life Today (The S.A.L.T. book)

+812 TOTAL DAYS WITHOUT A REPORTABLE & COUNTING

2017 - NATIONAL SAFETY AWARD FOR DREDGING PROJECT

IIF

INCIDENT & INJURY-FREE

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SAFETY **WITHOUT COMPROMISE**

POP QUIZ

IS SAFETY A **PRIORITY** OR A **VALUE?**

QUESTIONS / DISCUSSION

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