PROJECTS ITEM 1

Mike Onnen

From: Garrett, Nathan - NRCS, Grand Island, NE <Nathan.Garrett@ne.usda.gov>
Sent: Wednesday, October 03, 2018 10:29 AM
To: Mike Onnen
Cc: Huntwork, James - NRCS, Grand Island, NE; Valasek, Janet - NRCS, Nelson, NE; Blunk, Judith - NRCS, Hebron, NE; Dylan Long; Robison, Jacob - NRCS, Lincoln, NE; Sall, Jason - NRCS, Lincoln, NE; Heibel, Art - NRCS, Lincoln, NE
Subject: RE: NEM Part 504 "Special Investigations" - Assistance Request
Attachments: Epley_378_Repair_PlanEstimate_2018-10-02.pdf

Good morning Mike,
The following email provides a summary and status regarding the Epley Pond failure and repair plan. The email string below also includes prior communication and status.

NRCS has not developed the final report for the Epley failure but I believe the Epley structure failed due to a combination of issues including:

1. Small voids under the pipe when it was being placed,
2. Some material may have been too dry for pipe bedding,
3. Precipitation prior to the event exceeded 5.7 inches and led to a quick "loading" of the structure,
4. Dispersive soils used in the earthfill and pipe bedding.

Based on my observations, I've developed a draft concept plan for repair which includes a cost estimate. I will be working with my peers to evaluate the investigation report and modify the draft plan but wanted to get you a summary prior to next week's board meeting. Attached is the current concept plan and cost estimate for the Epley repair. The current repair plan consists of:

- Laying back the existing breach area,
- Salvaging the riser, pipe support, and last section of pipe,
- Backfill using non-dispersive material,
- Constructing chimney drain which intercepts all seepage on backside of structure,
- Seepage protection filter (Sand diaphragm) and outlet protection (no metal diaphragms),
- Laying and bedding riser, pipe, and support,
- Seeding.

The major cost components include the excavation / new pipe but most notably the foundation/chimney drains and seepage protection filter. Because the preliminary soils investigation indicates the existing structure contains dispersive soils we need to mitigate issues with seepage leading to erosion through the embankment and foundation.

Please review at your convenience. I will give you a call to describe the attachment and discuss your thoughts/concerns.

Thanks, Nate
NRCS Central Area Engineer
703 South Webb Road
Grand Island, NE 68801
308-392-3519

From: Garrett, Nathan - NRCS, Grand Island, NE
Sent: Thursday, September 6, 2018 4:17 PM
To: Mike Onnen (monnen@littlebluenrd.org) <monnen@littlebluenrd.org>
Cc: Huntwork, James - NRCS, Grand Island, NE <James.Huntwork@ne.usda.gov>
Subject: FW: NEM Part 504 "Special Investigations" - Assistance Request

Mike,

I'm forwarding the info I sent the investigation team. I'll work with the engineers below to put together a repair plan and keep you in the loop. I appreciated our call this afternoon and your desire to see this project to completion. It's nice to have a GM willing to continue their support in these situations. The bids are included in the attached zip file but I don't have a soft copy of Bob Sullivan's engineers estimate. The estimate is on file at Nelson and I can get it to you if you like.

Thanks, Nate

From: Garrett, Nathan - NRCS, Grand Island, NE
Sent: Thursday, September 6, 2018 4:08 PM
To: Gehring, Allen - NRCS, Lincoln, NE <Allen.Gehring@ne.usda.gov>; Robison, Jacob - NRCS, Lincoln, NE <jacob.robison@ne.usda.gov>; Sall, Jason - NRCS, Lincoln, NE <Jason.Sall@ne.usda.gov>; Heibel, Art - NRCS, Lincoln, NE <art.heibel@lin.usda.gov>
Cc: Huntwork, James - NRCS, Grand Island, NE <James.Huntwork@ne.usda.gov>
Subject: RE: NEM Part 504 "Special Investigations" - Assistance Request

Thanks for taking a look at the structure. Attached are the construction plans, inspection reports (ENG-49) / photos, and Worksheet 11 info. Design info is located in Tecumseh or Nelson and we can send what you may need. I also have jpgs and video of the pipe bedding and the post-failure photos I took on Tuesday, link HERE.

The assistance notes will provide a chronologic summary of events over 3 years leading up to construction. In addition, the inspection notes help determine when items were implemented. To hopefully help you out, I've provided the following summary:

4/15/2015 Ethan Epley requests pond.
7/2/2015 Bob Sullivan pulls together prelim design and cost estimate.
8/27/2015 Ethan signs NRD dam application, board approves on 9/14/2015.
3/19/2018 Final construction plans, bid schedule, and WS11 requirements reviewed with Ethan.
6/18/2018 Moellenberndt Construction selected as contractor.
7/17/2018 Construction limits layed out and project control confirmed.
7/19/2018 Stripping and tree removal.
7/20/2018 Gravel drains installed.
7/23/2018 Cut pipe trench and verified elevations.
7/24/2018 Riser, pipe, diaphragms installed and pipe bedded to spring line when I left. I was there from 10am-2:30 and am assuming the pipe was covered that day.
7/25/2018 Earthfill embankment. Rain shut down operation. Received 1.52 inches according to NE Rain.
7/26/2018 No inspector on site but inspector notes indicate work was occurring.
7/27/2018 Earthfill complete by noon.

9/2/2018 Recent rains prompted landowner to view pool area and embankment. Ethan noticed drawdown pipe was exposed and suspected a problem. Went to bed.
9/3/2018 Ethan visited site in the morning and realized the dam had breached the night before. He checked rain gauge and reported 5.7 inches of rain over the past couple days.

9/4/2018 I visited site with Ethan Epley (landowner), Dylan Long (Little Blue NRD), Jonathon Sliva (Nelson SCT), Judy Blunk (Hebron SCT), Kevin Hurt (Hastings SCT), Josh Malchow (Fairbury SCT), Will Walker (NRCS FE), Travis Mooney (NRCS ACET), Kevin Lamken (NRCS ATS), Joe Dush (NRCS CET). I took photos of the site and pulled 5 separate soil samples. The soil sample testing request is attached with description of each sample. Jake Robison offered to take the soils to the lab on 9/6/2018. On 9/4 I also contacted Colby Moellenberndt (Contractor) via phone after the site visit to discuss the failure. He thought he would be able to visit the site that day and open the drawdown flange to allow some of the pool to drain otherwise a breach would cause more downstream impact. I told both Ethan and Colby there would

likely be a failure report developed and an analysis of the soils used in bedding pipe and earthfill of embankment. I anticipate one of the main discussions over the next week will be a repair plan and discussion of associated costs and funding.

Closest rain station on NE Rain is Nuck005 and Nuck002 with reports below. If the date is not recorded, assume zero precip for the day. The NE Rain station may lag by about a day in the reporting so the reporting day below are often the totals for the day before.

	Nuck005	Nuck002
7/17/2018	0.10	0
7/18/2018	0.32	0.31
7/19-7/22/2018	0	0
7/23/2018	0.02	0.03
7/26/2018	1.52 inches	1.54
7/27/2018	0	0.03
7/29/2018	0.26	0.12
7/30/2018	0	0.12
7/31/2018	0.10	0.75
8/4/2018	0.08	0.07
8/6/2018	0.08	0.02
8/7/2018	0.49	0.36
8/9/2018	0.70	0
8/14/2018	0.42	0.47
8/15/2018	1.06	1.14
8/19/2018	0.11	0
8/20/2018	1.04 (Some areas in same county over 3 inches)	1.56
8/22/2018	0	0.04
8/23/2018	0.27	0.28
8/24/2018	0.02	0.001
8/26/2018	0	0.04
8/27/2018	0.03	0
8/29/2018	0.001	0
9/2/2018	Nothing submitted, but all other stations are over an inch.	1.43
9/3/2018	Nothing submitted, but some stations are over 3 inches.	3.21
9/4/2018	Nothing submitted, but some stations are over 2 inches.	0.67
9/5/2018	0.03	0.22

Thanks, Nate

From: Gehring, Allen - NRCS, Lincoln, NE
Sent: Thursday, September 6, 2018 3:26 PM
To: Robison, Jacob - NRCS, Lincoln, NE <jacob.robison@ne.usda.gov>; Sall, Jason - NRCS, Lincoln, NE <Jason.Sall@ne.usda.gov>; Heibel, Art - NRCS, Lincoln, NE <art.heibel@lin.usda.gov>
Cc: Garrett, Nathan - NRCS, Grand Island, NE <Nathan.Garrett@ne.usda.gov>; Huntwork, James - NRCS, Grand Island, NE

ORIGINAL BID

MAY 03 2018

Epley Dam Bid Sheet

#	ITEM	SPEC. NO.	QUANTITY	UNITS	UNIT COST	TOTAL COST
1	Clearing	NE1	1	Acres		500.00
2	Excavation	NE21	700	Cu.yds.	1.50	1050.00
3	Earthfill	NE10,NE11, NE23	7,930	Cu.yds.	1.50	11895.00
4	36" 12 ga. riser 6' length (includes 4' tee 24" 14 ga. and 2' tee 8" 16 ga.	NE51	1	Lump sum		10487.52
5**	24" CMP 14 ga.	NE51	120	Lin. ft.	40.35	4842.00
6	8" CMP 16 ga.	NE51	20	Lin. ft.	44.15	883.00
7	Concrete	NE32	1.4	Cu.yds.	157.14	220.00
8	Reinforcing steel	NE32	52	LBS.	.60	31.20
9	Structural steel	NE81	612	LBS.	1.92	1175.04
10	Drainfill	NE24	40	Cu.yds.	40.00	1600.00
11	Rock riprap (includes 2 cu.yds bedding)	NE212	6	Cu.yds.	75.84	455.04
12	Seeding	NE6	1	Acres		$250
13	Fence	NE92	800	Lin. ft.	$4/ft	$3200
				TOTAL BID = $		36588.80

** Includes coupling bands, diaphragms, and appurtenances. Polymer Coated

Contractor Name: Moellenberndt Construction LLC.

Date: 4-22-18

Address: 70324 Highway 15, Fairbury, NE

Phone: 402-729-6060 cell 402-239-1807

Email: moellenberndt@diodecom.net

Estimated Start Date: June or July 2018

	Orig	Rebuild
NRD Share	$29,271.64	$7,317.76
Epley Share	23,968.80	5,992.20
	$53,239.84	$13,309.96

Little Blue Natural Resources District

www.littlebluenrd.org

Ethan Epley

2 bids

1 by Monday or Tuesday

be well

621-0358

PROJECTS ITEM 1

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
703 South Webb Road
Grand Island, NE 68801
(308) 395-8586, ext. 3

ESTIMATE FOR REPAIRS

3-Oct-18

http://www.ne.nrcs.usda.gov

ENGINEER'S ESTIMATE OF PROBABLE COST ***
ETHAN EPLEY POND REPAIR

BID ITEM	SPEC NO.	QUANTITY	UNITS	UNIT PRICE	TOTAL COST
Site Prep and Partial Pipe Removal	1, 8	1	Lump Sum	$500.00	$500.00
Excavation					
Stripping beneath new borrow area	21	800	CY	$1.00	$800.00
Core / Pipe Trench	21	3,500	CY	$1.50	$5,250.00
Earthfill *					
Earthfill Core / Pipe Trench to TOD	23	3,800	CY	$1.00	$3,800.00
Principal Spillway Pipe **					
24 inch dia. Polymer coated HCMP	51, 81	80	LF	$40.35	$3,228.00
8 inch dia. Galvanized CMP 16 gauge	51, 81	20	LF	$44.15	$883.00
36 inch Dia Riser 4 ft long with a 24 inch Dia Tee welded to it 9 inches from the lower end	51, 81	0	EA	Salvage	$0.00
Concrete (Riser and pipe support)	51, 81	0	CY	Salvage	$0.00
Reinforcing steel (Riser and Pipe Support)	51, 81	0	LB	Salvage	$0.00
Structural steel (Trash Rack & Pipe Support)	51, 81	0	LB	Salvage	$0.00
Pipe Support	51, 81	0		Salvage	$0.00
Foundation Drains					
Drainfill - Existing Foundation Drain	24	40	CY	$40.00	$1,600.00
Drainfill - Chimney Drain	24	240	CY	$40.00	$9,600.00
Seepage Protection Filter					
Drainfill	24	24	CY	$40.00	$960.00
Broken Concrete Outlet Protection	212	90	TON	$25.00	$2,250.00
Crushed Rock	24	1.7	CY	$200.00	$340.00
Critical Area Seeding	6	3	AC	$250.00	$750.00
				Total Estimate =	$29,961.00

* Earthfill quantities figured in-place (1:1 compaction)
** Pipe includes bands and other appurtenances
*** Estimated Const. Unit Costs are based on engineer's opinion. Actual construction costs shall be negotiated with Moellenberndt Contstruction.

Company Name	Address	City	State

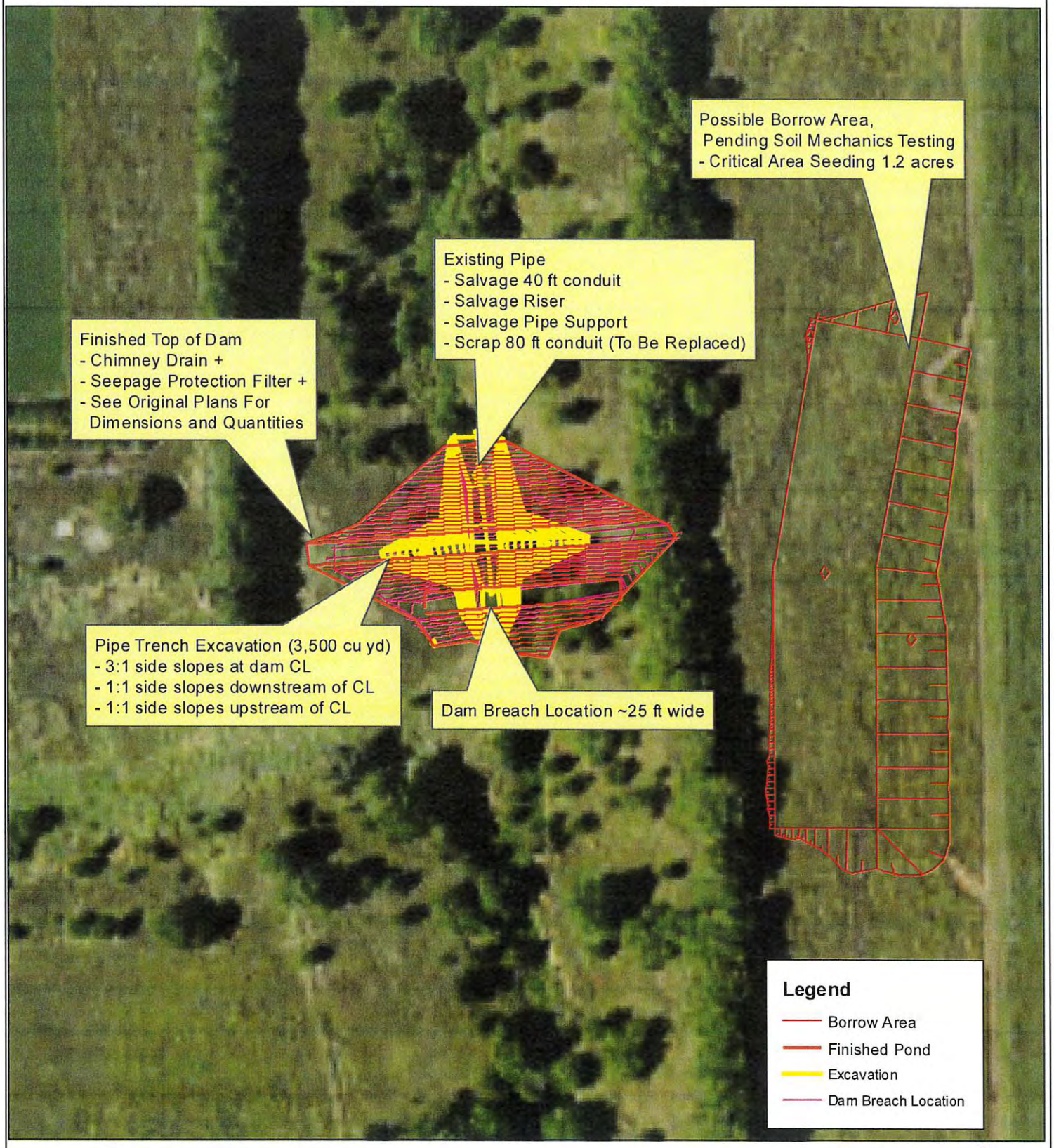
Signature	Date

Epley Breach & Repair Plan

Legal Description: Sec23, T2N, R6W

Customer(s): ETHAN EPLEY
District: LITTLE BLUE NRD

Date:10/3/2018
Field Office: NELSON SERVICE CENTER
Agency: USDA / NRCS
Assisted By: Nate Garrett
State and County: NE, NUCKOLLS



2009 LiDAR Topography
2016 Aerial

140 70 0 140 Feet

1 inch = 100 feet

N
W E
S