LOWER PLATTE SOUTH
natural resources district
3125 Portia Street | P.O. Box 83581 • Lincoln, Nebraska 68501-3581
P: 402.476.2729 • F: 402.476.6454 | www.lpsnrd.org

Memorandum

Date: July 18, 2022

To: Urban Subcommittee

From: Mark Lindemann, District Engineer

Subject: Urban Subcommittee Meeting Minutes – July 2022

The Urban Subcommittee met at 5:30pm virtually, on Monday, July 18, 2022. Subcommittee members participating included Tom Green, David Landis, Larry Ruth, and Ray Stevens. Others participating included Board Chair Deb Eagan; NRD staff Paul Zillig, Al Langdale, Mark Lindemann, and Mike Murren. Brad Brabec and Andy Beil with Dakota Springs Homeowners Association were also in attendance. Director Green called the meeting to order at 5:35pm. There were three items the Subcommittee took action on and one report, as described below. A quorum was not present for the meeting.

Chair Green opened the meeting and welcomed those in attendance. Roll call was taken. Green asked for a Subcommittee member to volunteer to provide the report to the Board as he will not be present for the July 20th meeting. Dave Landis volunteered to make the report. Chair Green then asked staff to report on the first agenda item.

12a. Consideration of a Community Assistance Program Request for Cost Share - Dakota Springs HOA dam shoreline erosion repair. [ACTION] – Murren reported on the application for the cost-share request from Community Assistance Program by Dakota Springs HOA to assist in the repair of shoreline along the dam areas of the two ponds in response to a "notice to comply" letter from the City of Lincoln Transportation and Utilities Division (see attached application from the July 15, background memo). Mr. Brad Brabec, president of the HOA spoke on the circumstances that lead to the "notice to comply" from the City. When first established in 2007, Dakota Springs was developed with twelve homesites, with the intent of the City providing infrastructure for an additional 339 homes on the remaining lots in the next 5 years. Two retention ponds were permitted to impound water in 2007 for upstream flood control. After bankruptcy of the developer and takeover by the lender, the two ponds and all responsibilities of maintenance and repair of the pond components transferred to the twelve existing homeowners. It was noted that dam maintenance manuals or inspection requirements were not provided to the homeowners at the time of transfer and the homeowners did not know of these responsibilities. Once the "notice to comply" was received, the homeowners began to take action to be within compliance, including removal of trees and the hiring of Alfred Benesch and Company for engineering recommendations. Mr. Andy Beil, another HOA member also spoke also agreed that the two retention ponds provide storm water retention and flood control and the creation of wildlife habitat. Ruth asked for confirmation of total cost and what

share the NRD would provide through the CAP program and if the request followed the NRD's policy. Murren noted the NRD would provide a 50% cost-share of $39,8650.50 of the total cost of $79,721. Murren also mentioned that if water levels remain low, the cost of pumping the ponds would be excluded. Zillig clarified that the NRD's policy is not to pay for maintenance activities and remains consistent in the criteria to participate in cost-share activities when justification is provided. Zillig also mentioned that the ponds were designed and permits were approved based on standard design practices based on conditions at that time. Over time, it has become a realization that standard vegetated banks cannot withstand the water and wave erosion taking place and rock riprap is required. The proposed work to be done is not viewed as maintenance activities.

It was moved by Landis, seconded by Green, and unanimously approved by the Subcommittee to recommend that the Board of Directors approve the Community Assistance Program request by Dakota Springs Homeowners Association for a cost-share assistance, not to exceed $39,860.50, for the protection of the dam shoreline for the two ponds, pending all permitting requirements are met. A quorum was not present.

12b. Consideration of a contract agreement with the University of Nebraska-Lincoln, Office of Sponsored Programs, for the Dead Man's Run flume model. [ACTION] – Lindemann discussed the USACE's request to have the University of Nebraska-Lincoln perform additional measurements, make modifications to the existing flume model, and additional analysis in order to determine appropriate riprap sizing and fine tune the design of the flume at the Railroad bridges for the Dead Man's Run Flood Reduction Project (see attached draft agreement and description of work from UNL from the July 15 background memo). The work performed in this amendment will reduce uncertainties in the design at the flume and other locations on the project and provide a more economical scour protection at these bridges. Ruth asked what the total cost for the project and if it will be cost- shared with the City. Lindemann provided the total cost of $87,232, which the NRD will pay and request reimbursement of 50% from the City. Ruth also voiced concern about the project delaying progress of the Dead Man's Run project and if UNL's additional work would interfere. Zillig stated that the USACE can continue to progress with their design concurrently while the additional flume analysis is performed by UNL. Stevens mentioned the UNL's initial project cost of $84,629 and the proposed project is slightly higher. Lindemann noted that the UNL shop labor rates for the previous project were subsidized at a much lower rate of $10/hour and UNL now requires full shop labor rates of $40/hour on all their Sponsored Programs projects.

It was moved by Ruth, seconded by Landis, and unanimously approved by the Subcommittee to recommend that the Board of Directors approve Research Agreement #146033 with the University of Nebraska's Office of Sponsored Programs, at a cost of $87,232, for additional analysis and modifications of the flume model for the Deadman's Run Flood Reduction Project. A quorum was not present.

12c. Consideration to enter in an agreement with Lancaster County for temporary access of property within Wilderness Park [ACTION] – Murren reported that the South Salt Creek Master Plan Project #6 engineering services project is under way and that the soil borings and survey work to be performed in Wilderness Park will require temporary access from Lancaster County. An agreement (see attached from

July 15 background memo) has been provided by Lancaster County for temporary access in Wilderness Park.

It was moved by Ruth, seconded by Landis, and unanimously approved by the Subcommittee to recommend that the Board of Directors approve the Agreement for the temporary access into Wilderness Park, for additional the South Salt Creek Master Plan Project #6. A quorum was not present.

12d. Reports: - The following report was given to the Subcommittee:

Zillig gave a report of the progress of the Ash Hollow Channel Stabilization project that is budgeted for FY 2023. Zillig provided a history of the Ash Hollow Channel and the Interlocal Agreement between Lancaster County, the City of Waverly, and the NRD that is used to split costs three ways for maintenance and repair of the channel. Lancaster County recently requested a scope of services from Intuition and Logic to address current downcutting and bank stabilization issues. The City of Waverly recently approved to pay their share of the proposal and Lancaster County will be finalizing their budget in the next couple of months. The total cost of the proposal from Intuition and Logic is $146,782. The NRD, City of Waverly, and Lancaster County will split the costs as per the Interlocal Agreement. The NRD received an invoice from Lancaster County for their responsibility of the project costs for $48,927.33 on June 17, 2022, and will pay upon tentative approval of the NRD budget (invoice, scope of services, and interlocal agreement attached in July 15 background memo). Stevens asked what estimated construction costs would be. Zillig stated that the project could be expensive and the interlocal team will be in discussions with the engineer to provide the most economical solution.

Other: Zillig mentioned that the NRD will be setting up a few tours for the Directors and encouraged members to let staff know of any projects or focus areas they would like to see.

There being no further business, the meeting was adjourned at approximately 6:21 pm.

ML/ml

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Memorandum

Date: July 15, 2022

To: Urban Subcommittee

From: Mark Lindemann, District Engineer

Subject: Urban Subcommittee Background Information – July 2022

The Urban Subcommittee will be meeting on Monday, July 18, 2022, virtually via Zoom, at 5:30 pm to review, discuss and take action on three items. The following summarizes the items to take action on at the meeting. Please find the attached background information on these items; the red letters shown on the upper right of the attachments help denote which item below they relate to.

12a. Consideration of a Community Assistance Program Request for Cost Share - Dakota Springs HOA dam shoreline erosion repair. [ACTION] – The Dakota Springs HOA hired Alfred Benesch & Company after receiving a Notice to Comply letter from the City of Lincoln to take action to repair the existing two ponds that are the homeowner association's responsibility. See attached application and supporting documents from the Dakota Springs HOA. Total costs for pumping to lower the pond levels, placement of rip rap along the dam shorelines, and beaver damage repair, is not to exceed $79,721. The Dakota Springs HOA is asking for a cost share of half the total at $39,860.50.

The Subcommittee will consider a motion to recommend the Board of Directors approve the Community Assistant Program request from the Dakota Springs HOA for a cost share of $39,860.50 for the protection of the shoreline along the lengths of the dams of the two ponds, pending all permitting requirements are met.

12b. Consideration of a contract agreement with the University of Nebraska-Lincoln, Office of Sponsored Programs, for the Dead Man's Run flume model. [ACTION] – The USACE has asked for additional analysis and modifications to the existing flume model to fine tune the design of the flume at the Railroad bridges for the Dead Man's Run Flood Reduction Project. The work performed in this amendment will reduce uncertainties in the design and provide a more economical scour protection at these bridges. It is anticipated that this analysis will help reduce rip rap material costs in half (a savings of up to $600K). See attached draft agreement and supporting information from UNL.

A summary of the activities for the flume model additional work include:

- *Measure more accurate stream bed velocities prior to model modifications.*
- *Cut out a portion of the model and replace with a section that enables the researcher to create different scour mitigation designs. This portion is labor intensive, requiring shop staff to saw and rebuild a portion of the model.*
- *Measure effects of different scour mitigation scenarios.*
- *Provide a summary report of measurements and analysis performed to be used in the final design.*

The Subcommittee will consider a motion to recommend to the Board of Directors approve the attached Research Agreement #146033 with the University of Nebraska's Office of Sponsored Programs based upon the scope and fee of $87,232.

12c. Consideration to enter in an agreement with Lancaster County for temporary access of property within Wilderness Park [ACTION] – The City of Lincoln and the LPSNRD have been in discussions with Lancaster County on obtaining temporary access to property at two locations within Wilderness Park (Exhibit A) to perform survey work and soil borings for a geotechnical investigation for the South Salt Creek #6 Master Plan project. Exhibit B provides a description of the project. Access Agreement, Exhibits A and B are attached.

The subcommittee will consider a motion to recommend to the Board of Directors to approve the access agreement.

12d. Reports: Ash Hollow Drainway - The City of Waverly, Lancaster County, and the LPSNRD have an Interlocal Agreement (1/5/1982) for the Ash Hollow Drainway located within the LPSNRD boundaries. In the agreement, the County is designated the lead for any repairs. The drainageway has down-cut and widened to the point that stream stabilization measures are necessary. A proposal provided by Intuition and Logic consists of engineering services for survey, design, preparation of plans and specifications, permitting, and bidding services for channel and bank stabilization of Ash Hollow located northwest of Waverly from 134th Street to the confluence of Salt Creek. The total cost of the proposal from Intuition and Logic is $146,782. The NRD, City of Waverly, and Lancaster County will split the costs as per the Interlocal Agreement. The NRD received an invoice from Lancaster County for their responsibility of the project costs for $48,927.33 on June 17, 2022, and will pay upon tentative approval of the NRD budget.

The invoice, scope of services, and interlocal agreement are attached.

Enclosures;

cc: Steve Seglin
Corey Wasserburger
Deb Eagan

Tracy Zayac
Stormwater/Watershed Specialist
Lower Platte South NRD
3125 Portia Street
Lincoln, NE 68521

Dear Ms. Zayac,

Thank you for all your help in providing information regarding the Dakota Springs Homeowner's Association's application for financial assistance regarding required dam maintenance and repair needs mandated by the City of Lincoln Transportation and Utilities division in a "Notice to Comply" letter provided to the HOA on December 21, 2021.

The Dakota Springs residential housing development was established in 2007. Consisting of approximately 153 acres of developable ground, 12 homesites (each ranging in size from 2.5-3 acres) were initially established with each homesite having its own water well and all homesites sharing a common wastewater treatment facility. At that time, it was also felt that the City of Lincoln (City) would be establishing within a five-year time frame city provided water and sewer infrastructure to provide support for an additional 339 homes to be developed on out lots C, D, and E (noted on the provided plat document). The expansion of the Dakota Springs HOA would therefore also allow for any common assessments, should the need arise, to be applied to a larger number of homesites as opposed to just 12 initial homesites first planned for our development.

Unfortunately, around the 2011-2012 timeframe, the developers of Dakota Springs filed for bankruptcy, and our development fell into the hands of the bank who had provided the initial funds to develop Dakota Springs. Outlots C, D, and E have been sold to other private owners and are likely to not be developed for years to come. Additionally, the City of Lincoln in its mapped document (document provided) labeled "2040 Priority Growth Areas" shows the Dakota Springs development area to be labelled a "Tier 3" development area, placing it past "Tier 2" areas slated for potential development no sooner than the year

2060. Therefore, it is likely that any City provided infrastructure such as sewer and water services is likely to not occur for several years to come and the cost to maintain aspects of the Dakota Springs development will continue to fall in the hands of 12 homeowners.

As part of the development process to establish ponds within the development, the developers applied for two permits to the Department of Natural Resources in 2007 (permit approvals attached in documents) to be able to appropriate and impound water from tributaries that serve the Salt Creek. The established retention ponds within the Dakota Springs development are also thought to help with upstream flood control of the Salt Creek system that feeds into Lincoln, NE, and thus the reason for the City of Lincoln to hold interest in assuring that the dams to these ponds are maintained. An attached aerial photo from Rock Krzycki (senior environmental health specialist, Watershed Management, City of Lincoln) has estimated so far that approximately four feet of erosion of shoreline on the dam sides of the ponds has occurred since the ponds were established in 2007.

The "Notice to Comply" letter from the City of Lincoln (copy in attached documents) notes that two items needed attention for dam maintenance. First, trees and other brush needed to be removed from the downstream sides of the dams down to the toe of the dam, and this has been accomplished to the satisfaction of the City. Second, and the reason for our application, is the need to repair some eroded areas of the dam and to establish reasonable measures that will try to mitigate further erosion from occurring. In the attached documents, you will find a "Mitigation Recommendation and Cost Proposal Review" evaluation from Alfred Benesch and Company (Benesch—a local engineering firm) as well as an estimate for proposed work from Gana Trucking and Excavating (Gana—a local contractor). A description of costs is as follows:

1. Provided are two proposals from Gana Trucking. The initial proposal from Gana Trucking (dated 5/16/2022) accounted for approximately 600 tons of riprap to be laid down on the determined areas of need. Because of the potential for possible "fall off" of rock into the bottom of the ponds as the rock is being laid down, it was asked of Gana that based on other similar projects what the maximum potential additional tonnage of rock could amount to should there be a need for additional rock to be placed. That estimate came in at a potential 15-20% of additional rock that might need

to be delivered to appropriately place rock around the edges of the ponds. Therefore, Gana was asked to provide a "maximum to not exceed" proposal (dated 6/27/2022), which is also attached in the provided documents behind the 5/16/2022 proposal. This estimate also includes the recommended repair of two areas of damage to the dam where beaver dens collapsed in and will need to be excavated out and re-packed with cohesive clay soils and overseeded.

2. To minimize potential "fall off" of rock into the ponds, it was recommended by Gana that the ponds, if necessary, but pumped down 2-3 feet in depth prior to laying down the rock to help minimize fall off of rock. Based on weather conditions and the heat, it's possible that no pumping may need to occur but plan to account for potential cost. The estimated cost to pump down the south pond (smaller pond) is 8.9hr./ft. x $60/hr. x 3ft. maximum ($1,602). The projected cost to pump down the north pond is 14.4hr./ft. x $60/hr. x 3 ft. maximum ($2,592) (email and proposal document describing how Gana arrived at their figures).

Therefore, a summary of costs is as follows:

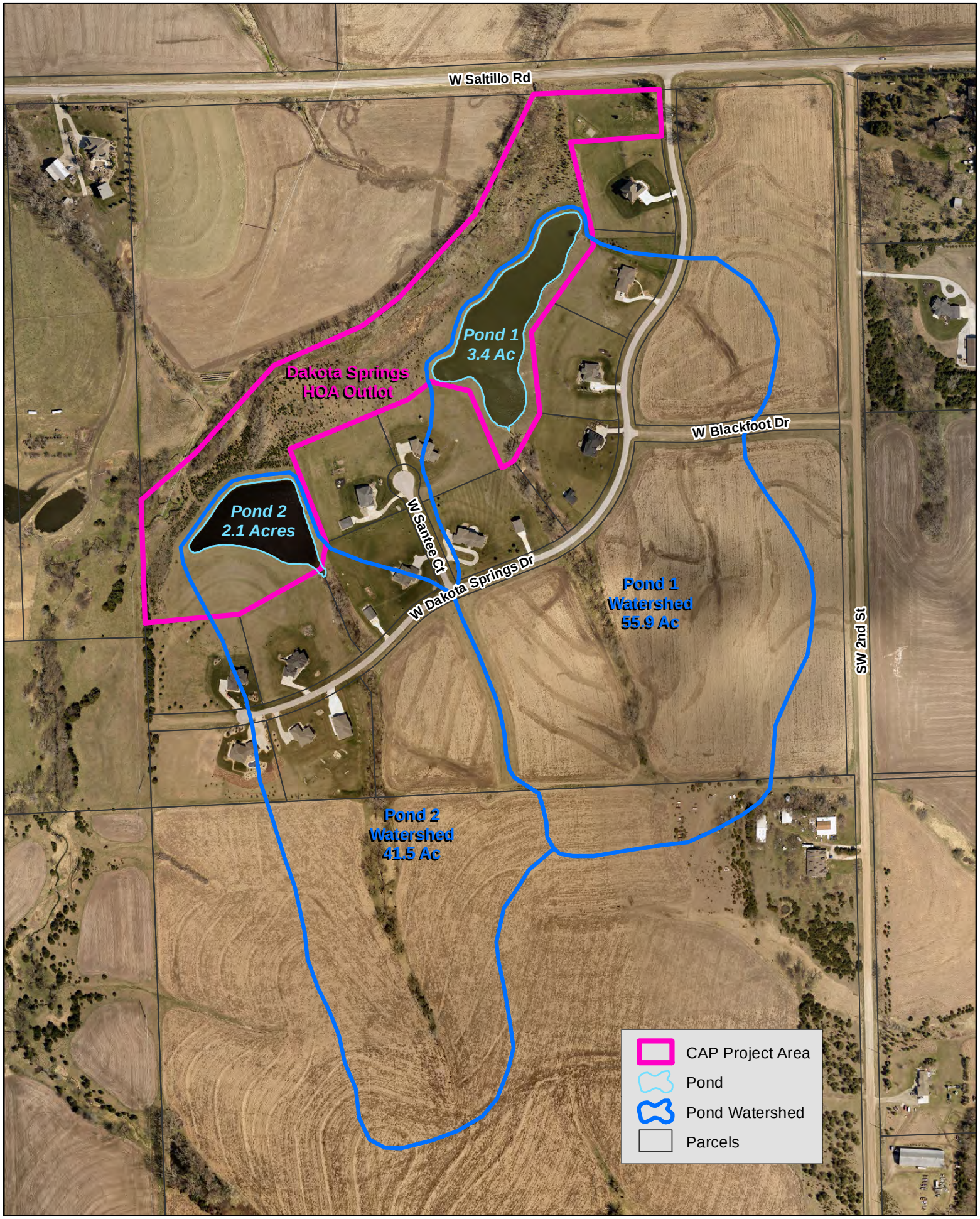
Gana Trucking "maximum to not exceed" proposal: $75,527
Pumping of ponds (maximum but could be less): $4,194
Total costs maximum: $79,721

Hopefully this letter with the attached documents provides the committee with the information needed for consideration in assisting the Dakota Spring HOA members with this project. If there is anything I left out or the committee needs any additional information, please do not hesitate to reach out and contact me. We greatly appreciate the committee's time in reviewing our situation and the potential consideration for some level of cost sharing in this project.

Sincerely,

Brad Brabec
President, Dakota Springs Homeowner's Association

Community Assistance Request - Dakota Springs HOA, W Saltillo Rd and SW 2nd St



Map By: Lower Platte South NRD, sdr - July 2022

0 500 1,000 Feet

Alfred Benesch & Company
825 M Street, Suite 100
Lincoln, NE 68508
www.benesch.com
P 402-479-2200

June 15, 2022

Dakota Springs Homeowners Association (HOA)
Attn: Mr. Brad Brabec, HOA President
11971 W. Santee Ct
Roca, NE, 68430

REFERENCE: Dakota Springs Development
Existing Ponds – Erosion Control
Mitigation Recommendation & Cost Proposal Review

Dear Dakota Springs HOA/Mr. Brad Brabec:

The Dakota Springs HOA has contracted with Alfred Benesch & Company (Benesch) to provide the following two (2) services:

- **Item 01**: Evaluate the existing erosion along the upstream dam slopes of the two (2) existing ponds within the Dakota Springs development and provide a formal recommendation on an appropriate mitigation method to prevent future/further erosion of the upstream dam slopes.
- **Item 02**: Review the rip-rap cost proposal provided to the HOA by local contractor (Gana Trucking & Excavating) for reasonableness/appropriateness.

The below summarizes our finding for the above two items.

Item 01: Pond Shoreline Erosion

A Benesch professional (civil) engineer (P.E.) completed a visual inspection of the upstream dam slopes ('shorelines') for the two (2) existing Dakota Springs development ponds on Sunday June 12, 2022. For this letter, the ponds will be referred to as the "northeast" pond (Nebraska Department of Natural Resources (NeDNR) Permit #A-18489) and the "southwest" pond (Nebraska Department of Natural Resources (NeDNR) Permit #A-18490). Photographs from the Benesch visual inspection are attached and included in *Attachment A* to this letter. The physical dam limits a part of Benesch's review are depicted in *Attachment B* of this letter.

Additionally, it is Benesch's understanding that the HOA's need for the engineering visual inspection was prompted by the Dakota Springs HOA receiving a Detention/Retention Basin "Notice To Comply" letter from the City of Lincoln Transportation and Utilities (LTU). Benesch was provided a courtesy copy and has read the December 21, 2021 "Notice To Comply" letter (refer to *Attachment C* for the copy of the "Notice To Comply" letter).

Upon completion of a visual inspection of the northeast pond and southwest pond, Benesch would agree with the LTU "Notice To Comply" letter that the existing erosion occurring on the upstream dam slopes ('shorelines') would appear to be occurring due to wave action. Therefore, in order to prevent further and future shoreline erosion by wave action, Benesch would recommend that the HOA add rock rip-rap. The rip-rap should meet the requirements of Nebraska Department of Transportation (NDOT) Type B Rip-Rap, or equivalent, with a minimum depth of approximately one (1) foot. The rip-rap should be added along the upstream dam slopes ('shorelines') for both ponds, for the limits of the dams depicted in *Attachment B*. Due to the difficulties, and potential associated costs, of correcting the existing limited soil erosion along the dam upstream slopes ('shorelines'), Benesch recommends as an initial mitigation effort, that the rip-rap be added directly to the existing 'shoreline' condition without additional soil corrective earthwork.

In addition to the rip-rap work, Benesch recommends that two (2) isolated erosion areas along the southwest pond's west shoreline be filled in with compacted cohesive clay soils, and then seeded, prior to the addition of rip-rap. The two (2) isolated erosion areas can be seen in Photo 22 and Photo 24 in the photographs provided in *Attachment A*. Benesch recommends that the soil be added to better ensure the integrity of the dam and to eliminate the need to place rip-rap several feet back into the dam itself.

Item 02: Gana Trucking and Excavating Cost Proposal

With respect to the rip-rap recommendation provided above for Item 01, Benesch has reviewed the cost proposal (dated 5/16/2022) provided to the HOA from local contractor Gana Trucking & Excavating (refer to *Attachment D* for a copy of the cost proposal). Upon our analysis (see table directly below), Benesch finds the contractor's quote reasonable for the work required for this proposed project. The type of rip-rap (Type B) is appropriate, the total rip-rap volume/tonnage is appropriate, the proposed rip-rap depth and height (per foot of dam) is appropriate for the site, and the unit cost per ton is reasonable for this smaller scale project. The HOA should require the contractor to provide actual weigh tickets for each truckload of rip-rap delivered and placed on site since the quoted rip-rap unit price is 'per ton'.

Item #	Item Description	Quantity	Unit	Unit Price	Extension	Notes
1	Type 'B' Riprap, Delivered & Placed	600	Ton	$ 94.06	$ 56,436.00	-Contractor Estimate Assumes 1,750 L.F. of Dam Shoreline. That Number Has Been Verified and Is Correct. -Rock Riprap (Per NDOT Spec Section 905) --Type B Gradation: (see below info) --Type B Conversion: 1.35 Tons/C.Y. -600 Tons = 444.44 C.Y. = 12,000 C.F. -12,000 C.F. / 1,750 L.F. = 6.85 S.F. Per Foot -6.85 S.F. Per 'Dam' Foot = 4.6' tall x 1.5' deep per foot of dam or 6.8' tall x 1.0' deep per foot of dam. -NDOT AUP (Average Unit Prices) for Type B Rip Rap Were: --2021 Average: $77.72/Ton --2020 Average: $63.38/Ton --2019 Average: $71.88/Ton
2	Access Road Restoration	33,395	S.F.	$ 0.23	$ 7,681.00	Restoration includes grading, fertilizing, seeding, and mulching. The proposed $0.23/S.F. is reasonable for providing all restoration items.
				TOTAL:	**$ 64,117.00**	

Table 905.01

Rock Riprap Gradation Requirements	
Size of Rock	**Percent of Total Weight Smaller than the Given Size**
Type A	
150 pounds (68 Kg)	100
35 pounds (16 Kg)	50
2 pounds (0.9 Kg)	Not to exceed 10
Type B	
300 pounds (136 Kg)	100
80 pounds (36 Kg)	50
5 pounds (2.2 Kg)	Not to exceed 10
Type C	
700 pounds (318 Kg)	100
150 pounds (68 Kg)	50
10 pounds (4.5 Kg)	Not to exceed 10

Benesch greatly appreciates the opportunity to assist you with this matter. Should you have any questions or concerns related to anything provided in this letter, please contact our office at 402.479.2200.

Sincerely

Anthony Dirks

Anthony Dirks, Senior Project Manager, P.E.

{Benesch Job #: 00112294.00}
Y:\LINCOLN\112200S\112294.00__DAKOTA_SPRINGS\OFFICE_DOCS\CORRESPONDENCE\LETTERS\DAKOTA SPRINGS HOA_EROSION CONTROL RECOMMENDATION_2022-06-15.DOCX

DAKOTA SPRING DEVELOPMENT
ROCA, NE

POND – DAM EROSION

EXHIBIT A
SITE INVESTIGATION PHOTOS

benesch

PHOTO 1 (NORTHEAST POND):
SOUTHWEST CORNER,
SOUTHERN LIMITS OF DAM,
LOOKING NORTH

PHOTO 2 (NORTHEAST POND):
WEST SHORELINE,
LOOKING NORTH

PHOTO 3 (NORTHEAST POND):
WEST SHORELINE,
LOOKING NORTH

PHOTO 4 (NORTHEAST POND):
WEST SHORELINE,
LOOKING NORTH

PHOTO 5 (NORTHEAST POND):
WEST SHORELINE,
LOOKING NORTH

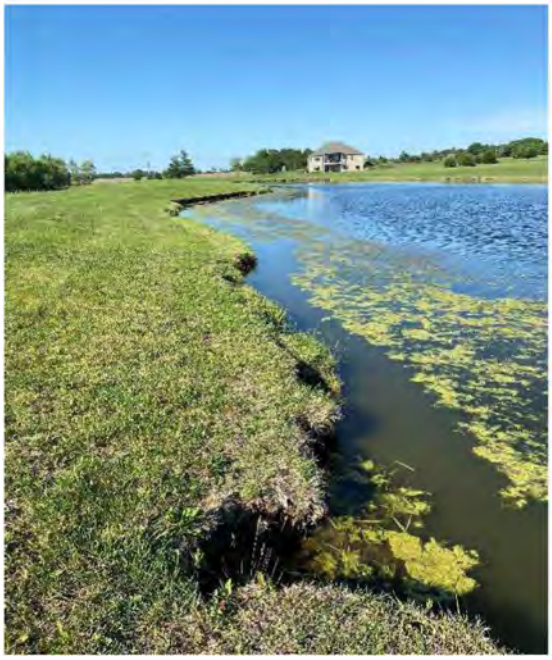


PHOTO 6 (NORTHEAST POND):
WEST SHORELINE,
LOOKING NORTH

PHOTO 7 (NORTHEAST POND):
WEST SHORELINE,
LOOKING NORTH

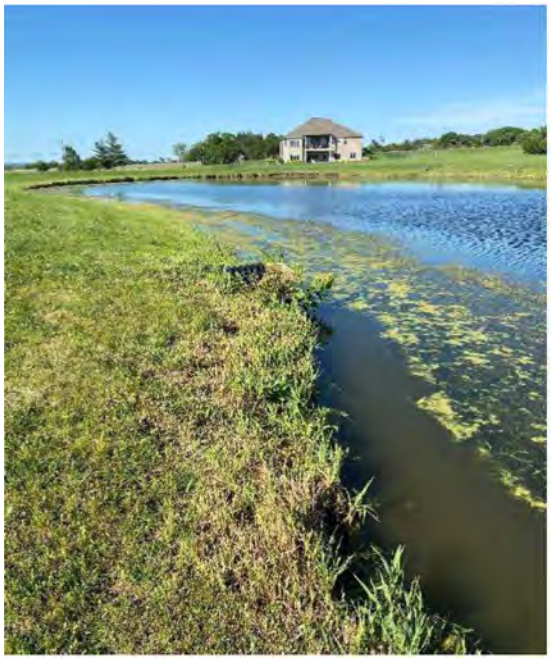


PHOTO 8 (NORTHEAST POND):
WEST SHORELINE,
LOOKING NORTH

PHOTO 9 (NORTHEAST POND):
WEST SHORELINE,
OVERFLOW PIPE/CULVERT
LOOKING NORTH

PHOTO 10 (NORTHEAST POND):
NORTHWEST CORNER,
NORTHERN LIMITS OF DAM,
LOOKING NORTH

PHOTO 11
(NORTHEAST POND):
WEST SHORELINE,
LOOKING SOUTH

PHOTO 12
(NORTHEAST POND):
WEST SHORELINE,
LOOKING SOUTH

PHOTO 13
(SOUTHWEST POND):
EAST SHORELINE,
SOUTHEAST LIMITS OF DAM,
LOOKING SOUTH

PHOTO 14
(SOUTHWEST POND):
EAST SHORELINE,
LOOKING SOUTH

PHOTO 15
(SOUTHWEST POND):
EAST SHORELINE,
LOOKING NORTH

PHOTO 16
(SOUTHWEST POND):
EAST & NORTH SHORELINE,
LOOKING NORTH

PHOTO 17
(SOUTHWEST POND):
NORTH SHORELINE,
LOOKING WEST

PHOTO 18
(SOUTHWEST POND):
NORTH SHORELINE,
LOOKING WEST

PHOTO 19
(SOUTHWEST POND):
NORTH SHORELINE,
LOOKING WEST

PHOTO 20
(SOUTHWEST POND):
NORTH & WEST SHORELINE,
LOOKING SOUTHWEST

PHOTO 21
(SOUTHWEST POND):
WEST SHORELINE,
LOOKING SOUTHWEST

PHOTO 22
(SOUTHWEST POND):
WEST SHORELINE,
LOOKING SOUTHWEST

PHOTO 23
(SOUTHWEST POND):
WEST SHORELINE,
LOOKING SOUTHWEST

PHOTO 24
(SOUTHWEST POND):
WEST SHORELINE,
SOUTHWEST LIMITS OF DAM
LOOKING SOUTHWEST

PHOTO 25
(SOUTHWEST POND):
WEST SHORELINE,
LOOKING NORTHEAST

PHOTO 26
(SOUTHWEST POND):
NORTH SHORELINE,
LOOKING EAST

PHOTO 27
(SOUTHWEST POND):
EAST SHORELINE,
LOOKING SOUTHEAST

DAKOTA SPRING DEVELOPMENT
ROCA, NE

POND – DAM EROSION

EXHIBIT B
POND MAP

benesch

EXHIBIT B: NORTHEAST POND MAP

EXHIBIT B:SOUTHWEST POND MAP

DAKOTA SPRING DEVELOPMENT
ROCA, NE

POND – DAM EROSION

EXHIBIT C

CITY OF LINCOLN
TRANSPORTATION & UTILITIES (LTU)
NOTICE TO COMPLY LETTER

benesch

LTU
CITY OF LINCOLN
TRANSPORTATION
AND UTILITIES

NOTICE TO COMPLY

Detention/Retention Basin

December 21, 2021

Deb Brabec
Dakota Springs Homeowners Association
11971 W SANTEE CT
Roca, NE 68521

RE: Detention Basin located Southwest of the intersection of W. Saltillo Rd & W. Dakota Springs Dr., Dakota Springs Addition Outlot A; Parcel ID 0803202011000, Record Pond 210014

Ms. Brabec

On December 13, 2021, the City of Lincoln conducted an inspection of the above named stormwater detention/retention basin. Based on the site inspection, the City has the following comments:

1. *All of the trees on the dams for the retention cell need to be removed. There are several volunteer trees on the down stream side of the dam that are required to be removed.*

2. *Repair areas of the dam that have been eroded and fill holes in other areas where they have formed. Wave action has eroded parts of the dams where the water meets the slope of the dams. Some locations on the dams have large holes that need to be filled, before they enlarge and cause more damage. Dam failures of either of the basins doesn't appear imminent, but the eroding areas on each dam left unchecked, will weaken the dam and could cause the dam to fail in the future.*

The City of Lincoln expects that the above items be corrected as stated above as provided per the Subdivision Agreement 2007055154 and per Lincoln Municipal Code (L.M.C. 26.23.170).

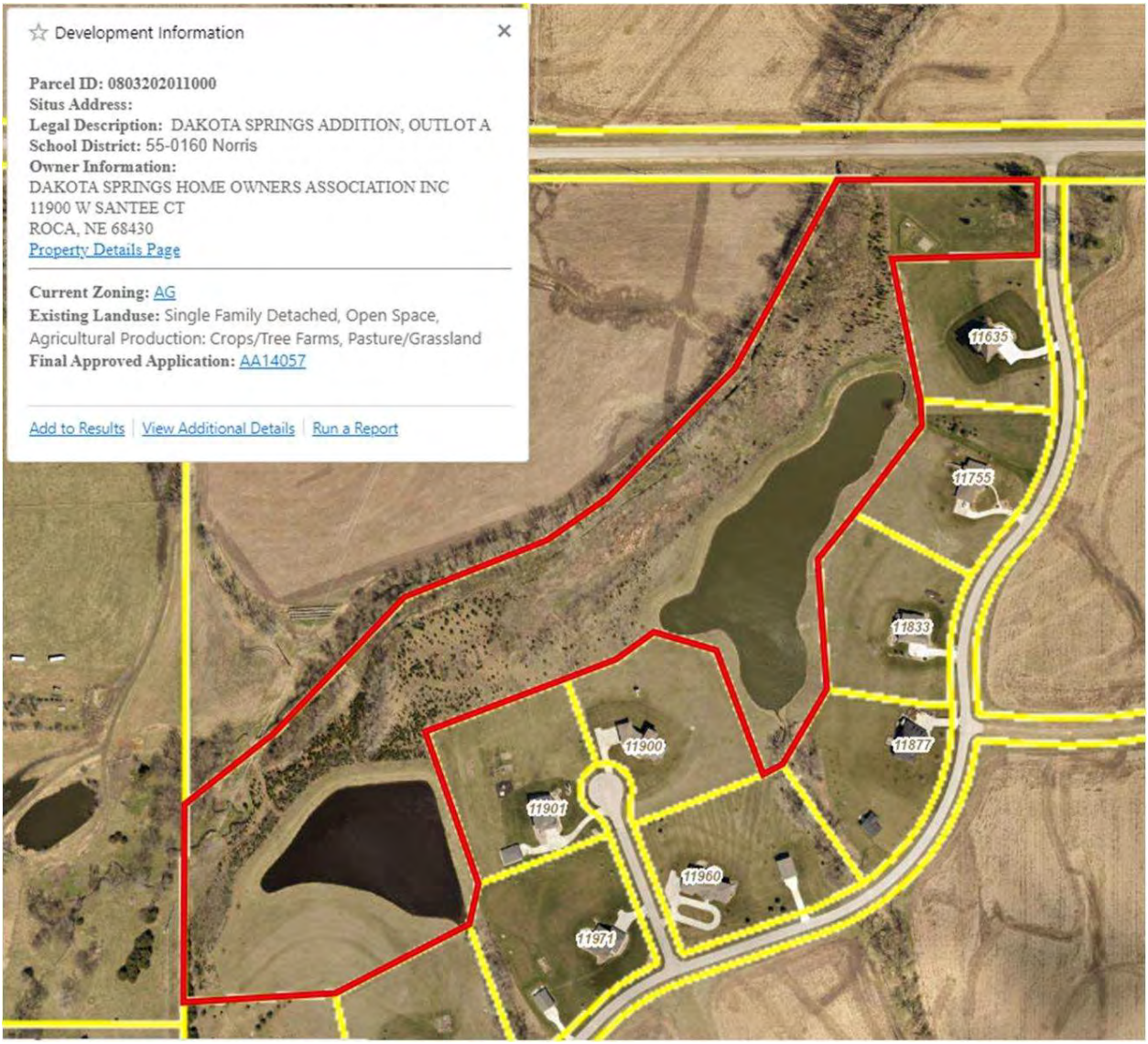
Please provide a written response (letter or email) to this office by January 30, 2022 regarding your *schedule and plans* for fixing the above items. I realize the actual repairs will take some time to coordinate. If you have any questions or concerns, please feel free to contact me.

Thank you,

Rock Krzycki, CISEC
Senior Environmental Health Specialist | Watershed Management
949 West Bond St, Suite 200 |Lincoln, NE 68521
M: 402-309-5936 | rkrzycki@lincoln.ne.gov

Attachment: (1) map (3) Photos

cc: Tim Zach, Watershed Management
Jocelyn Golden, Law Department



All holes in dam need to be filled

Repair and reinforce damaged areas on both dams

Remove trees on the downstream side of the dams

DAKOTA SPRING DEVELOPMENT
ROCA, NE

POND – DAM EROSION

EXHIBIT D

GANA TRUCKING AND EXCAVATING

RIP-RAP QUOTE

benesch

Gana TRUCKING & Excavating, Inc.

2200 West Panama Rd. Martell, NE 68404 Phone (402) 794-5000 Fax (402) 794-5002

Date: 5/16/2022
Bid to: Dakota Springs HOA
Attn: Brad Brabec
Fax:
Project: Dakota Springs Ponds
Scope: Riprap North Shorelines
Addenda Acknowledged:

Gana Trucking and Excavating, Inc. proposes to provide the following for the project stated above.

1. Mobilize equipment to site
2. Armor the North shorelines of the East & West ponds with Type "B" Limestone riprap, the length of the shorelines are approximately 900 LF & 850 LF for the East and West ponds respectively. 600 ton of riprap is estimated for the project, due to unseen conditions below the water surface this amount may vary, therefore the project will be invoiced on the amount of riprap delivered & placed at the Unit Price listed below.
3. Restore the access roads used for delivery of the riprap to the points of use, restoration shall include grading as necessary to repair any damage incurred, fertilizing, seeding with a contractors seed mix and mulching. 33,624 SF was estimated as the restoration quantity. Access road restoration shall be done per the unit price below.

Unit Prices: Type "B Riprap, delivered & placed	**$94.06 / Ton**
Access Road restoration	**$0.23 / SF**

Total Estimated Project Cost	**$64,117.00**

Exclusions: Bond, Layout, Grade staking, Overexcavation removal / replacement of unsuitable materials, Liability for underground unknowns, Removal of hazardous materials, silt fence installation, removal or maintenance Footing excavations, Footing spoils haul off, Excavations for proposed utilities, Topsoil import or amendments Temporary or permanent seeding, Utility spoils haul off, Fine grading, Sheet piling, shoring or underpinning, Locating of private utilities, Winter conditions, Inlet protections - (installation, maintenance or removals), Dewatering Curb grinding, Granular material below slabs & pavements, interior or exterior building demolitions Concrete washout pit installation, maintenance or removal, Fencing, Traffic or pedestrian controls Retaining wall backfills, Geotechnical testing lab services, SWPPP monitoring Anything not specifically included in scope above

Respectfully Submitted,
Gana Trucking and Excavating, Inc.

Tim Lempka

Accepted By:

Name **Date**

Gana TRUCKING & Excavating, Inc.

2200 West Panama Rd. Martell, NE 68404 Phone (402) 794-5000 Fax (402) 794-5002

Date: 6/27/2022
Bid to: Dakota Springs HOA
Attn: Brad Brabec
Fax:
Project: Dakota Springs Ponds
Scope: Riprap North Shorelines
Addenda Acknowledged:

Gana Trucking and Excavating, Inc. proposes to provide the following for the project stated above.

1. Mobilize equipment to site
2. Armor the North shorelines of the East & West ponds with Type "B" Limestone riprap, the length of the shorelines are approximately 900 LF & 850 LF for the East and West ponds respectively. 720 ton of riprap is estimated for the project, due to unseen conditions below the water surface this amount may vary, therefore the project will be invoiced on the amount of riprap delivered & placed at the Unit Price listed below.
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Unit Prices: Type "B Riprap, delivered & placed	**$94.06 / Ton**
Access Road restoration	**$0.23 / SF**
Beaver damage repair	**$4,754.00 - Lump Sum**

Total Not-to-Exceed Bid	**$75,527.00**

Note: Beaver damage repair will consist of excavating the damaged area, the spoils will be wasted onsite, once the prep has been accomplished, clean clay fill will be imported and compacted in place and the area graded to match into surrounding grades

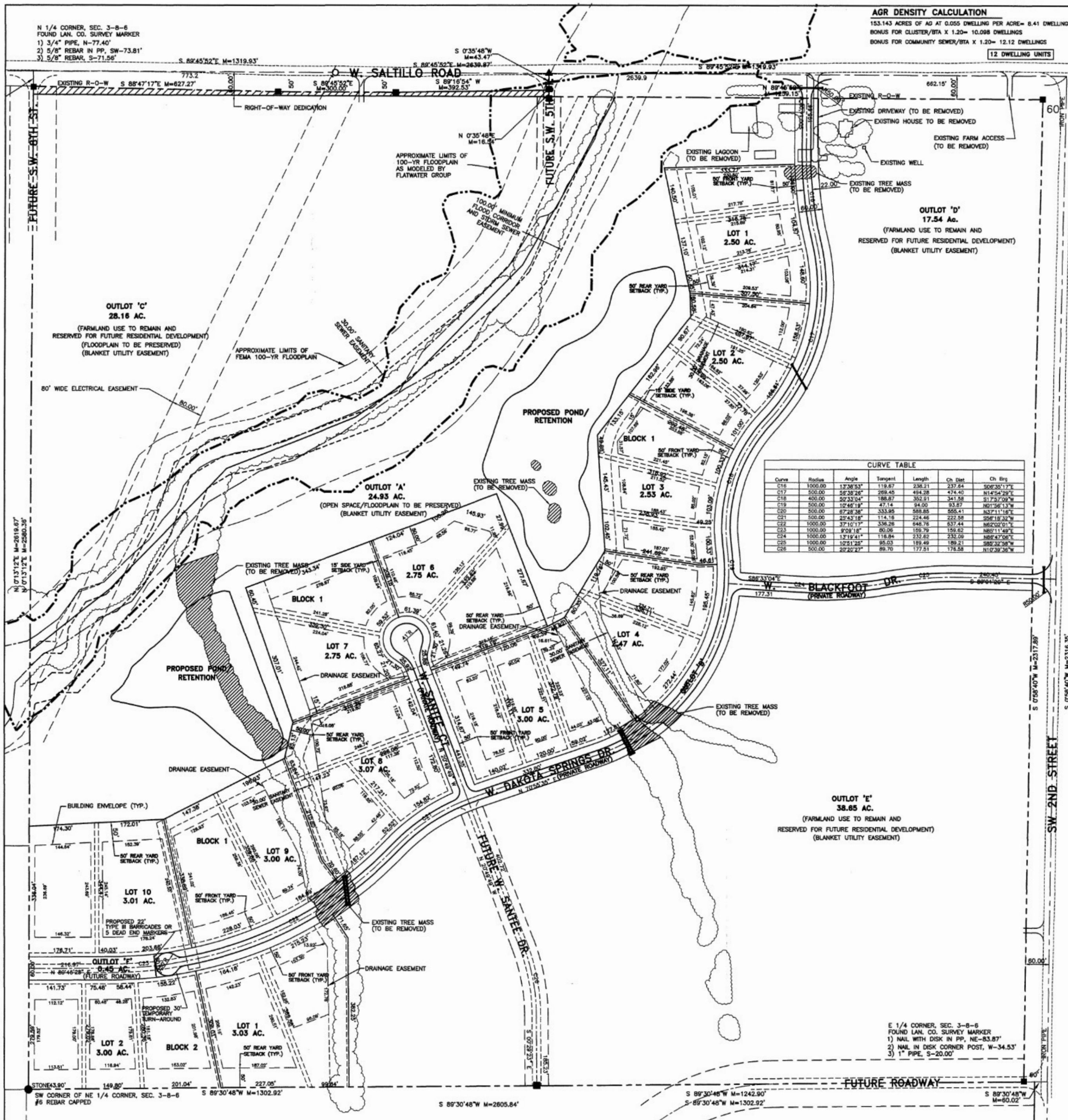
Exclusions: Bond, Layout, Grade staking, Overexcavation removal / replacement of unsuitable materials, Liability for underground unknowns, Removal of hazardous materials, silt fence installation, removal or maintenance Footing excavations, Footing spoils haul off, Excavations for proposed utilities, Topsoil import or amendments Temporary or permanent seeding, Utility spoils haul off, Fine grading, Sheet piling, shoring or underpinning, Locating of private utilities, Winter conditions, Inlet protections - (installation, maintenance or removals), Dewatering Curb grinding, Granular material below slabs & pavements, interior or exterior building demolitions Concrete washout pit installation, maintenance or removal, Fencing, Traffic or pedestrian controls Retaining wall backfills, Geotechnical testing lab services, SWPPP monitoring Anything not specifically included in scope above

Respectfully Submitted,
Gana Trucking and Excavating, Inc.

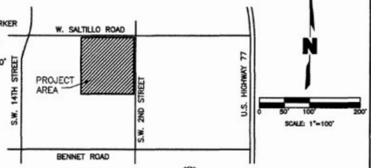
Tim Lempka

Accepted By:

Name **Date**



CURVE TABLE						
Curve	Radius	Angle	Tangent	Length	Ch Dist	Ch Brg
C16	1000.00	13°38'53"	119.67	238.21	237.64	S06°35'17"E
C17	500.00	56°38'26"	269.45	494.28	474.40	N14°54'29"E
C18	400.00	50°33'04"	188.87	352.91	341.58	S17°57'09"W
C19	500.00	10°46'19"	47.14	94.00	93.87	N01°56'13"W
C20	500.00	67°28'38"	333.95	588.85	555.41	N37°11'16"E
C21	500.00	25°43'18"	114.16	224.46	222.58	S58°18'32"W
C22	1000.00	37°10'17"	336.26	648.76	637.44	N62°02'01"E
C23	1000.00	9°09'18"	80.06	159.79	159.62	N85°11'49"E
C24	1000.00	13°19'41"	116.84	232.62	232.09	N86°47'06"E
C25	1000.00	10°51'25"	95.03	189.49	189.21	S85°32'58"W
C26	500.00	20°20'27"	89.70	177.51	176.58	N10°39'36"W



VICINITY MAP

SCALE: NONE

LEGAL DESCRIPTION:

ALL OF LOTS 1 AND 2, FIEDLER ADDITION AND LOT 21 IRREGULAR TRACT, ALL LOCATED IN THE NORTHEAST QUARTER OF SECTION 3, TOWNSHIP 8 NORTH, RANGE 6 EAST OF THE 6th P.M., LANCASTER COUNTY, NEBRASKA, MORE PARTICULARLY DESCRIBED AS FOLLOWS;

BEGINNING AT THE SOUTHEAST CORNER OF LOT 2, FIEDLER ADDITION, SAID POINT BEING ON THE SOUTH LINE OF THE NORTHEAST QUARTER AND 60.00' WESTERLY FROM THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 3; THENCE WESTERLY ON THE SOUTH LINE OF SAID LOT 2 AND THE SOUTH LINE OF SAID NORTHEAST QUARTER, ON AN ASSIGNED BEARING OF S 89°30'48"W A DISTANCE OF 2545.82', TO THE SOUTHWEST CORNER OF SAID NORTHEAST QUARTER; THENCE NORTHERLY ON THE WEST LINE OF SAID NORTHEAST QUARTER, N 0°13'12"E 2580.36', TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF WEST SALTILLO ROAD, SAID POINT BEING THE NORTHWEST CORNER OF SAID LOT 21 IRREGULAR TRACT; THENCE EASTERLY ALONG SAID SOUTHERLY RIGHT OF WAY LINE FOR THE NEXT FIVE (5) COURSES, S 88°47'17"E 627.27'; THENCE EASTERLY, S 89°45'52"E 300.00'; THENCE EASTERLY, N 89°16'54"E 392.53'; THENCE SOUTHERLY, S 0°35'48"W 16.54', TO THE NORTHWEST CORNER OF SAID LOT 2, FIEDLER ADDITION; THENCE EASTERLY, S 89°45'52"E 1259.53', TO THE POINT OF INTERSECTION WITH THE WEST RIGHT OF WAY LINE OF SOUTHWEST 2nd STREET, SAID POINT BEING THE NORTHEAST CORNER OF SAID LOT 2, FIEDLER ADDITION; THENCE SOUTHERLY ON SAID WEST RIGHT OF WAY LINE AND THE EAST LINE OF SAID LOT 2, S 0°58'40"W 2527.79', TO THE POINT OF BEGINNING, SAID TRACT CONTAINING AN AREA OF 150.03 ACRES, MORE OF LESS.

SURVEYOR'S CERTIFICATE:

I HEREBY CERTIFY THAT THIS SURVEY WAS ACCURATELY MADE UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED SURVEYOR UNDER THE LAWS OF THE STATE OF NEBRASKA.

8-9-2007

BILLY JOE KERR RLS #483

GENERAL NOTES:

1. THIS PRELIMINARY PLAT/COMMUNITY UNIT PLAN CONTAINS 150.02 ACRES MORE OR LESS.
2. THIS COMMUNITY UNIT PLAN PERMITS 12 SINGLE FAMILY LOTS AND 6 OUTLOTS. EACH LOT SHALL CONTAIN A MAXIMUM OF ONE SINGLE FAMILY RESIDENCE, LOCATED WITHIN THE BUILDING ENVELOPES AS SHOWN AND/OR NOTED.
3. THE CURRENT ZONING IS 'AG' AND THE PROPOSED ZONING IS 'AG' ZONING WITH C.U.P. WITH 20% DENSITY BONUS FOR FARMLAND AND OPEN SPACE PRESERVATION & A 20% BONUS FOR COMMUNITY WASTE WATER.
4. THE MAXIMUM BUILDING HEIGHT SHALL NOT EXCEED 35 FEET, AS PER 'AG' ZONING.
5. THE DEVELOPER/OR OWNER RESERVES THE RIGHT TO BUILD ANYWHERE WITHIN THE BUILDING ENVELOPES SHOWN.
6. THE DEVELOPER PROPOSES THE USE OF INDIVIDUAL WELLS FOR POTABLE WATER SUPPLY.
7. THE DEVELOPER PROPOSES THE USE OF A COMMUNITY WASTE WATER SYSTEM. WASTE WATER SYSTEMS SHALL BE APPROVED BY A PERMIT FROM THE LINCOLN/LANCASTER COUNTY HEALTH DEPARTMENT AND NDEQ.
8. THE DEVELOPER SHALL CONSTRUCT AND SURFACE THE PRIVATE ROADWAY WITH 3" OF CRUSHED ROCK AND 1" OF GRAVEL IN ACCORDANCE WITH THE LANCASTER COUNTY STANDARDS AND THE RURAL PUBLIC AND INTERMEDIATE BTA STANDARDS. THE COUNTY SHALL BE NOTIFIED PRIOR TO THE LAYING OF THE ROCK. SURFACING RADII AT W. SALTILLO ROAD & S.W. 2ND STREET SHALL BE 50 FEET. ALL INTERIOR SURFACING RADII INTERSECTIONS SHALL BE 30 FEET. THE DEVELOPER RESERVES THE RIGHT TO INSTALL ASPHALTIC PAVEMENT OR CONCRETE PAVEMENT IN LIEU OF ROCK.
9. ONLY ONE SUBDIVISION GROUND SIGN SHALL BE PERMITTED FOR THIS DEVELOPMENT AS PER SECTION 27.69 OF THE LINCOLN ZONING ORDINANCE.
10. ALL CURVILINEAR DIMENSIONS ARE CHORD LENGTHS.
11. COMMON AND PUBLIC ACCESS EASEMENT IS HEREBY GRANTED OVER THE PRIVATE ROADWAY.
12. DIRECT VEHICULAR ACCESS IS HEREBY RELINQUISHED ALONG W. SALTILLO ROAD EXCEPT AT W. DAKOTA SPRINGS DRIVE AND ONE EXISTING FARM ACCESS TO OUTLOT 'C'. DIRECT VEHICULAR ACCESS IS HEREBY RELINQUISHED ALONG S.W. 2ND STREET EXCEPT AT W. BLACKFOOT DRIVE AND ONE EXISTING FARM ACCESS TO OUTLOT 'E'.
13. ALL TOPOGRAPHIC CONTOURS ARE AT NAVD 88 DATUM.
14. ONLY ONE RESIDENTIAL ACCESS SHALL BE PERMITTED PER LOT.
15. THE FOLLOWING WAIVERS ARE APPROVED WITH THIS SPECIAL PERMIT #06046: PRELIMINARY PLAT, SIDEWALKS, STREET TREES, STREET LIGHTING, LANDSCAPE SCREENING AND BLOCK LENGTH.
16. 'JUNK CARS' SHALL BE PROHIBITED IN THIS DEVELOPMENT AS NOTED IN PROTECTIVE COVENANTS.
17. FUTURE LOT OWNERS WILL BE ADVISED THAT THIS IS IN A RURAL FARM AREA AND THAT NORMAL AND CUSTOMARY FARM ACTIVITIES ARE NOT A NUISANCE.
18. THE FUTURE DEVELOPMENT OF OUTLOTS "C, D AND E" (URBAN RESERVE COMPONENTS) ARE DESIGNED FOR FUTURE PLATTING TO A MINIMUM GROSS FUTURE DENSITY OF FOUR UNITS PER ACRE OR ABOUT 339 DWELLINGS, IN ACCORDANCE WITH THE MASTER PLAN AND THE ACREAGE LOTS ARE DESIGNED FOR FUTURE SUBDIVISION IN ACCORDANCE WITH THE TRANSITIONAL PLAT.
19. A WRITTEN AGREEMENT SHALL BE PROVIDED FOR THE FUTURE CONVERSION OF LOTS TO HIGHER DENSITY, INCLUDING TIMING OF ANNEXATIONS, FUNDING OF INFRASTRUCTURE COST, AND AGREEMENT TO PETITION FOR SPECIAL ASSESSMENT DISTRICTS.
20. DEVELOPERS SHALL BE RESPONSIBLE FOR INSTALLING STREET IDENTIFICATION SIGNS, STOP SIGNS AND NO OUTLET SIGNS AS REQUIRED.
21. ALL PRIVATE IMPROVEMENTS SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
22. DEVELOPER SHALL INSTALL SEDIMENT CONTROL ON ALL NEW CONSTRUCTION. THE DEVELOPER AGREES TO COMPLY WITH THE DESIGN STANDARDS AS IDENTIFIED IN THE LAND SUBDIVISION ORDINANCE FOR EROSION CONTROL AND SEDIMENTATION DURING AND AFTER LAND PREPARATION. THE DEVELOPER WILL BE RESPONSIBLE FOR CONTROLLING OFF-SITE DUST EMISSIONS IN ACCORDANCE WITH LINCOLN-LANCASTER COUNTY AIR POLLUTION REGULATIONS AND STANDARDS ARTICLE 2, SECTION 32.
23. PROVISIONS BY THE DEVELOPER SHOULD BE MADE FOR RETAINING AS MUCH TREE MASS AS POSSIBLE.
24. PERMANENT EASEMENTS SHALL BE SHOWN ON FINAL PLATS FOR CULVERT PIPES THAT EXTEND PASS THE RIGHT-OF-WAY.
25. GRADING SHALL EXTEND AROUND ALL CUL-DE-SACS. THE DEVELOPER SHALL NOTIFY ALL PURCHASERS THAT DITCHES MAY NOT BE FILLED IN. DESIGN DRAINAGE MUST BE LEFT IN PLACE UNTIL BUILD THROUGH CONVERSION TAKES PLACE.
26. ALL CULVERTS SHALL HAVE A FLARED-END SECTION OR CONCRETE HEADWALL ON THE INLET END.
27. A MODIFICATION TO THE REQUIREMENTS OF THE LAND SUBDIVISION ORDINANCE TO PERMIT A BLOCK LENGTH IN EXCESS OF 1320 FEET ALONG THE NORTH, WEST, EAST AND SOUTH BORDERS OF THIS SUBDIVISION.
28. EXISTING TREE MASSES CONTAIN CEDARS, PINES, COTTONWOODS, MAPLES, WILLOWS AND ELMS.
29. IF ASPHALT OR CONCRETE PAVEMENT IS USED THE DEVELOPER SHALL INSTALL SURVEY CONTROL MONUMENTS BOXES AS SPECIFIED BY THE CITY OF LINCOLN STANDARDS AT ALL CENTERLINE CONTROL POINTS AFTER ACCEPTANCE AND APPROVAL OF THE PAVEMENT.
30. THE DEVELOPER UNDERSTANDS THAT W. DAKOTA SPRINGS DRIVE LOCATION MAY NOT PROVIDE SUFFICIENT SPACING TO ALLOW FOR A FULL INTERSECTION IN THE FUTURE.
31. W. DAKOTA SPRINGS DRIVE AND W. SALTILLO ROAD WILL NOT MEET THE BLOCK LENGTH REQUIREMENT UNTIL BUILD-THROUGH IS DEVELOPED AND ADDITIONAL ROADWAYS INSTALLED TO MEET THE BLOCK LENGTH REQUIREMENTS.
32. THE ROADWAY WITHIN THE LIMITS OF OUTLOT 'F' SHALL BE INSTALLED WHEN EITHER THE THE PROPERTY TO THE WEST DEVELOPS OR LOT 10, BLOCK 1 OR LOT 2, BLOCK 2 ARE FURTHER SUBDIVIDED.
33. NO ACCESS TO ANY PORTION OF THE TEMPORARY TURNAROUND AT THE END OF WEST DAKOTA SPRINGS DRIVE WILL BE ALLOWED.

APPROVAL:

THE FOREGOING COMMUNITY UNIT PLAN – SPECIAL PERMIT WAS APPROVED BY THE LINCOLN CITY PLANNING COMMISSION ON THIS _____ DAY OF ________________, 2006.

ATTEST: ______________________
CHAIR

FINAL APPROVED COPY

APPROVED
BY PLANNING COMMISSION
RESOLUTION# PC 01017
DATE Sept 13, 2006

SHEET INDEX

OWNER/DEVELOPER:

SWL DEVELOPMENT, LLC
1400 W. BURR OAKS ROAD
LINCOLN, NE 68523
(402) 420-1100

ENGINEER:

CIVIL DESIGN GROUP, INC.
3901 NORMAL BLVD., SUITE 203
LINCOLN, NE 68506
(402)434-8494

SURVEYOR:

K & M LAND SURVEYING
540 W. INDUSTRIAL LAKE DR. #1
LINCOLN, NE 68528
(402)476-3020

Civil Design Group, Inc.
3901 Normal Blvd, Suite 203
Lincoln, Nebraska 68506
Ph. 402-434-8494 Fax 866-215-8747
www.civildg.com
CONSULTING ENGINEERS • LAND USE PLANNERS
CIVIL DESIGN • SITE DEVELOPMENT • PLANNING AND ZONING

NEBRASKA REGISTERED LAND SURVEYOR LS-483 BILLY JOE KERR

REVISIONS

	DATE	DESCRIPTION
	1/24/07	REVISIONS AS PER P.C.
	5/30/07	REVISIONS PLANNING LETTER DATED 2/28/07
	8/8/07	REVISIONS COUNTY ENGINEER LETTER DATED 6/7/07

2007

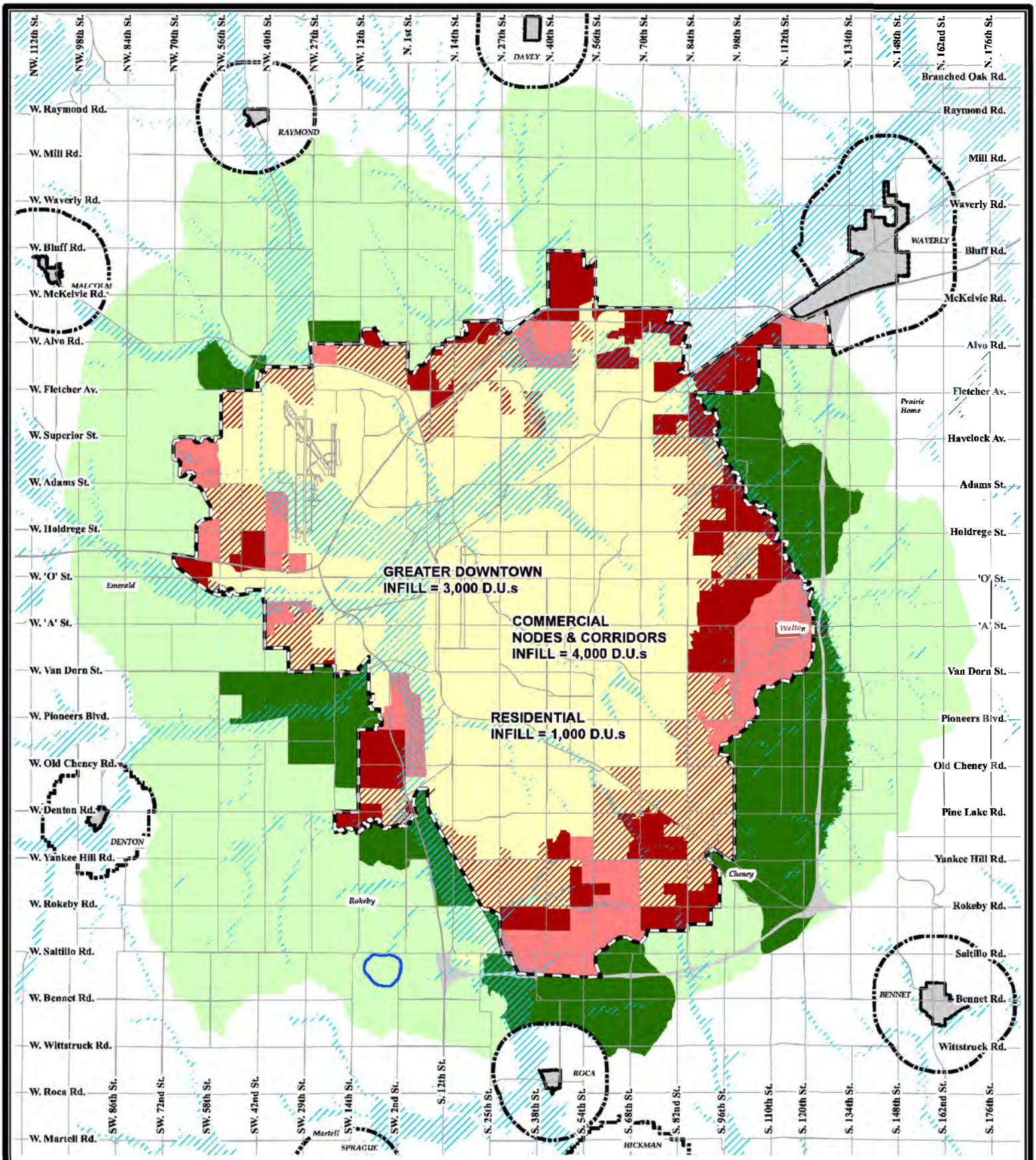
SITE PLAN

DAKOTA SPRINGS
SPECIAL PERMIT #06046

LINCOLN, NEBRASKA

drawn by:	jde
checked by:	mte
approved by:	mte
project no.:	2006-0023
drawing no.:	–
date:	08/09/07

SHEET
1 OF 5



2040 PRIORITY GROWTH AREAS

- Existing Lincoln City Limits and Approved Preliminary Plans (2016)
- Floodplain and Flood Prone Areas
- 2040 Future Service Limit
- Tier I, Priority A (Developing)
- Tier I, Priority B (2025)
- Tier I, Priority C (2040)
- Tier II (2060)
- Tier III

Miles
0 0.5 1 2

N W E S

LPlan 2040

F:\ITS\GIS\2040Update\GIS\mxd\PriorityGrowthAreas.mxd

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

Pete Ricketts, Governor

January 31, 2022

Dakota Springs Home Owners Association
11900 W Santee Ct
Roca, NE 68430

A-18489, A-18490

Dear Landowner(s):

The purpose of this letter is to confirm that records on file in the Department of Natural Resources indicate that storage appropriations A-18489 and A-18490 (Dakota Springs Pond 1 & 2) are held by the Dakota Springs Home Owners Association. We will send future correspondence to you at the address listed above.

Permit #	Location of Diversion,	County	Acre feet	Source of Water
A-18489	NE NE S03 T08N-R06E	Lancaster	11.2	Trib. to Salt Creek
A-18490	SW NE S03 T08N R06E	Lancaster	12.2	Trib. to Salt Creek

Priority Date(s): 03/21/2007 Use Type: Storage

Previous contact: Mutual of Omaha Loan Pro LLC

Enclosed is a copy of the most recent Order describing the permit(s).

If you have any questions or feel the update has been made in error, please contact me at (402) 471-0591, or at Curt.Inbody@nebraska.gov.

Sincerely,

Curt Inbody
Natural Resources Program Specialist

Gordon W. "Jeff" Fassett, P.E., Director
Department of Natural Resources
P.O. Box 94676
301 Centennial Mall South
Lincoln, Nebraska 68509
OFFICE 402-471-2363
FAX 402-471-2900
dnr.nebraska.gov

sw – 1/31/2022–10260 + 10261 – cor

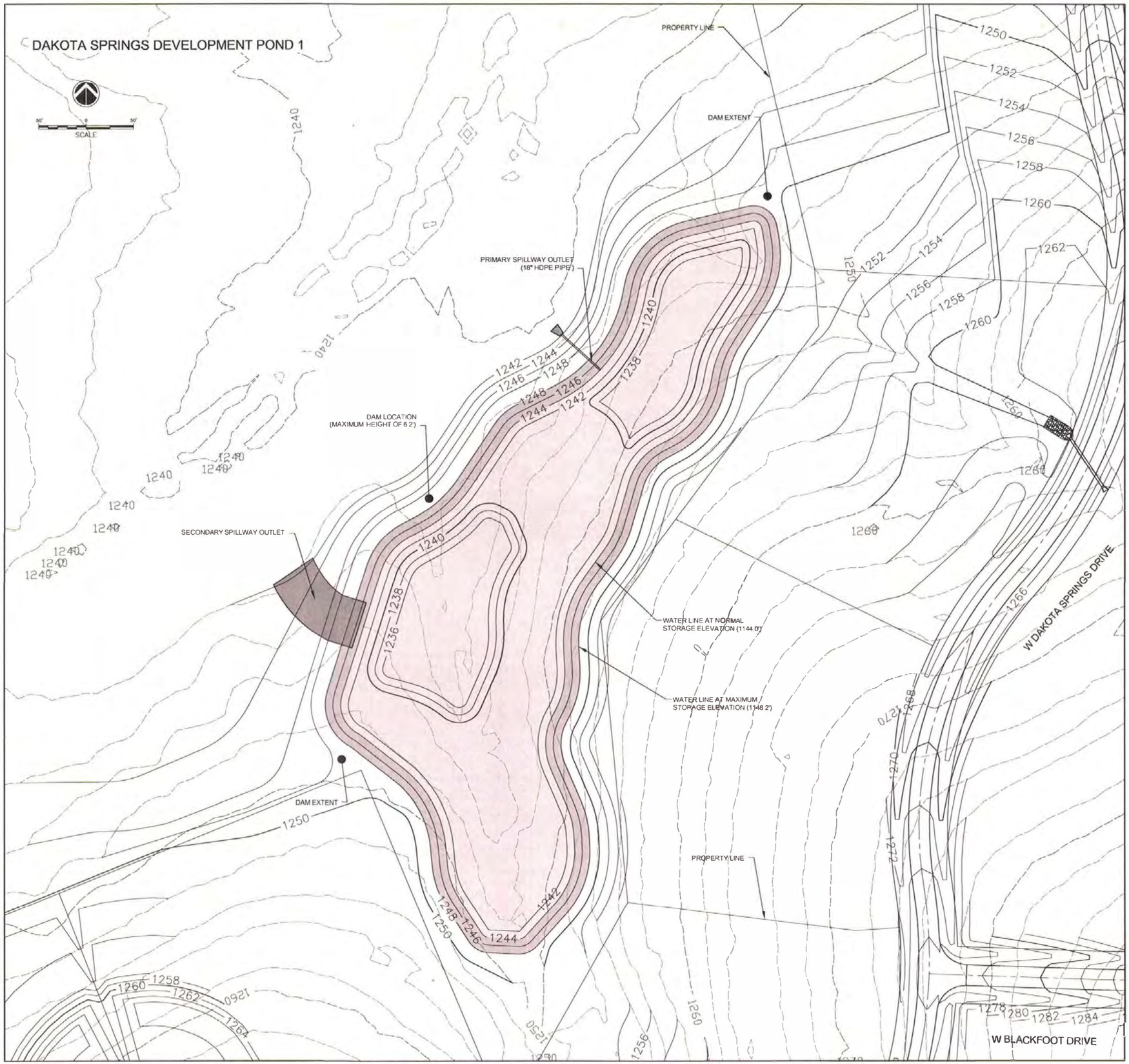
TRG

(402) 435-7108

PROJECT NO.	SHEET NO.
DAKOTA SPRINGS	1
Date: Aug 2021	Drawn:
HORIZ: AS SHOWN	Approved: TER

PROFESSIONAL ENGINEER
THOMAS E. RILEY
STATE OF NEBRASKA

DAKOTA SPRINGS DEVELOPMENT POND 1



STAGE-STORAGE TABLE	
STAGE (FT)	STORAGE (AC FT)
1236.0	0.0
1238.0	1.1
1240.0	2.7
1242.0	6.1
1244.0	11.2
1246.0	17.0
1248.0	23.6
1248.2	24.3

— ELEVATION 1242' - PRINCIPAL SPILLWAY OUTLET INVERT

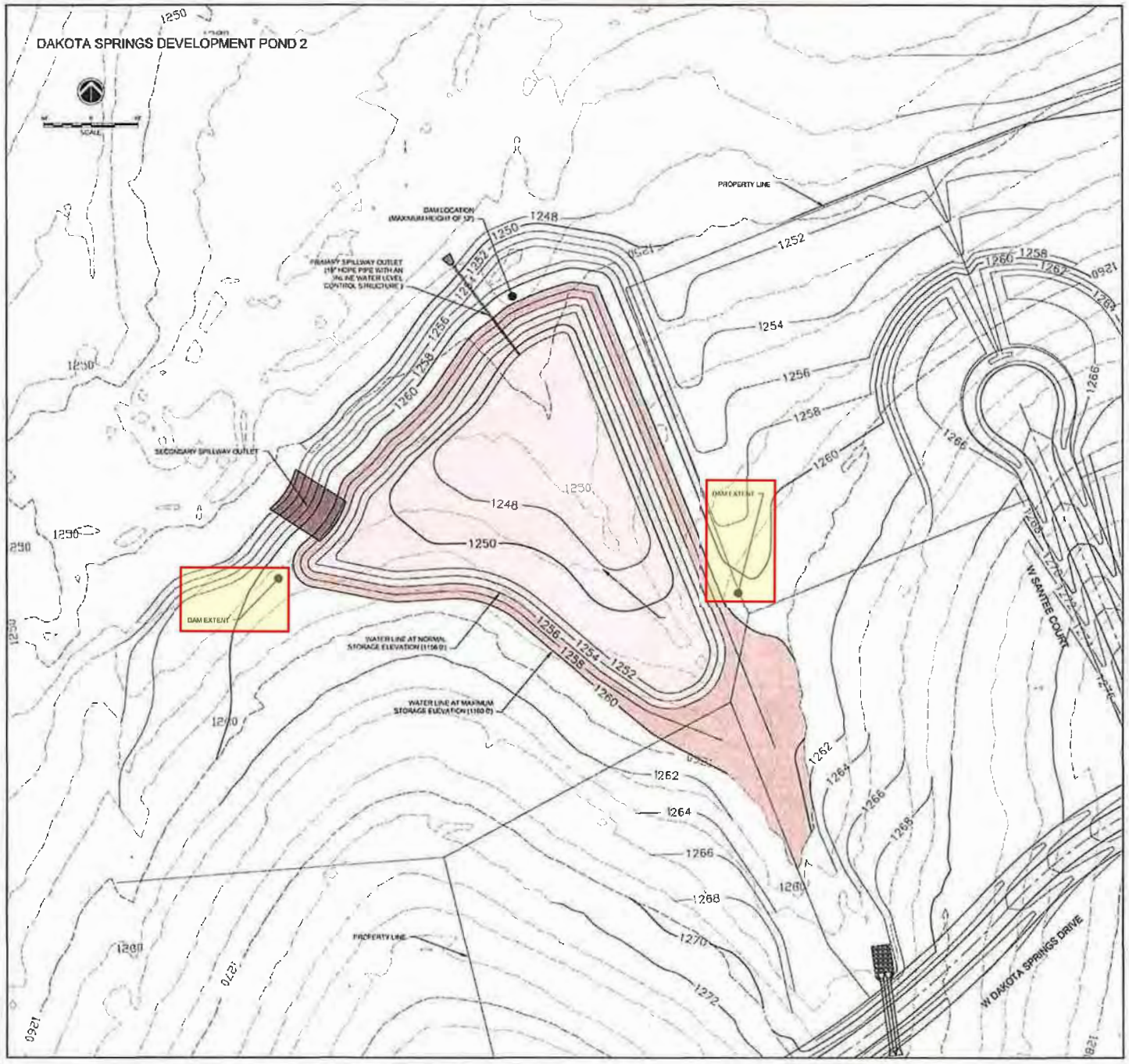
— ELEVATION 1244' - NORMAL POOL / PRINCIPAL SPILLWAY INLET INVERT

TFC The Flatwater Group, Inc.
The Flatwater Group, Inc.
1618 L Street
Lincoln, Nebraska 68508
(402) 435-5441
(402) 435-7108

PROJECT NO.	SHEET NO.
DAKOTA SPRINGS	2
Date: As Built	Drawn: JDC
HORIZ: AS SHOWN	Checked: RJK
VERT: AS SHOWN	Approved: TER

PROFESSIONAL CIVIL ENGINEER
THOMAS E. RILEY
E-7137
STATE OF NEBRASKA

16931



STAGE-STORAGE TABLE		
STAGE (FT)	STORAGE (AC FT)	
1248	0.0	— ELEVATION 1248' - PRINCIPAL SPILLWAY OUTLET INVERT
1256	1.8	— ELEVATION 1256' - PRINCIPAL SPILLWAY INLET INVERT
1252	4.6	
1254	8.1	
1156	12.2	— ELEVATION 1256' - NORMAL POOL
1258	18.9	
1260	22.5	

IFG
The Flatwater Group, Inc
The Flatwater Group, Inc.
1918 L Street
Lincoln, Nebraska 68508
(402) 435-5441
(402) 435-7108

PROJECT NO.	SHEET NO.
DAKOTA SPRINGS	3
Date: As Built	Drawn: JDC
HORZ: AS SHOWN	Checked: KJE
VERT: AS SHOWN	Approved: TER

16935

Dakota Springs Development

Pond 1 (Northeast Pond): **Dam Length 910'**

Dakota Springs Development

Pond 2 (Southwest Pond): **Dam Length 840’**

STATE OF NEBRASKA

DEPARTMENT OF NATURAL RESOURCES

Application Approval

Water Division 2-B

This matter comes before the Director of the Department of Natural Resources (Department) pursuant to Neb. Rev. Stat. § 46-233 (Reissue 2004) which requires any person intending to appropriate any of the public waters of the State of Nebraska to make an application to the Department for a permit to make such appropriation; Neb. Rev. Stat. § 46-241 (Cum. Supp. 2006) which generally requires every person intending to construct and operate a storage reservoir to make an application to the Department; and Neb. Rev. Stat. § 46-1652 (Supp. 2005) which generally requires any owner intending to construct or enlarge a dam to apply for and obtain written application approval of plans and specifications of a dam.

This is to certify that application A-18490 for a permit to impound water, application for approval of plans, engineering drawings and plan number P-16935 have been examined. The Department consulted with the Game and Parks Commission as required by Neb. Rev. Stat. § 37-807 (Reissue 2004), and it is determined that this project will not harm threatened and endangered species or their habitat.

The application and engineering drawings are hereby APPROVED subject to the following limitations, conditions and notice:

1. The source of water is tributary to Salt Creek.

2. The priority date is March 21, 2007.

3. The amount of the appropriation shall not exceed 12.2 acre-feet per annum to be stored in the Dakota Springs Pond 2. Dakota Springs Pond 2 Dam will be located in the SW¼NE¼ of Section 3, Township 8 North, Range 6 East of the 6th P.M. in Lancaster County.

4. Construction must begin by November 22, 2007, and must continue vigorously, diligently and uninterruptedly to completion unless temporarily interrupted by some unavoidable and natural cause.

5. Construction of the project must be completed by October 1, 2008.

6. The installation of a measuring device may be required.

7. The applicant shall have a preferred right until April 1, 2009, to file an application for a permit to appropriate the water stored for some useful purpose as provided by Neb. Rev. Stat. § 46-242 (Reissue 2004).

8. Impoundment of water under A-18490 may be denied for the benefit of downstream appropriators requiring water for direct irrigation and for senior rights.

9. A portion of the reservoir inflows may be required to be released for livestock.

10. The structure is to be constructed, operated and maintained in accordance with Nebraska Statutes, specifically Neb. Rev. Stat. § 46-241 (Supp. 2005) and the Safety of Dams and Reservoirs Act, Neb. Rev. Stat. §§ 46-1601 to 46-1670 (Supp. 2005).

11. Written notice shall be provided to the Department at least ten days before start of construction.

12. Upon completion of a new or reconstructed dam and reservoir or of the enlargement of a dam and reservoir, the owner shall file with the Department the enclosed Construction Certification for Dams form as required by Neb. Rev. Stat. § 46-1657. Following receipt of such Construction Certification for Dams form, the Department shall issue an approval to operate upon a finding that the dam is safe to impound within the limitations prescribed in this approval. No impoundment by the structure shall occur prior to issuance of the approval to operate as required by § 46-1657.

13. Owners of reservoirs and dams are liable for all damages arising from leakage, overflow, or structural failure.

14. Failure to comply with the provisions of this Approval may cause cancellation of this Approval. If unable to meet the conditions of approval, a petition for an extension of time may be filed with the Department. An extension may be granted upon a showing of reasonable cause. Petitions must be filed prior to the expiration dates stated in the Approval and accompanied by an appropriate filing fee.

DEPARTMENT OF NATURAL RESOURCES

May 22, 2007

Ann Bleed

Ann Bleed, Director

A copy of application number A-18490, this Application Approval, and a copy of approved engineering drawings and plan number P-16935 were mailed on May 22, 2007, to SWL Development LLC, c/o Gary Pickering, 1400 W Burr Oak Road, Lincoln, Nebraska 68523. A copy of this Approval and Construction Certification Form for Dams were mailed to Thomas E. Riley, The Flatwater Group, Inc., 1618 L. Street, Lincoln, Nebraska 68508-2509. A copy of this Application Approval, Engineering Review Report and approved drawings and plan number P-16935 were provided to the Department's field office, Lincoln, Nebraska.

5/22/07

STATE OF NEBRASKA

DEPARTMENT OF NATURAL RESOURCES

Application Approval

Water Division 2-B

This matter comes before the Director of the Department of Natural Resources (Department) pursuant to Neb. Rev. Stat. § 46-233 (Reissue 2004) which requires any person intending to appropriate any of the public waters of the State of Nebraska to make an application to the Department for a permit to make such appropriation; Neb. Rev. Stat. § 46-241 (Cum. Supp. 2006) which generally requires every person intending to construct and operate a storage reservoir to make an application to the Department; and Neb. Rev. Stat. § 46-1652 (Supp. 2005) which generally requires any owner intending to construct or enlarge a dam to apply for and obtain written application approval of plans and specifications of a dam.

This is to certify that application A-18489 for a permit to impound water, application for approval of plans, engineering drawings and plan number P-16934 have been examined. The Department consulted with the Game and Parks Commission as required by Neb. Rev. Stat. § 37-807 (Reissue 2004), and it is determined that this project will not harm threatened and endangered species or their habitat.

The application and engineering drawings are hereby APPROVED subject to the following limitations, conditions and notice:

1. The source of water is tributary to Salt Creek.

2. The priority date is March 21, 2007.

3. The amount of the appropriation shall not exceed 11.2 acre-feet per annum to be stored in the Dakota Springs Pond 1. Dakota Springs Pond 1 Dam will be located in the NW¼NE¼ and NE¼NE¼ of Section 3, Township 8 North, Range 6 East of the 6th P.M. in Lancaster County.

4. Construction must begin by November 22, 2007, and must continue vigorously, diligently and uninterruptedly to completion unless temporarily interrupted by some unavoidable and natural cause.

5. Construction of the project must be completed by October 1, 2008.

6. The installation of a measuring device may be required.

7. The applicant shall have a preferred right until April 1, 2009, to file an application for a permit to appropriate the water stored for some useful purpose as provided by Neb. Rev. Stat. § 46-242 (Reissue 2004).

8. Impoundment of water under A-18489 may be denied for the benefit of downstream appropriators requiring water for direct irrigation and for senior rights.

9. A portion of the reservoir inflows may be required to be released for livestock.

10. The structure is to be constructed, operated and maintained in accordance with Nebraska Statutes, specifically Neb. Rev. Stat. § 46-241 (Supp. 2005) and the Safety of Dams and Reservoirs Act, Neb. Rev. Stat. §§ 46-1601 to 46-1670 (Supp. 2005).

11. Written notice shall be provided to the Department at least ten days before start of construction.

12. Upon completion of a new or reconstructed dam and reservoir or of the enlargement of a dam and reservoir, the owner shall file with the Department the enclosed Construction Certification for Dams form as required by Neb. Rev. Stat. § 46-1657. Following receipt of such Construction Certification for Dams form, the Department shall issue an approval to operate upon a finding that the dam is safe to impound within the limitations prescribed in this approval. No impoundment by the structure shall occur prior to issuance of the approval to operate as required by § 46-1657.

13. Owners of reservoirs and dams are liable for all damages arising from leakage, overflow, or structural failure.

14. Failure to comply with the provisions of this Approval may cause cancellation of this Approval. If unable to meet the conditions of approval, a petition for an extension of time may be filed with the Department. An extension may be granted upon a showing of reasonable cause. Petitions must be filed prior to the expiration dates stated in the Approval and accompanied by an appropriate filing fee.

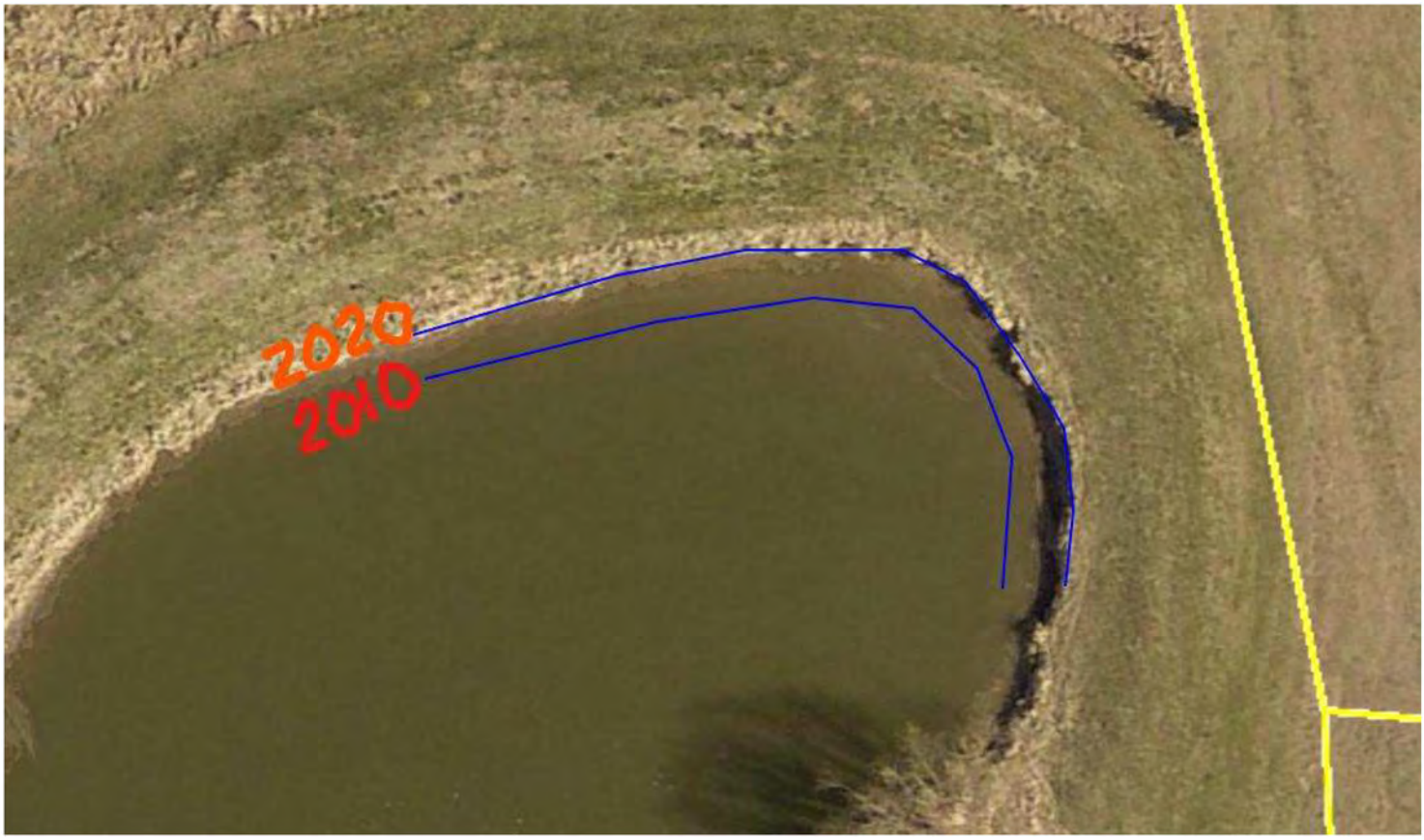
DEPARTMENT OF NATURAL RESOURCES

May 22, 2007

Ann Bleed

Ann Bleed, Director

A copy of application number A-18489, this Application Approval, and a copy of approved engineering drawings and plan number P-16934 were mailed on May 22, 2007, to SWL Development LLC, c/o Gary Pickering, 1400 W Burr Oak Road, Lincoln, Nebraska 68523. A copy of this Application Approval and Construction Certification Form for Dams were mailed to Thomas E. Riley, The Flatwater Group, Inc., 1618 L. Street, Lincoln, Nebraska 68508-2509. A copy of this Application Approval, Engineering Review Report and approved drawings and plan number P-16935 were provided to the Department's field office, Lincoln, Nebraska.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UNIVERSTIY OF NEBRASKA-LINCOLN
OFFICE OF SPONSORED PROGRAMS
RESEARCH AGREEMENT #146033
DEADMAN'S RUN RAILROAD BRIDGE FLUME SCOUR MODEL

RESEARCH AGREEMENT (the "Agreement") between the **Board of Regents of the University of Nebraska on behalf of the University of Nebraska-Lincoln**, a non-profit, public educational institution of the State of Nebraska, hereinafter referred to as "UNL", and **Lower Platte South Natural Resource District,** hereinafter referred to as the "Sponsor". Party shall mean the Sponsor or UNL as the context dictates, and when used in the plural, shall mean the Sponsor and UNL.

WHEREAS, the research program contemplated by this Agreement is of mutual interest and benefit to UNL and to the Sponsor, and will further the instructional and research objectives of UNL in a manner consistent with its status as a non-profit, tax-exempt, educational institution.

NOW, THEREFORE, the Parties hereto agree as follows:

1 RESEARCH

1.1 **STATEMENT OF WORK.** UNL agrees to use reasonable efforts to perform the research program as described in Attachment A (the "Research") which is incorporated and made part of this Agreement.

1.2 **PRINCIPAL INVESTIGATOR**. The Research will be supervised by Dr. David Admiraal the "Principal Investigator". If, for any reason, Dr. Admiraal is unable to continue to serve as Principal Investigator and a successor acceptable to both UNL and the Sponsor is not available, this Agreement shall be terminated as provided in Article 3.2.

1.3 **EXPENDABLES AND EQUIPMENT.** UNL owns all expendables and equipment purchased or fabricated to perform the Research.

2 FINANCIAL

2.1 **DESIGNATION.** Sponsor will pay UNL up to a Cost of $87,232.00, for the Research performed under this Agreement in accordance with Attachment B per Article 2.2 below. For the purposes of this Agreement, "Cost" is defined as all direct and indirect costs incurred by UNL in conducting the Research.

The parties estimate that the Cost is sufficient to support the Research. UNL may submit to Sponsor a revised budget requesting additional funds if Sponsor requests a change in the Research scope of work. Sponsor will not be liable for any payment in excess of Cost except as per Sponsor's written agreement. UNL has the authority to re-budget costs at the discretion of the Principal Investigator, as long as the re-budgeting is consistent with the goals of the Research.

2.2 **PAYMENT.** A payment equal to twenty-five percent (25%) of the Cost will be made upon signing. Thereafter, UNL shall submit reimbursement requests no less often than quarterly and no more often than monthly. Payment(s) shall be made to UNL by the Sponsor in U.S. dollars.

Checks shall be made payable to the University of Nebraska-Lincoln (ID #47-0049123).

Checks shall be mailed to: University of Nebraska-Lincoln
Sponsored Programs
151 Prem S. Paul Research Center
2200 Vine Street
PO Box 830861
Lincoln, NE 68583-0861

For identification purposes, each payment shall include the Research Agreement number, title of the Research Project and the name of the Principal Investigator.

UNL will invoice the Sponsor for costs incurred, and the Sponsor will pay any undisputed invoice within thirty (30) days of receipt of that invoice by the Sponsor. Any amount not received by the due date so noted in the invoice will be subject to interest on the unpaid principal balance at the rate specified in Neb. Rev. Stat. § 45-104, as such rate may from time to time be adjusted.

The invoice may be sent to the sponsor by the following method(s):	With copy to (optional):
EMAIL: mlindemann@lpsnrd.org	EMAIL: pzillig@lpsnrd.org

UNL's institutional preference for sending invoices is via electronic mail

2.3 **TAXES.** UNL is a non-profit, public educational institution. Sponsor agrees that if this Agreement is subject to taxation by any governmental authority, Sponsor will pay these taxes in full. UNL will have no liability for payment of these taxes.

3 TERM AND TERMINATION

3.1 **PERIOD OF PERFORMANCE.** The Research shall be conducted during the period August 1, 2022 (the "Effective Date") through June 30, 2023 (the "Completion Date"). The Completion Date may be modified or extended only by mutual written agreement of the Parties.

3.2 **TERMINATION.** Performance under this Agreement may be terminated by either Party upon ninety (90) days' prior written notice to the other Party. Upon termination by either Party, UNL will be reimbursed as specified in Article 2.2 for all costs and non-cancelable commitments incurred in the performance of the Research up to and including the effective date of termination, such reimbursement not to exceed the total estimated cost specified in Article 2.2. If any UNL student is supported under this Agreement, Sponsor will remain responsible for the full cost of the student support through the academic semester if this Agreement is terminated.

In the event that either Party hereto shall commit any breach of or default in any of the terms or conditions of the Agreement, and also shall fail to remedy such default or breach within thirty (30) days after receipt of written notice thereof from the other party hereto, the party giving notice may, at its option and in addition to any other remedies which it may have at law or in equity,

terminate this Agreement by sending notice of termination in writing to the other party to such effect. Such termination shall be effective as of the date of receipt of such notice.

Termination of this Agreement by either party for any reason shall not affect the rights and obligations of the parties accrued prior to the effective date of the termination of this Agreement. No termination of the Agreement, however effectuated, shall release the parties from their rights and obligations under Articles 1.3, 2.1-2.3, 3.2, 4, 5, 6, 7.1-7.2 and 7.6.

4 CONFIDENTIALITY

4.1 **CONFIDENTIAL INFORMATION.** The University and the Sponsor agree that any "Confidential Information" as defined herein, shall be handled according to the following terms:

"Confidential Information" hereunder shall mean any materials, written information, and data marked "Confidential" by either party or non-written information and data disclosed by either party that is identified at the time of disclosure to the receiving party as confidential and is reduced to writing and transmitted to the receiving party within thirty (30) days of such non-written disclosure. Each party agrees to use the same degree of care it uses to protect its own confidential information and, to the extent permitted by law, to maintain as confidential for a period of three (3) years the Confidential Information. The obligations of confidentiality set forth herein shall not apply to any Information which is:

A. possessed by the receiving party, other than through prior disclosure by the disclosing party, as evidenced by the receiving party's written records and which was not acquired directly or indirectly from the disclosing party;

B. in the public knowledge at the time of disclosure;

C. published or available to the general public after disclosure, otherwise than through a breach of this Agreement;

D. obtained by the receiving party from a third party with a valid right to disclose such Information, provided that said third party is not under a confidentiality obligation to the disclosing party or any other third party;

E. independently developed by the receiving party without reference to the disclosing party's Confidential Information as shown by the receiving party's written records; or

F. required to be disclosed by legal process, or subject to the obligations of the University pursuant to the provisions of the Nebraska Public Records Act, Neb. Rev. Stat. §84-712 et. seq.

4.2 **USE OF NAMES**. Neither Party shall use the other Party's name or any variation, adaptation, or abbreviation thereof or any trademark owned by the other Party, in any publication, press release, website, promotional material or other form of publicity without the prior written approval of such Party. This prohibition shall not include internal documents available to the public that identify the existence of this Agreement.

Sponsor shall not use the name of any of UNL's trustees, officers, faculty members, students, employees, or agents and UNL shall not use the name of any of Sponsor's officers, agents or employees, in any publication, press release, website, promotional material or other form of publicity without the prior written approval of such Party. This prohibition shall not include internal documents available to the public that identify the existence of this Agreement.

5 PUBLICATION

5.1 **PUBLICATIONS.** UNL will be free to publish the results of the Research in whole or in part, provided that UNL complies with this Article 5. UNL agrees to provide Sponsor with a copy of each manuscript, presentation, poster, and/or any other form of public disclosure intended to be presented visually or audibly or in writing to any third party or organization disclosing the Research ("Manuscript") at least thirty (30) days prior to its submission, presentation, and/or disclosure to any third party or organization ("Publication"). Within thirty (30) days of receipt of the Manuscript, Sponsor may request delay in Publication for a period not to exceed an additional sixty (60) days (or some longer period of time as agreed to by the Parties) from the date Sponsor gives notice to UNL that patentable subject matter is included in such Manuscript to allow for the filing of appropriate intellectual property protection. If Sponsor notifies UNL of subject matter in any such Manuscript that should be protected, UNL agrees to coordinate with Sponsor the disclosure, drafting and filing such intellectual property protection prior to Publication of the Manuscript as provided in Article 6.3 below within the time period referenced herein. If Sponsor does not make a written request for such delay within thirty (30) days after receipt of a Manuscript, UNL shall be free to publish the Manuscript at any time after the end of the thirty (30) days. UNL agree to remove any Sponsor Confidential Information (as defined in Article 4.1, or in Attachment C, as applicable) that is identified by Sponsor as Confidential Information prior to publication. Pursuant to the policies of UNL and traditional academic practice, the author(s) of such publications shall retain ownership of all copyright interest thereto.

6 INTELLECTUAL PROPERTY

6.1 **SPONSOR INTELLECTUAL PROPERTY**. Title to any invention made solely by the Sponsor's personnel without the use of UNL administered funds or facilities ("Sponsor Invention") shall remain with the Sponsor. Title to and the right to determine the disposition of any copyrights or copyrightable material first produced or composed in the performance of the Research solely by employees of the Sponsor without the use of UNL administered funds or facilities ("Sponsor Copyright") shall remain with the Sponsor. Neither Sponsor Inventions nor Sponsor Copyrights shall be subject to the terms and conditions of this Agreement.

6.2 **JOINT INTELLECTUAL PROPERTY.**

6.2.1 TITLE TO JOINT INVENTIONS. Inventions made jointly by employees and/or students of UNL and employees of the Sponsor in the performance of the Research or inventions made solely by employees of the Sponsor with use of UNL administered funds or facilities ("Joint Inventions") shall be jointly owned by both Parties. The Sponsor shall be notified of any Joint Invention promptly after an invention disclosure is received by UNL. UNL shall have

the first right to file a patent application on a Joint Invention in the names of both Parties. All expenses incurred in obtaining and maintaining any patent on such Joint Invention shall be equally shared except that if one Party declines to share in such expenses, the other Party may take over the prosecution and maintenance thereof, at its own expense, provided that title to the patent remains in the names of both Parties. It is agreed that any disputes in inventorship will be determined by a patent attorney mutually agreed upon by Sponsor and UNL.

6.2.2 LICENSING OPTIONS. Each Party shall have the independent, unrestricted right to license to third parties any such Joint Invention without accounting to the other Party, except that the Sponsor shall be entitled to elect an exclusive license to UNL's interest in a Joint Invention as provided under Article 6.3.2.2 below.

6.2.3 JOINTLY DEVELOPED COPYRIGHTABLE MATERIALS. Copyrightable materials, including computer software (but not including scholarly publications pursuant to Article 5.1) , developed jointly in the performance of the Research by employees and/or students of UNL and employees of the Sponsor, or copyrightable materials, including software, developed solely by employees of the Sponsor with use of UNL administered funds or facilities, shall be jointly owned by both Parties, who shall each have the independent, unrestricted right to dispose of such copyrightable materials as they deem appropriate, without any obligation of accounting to the other Party.

6.3 **UNL INTELLECTUAL PROPERTY.**

6.3.1 TITLE TO INVENTIONS. Title to any invention conceived or first reduced to practice solely by employees and/or students of UNL in the performance of the Research ("UNL Invention") shall remain with UNL. The Sponsor shall be notified of any UNL Invention promptly after a disclosure is received by UNL. UNL (i) may file a patent application at its own discretion or (ii) shall do so at the request of the Sponsor and at the Sponsor's expense.

6.3.2 LICENSING OPTIONS. In the event that a patent application on a UNL Invention is filed by UNL, for each UNL Invention, UNL hereby grants the Sponsor a non-exclusive, non-transferable, royalty-free license for internal research purposes. The Sponsor shall further be entitled to elect one of the following license options by notice in writing to UNL within four (4) months after UNL's notification to the Sponsor that a patent application has been filed:

6.3.2.1 a non-exclusive, non-transferable, world-wide, royalty-free license without the right to sublicense (in a designated field of use, where appropriate) to the Sponsor to make, have made, use, lease, sell and import products embodying or produced through the use of such invention, provided that the Sponsor agrees to (i) demonstrate reasonable efforts to commercialize the technology in the public interest and (ii) pay all patent prosecution and maintenance costs in all countries, including the United States, in which the Sponsor is granted a non-exclusive license right under this Article; or

6.3.2.2 a royalty-bearing, limited-term, exclusive license (subject to third party rights, if any) to the Sponsor, including the right to sublicense, in the United States and/or any

foreign country elected by the Sponsor (subject to Article 6.3.3 below), to make, have made, use, lease, sell and import (in a designated field of use, where appropriate) products embodying or produced through the use of such invention, provided that the Sponsor agrees to reimburse UNL for the costs of patent prosecution and maintenance in the United States and any elected foreign country and further agrees that any products produced pursuant to this license, and that are sold in the United States, shall be substantially manufactured in the United States. This license option is subject to UNL's concurrence and the negotiation of commercially reasonable terms and conditions within three (3) months after selection of this option.

6.3.3 FOREIGN FILING ELECTION. If the Sponsor elects a license under Article 6.3.2.1 or Article 6.3.2.2, the Sponsor shall notify UNL of those foreign countries in which it desires a license in sufficient time for UNL to satisfy the patent law requirements of those countries. The Sponsor will reimburse UNL for the out-of-pocket costs, including patent filing, prosecution and maintenance fees, related to those foreign filings.

6.3.4 CONFIDENTIALITY OF INVENTION DISCLOSURES. The Sponsor shall retain all invention disclosures submitted to the Sponsor by UNL in confidence and use its best efforts to prevent their disclosure to third parties. The Sponsor shall be relieved of this obligation only when this information becomes publicly available through no fault of the Sponsor.

6.3.5 COPYRIGHT OWNERSHIP AND LICENSES. Excluding scholarly publications dealt with pursuant to Article 5.1 above, Title to and the right to determine the disposition of any other copyrights or copyrightable material first produced or composed in the performance of the Research solely by employees and/or students of UNL shall remain with UNL.

6.3.6 For any copyrights or copyrightable material other than computer software and its documentation and/or informational databases required to be delivered in accordance with Attachment A, the Sponsor is hereby granted an irrevocable, royalty-free, non-transferable, non-exclusive right and license to use, reproduce, make derivative works, display, distribute and perform all such copyrightable materials for the Sponsor's internal purposes.

6.3.7 For a period of four (4) months following UNL's notification or delivery to the Sponsor of computer software and its documentation and/or informational databases required to be delivered to the Sponsor in accordance with Attachment A, the Sponsor shall be entitled to elect a royalty-free, non-transferable, non-exclusive right and license to use, reproduce, make derivative works, display, and distribute to end users, such computer software and its documentation and/or databases for internal and/or commercial purposes. If the use of the software would infringe claims of a patent application filed pursuant to Article 6.3.1 above, then the Sponsor will need to exercise its license rights in such patent as set forth in Article 6.3.2 above. If such computer software is a derivative of UNL software existing prior to the start of the Research, then such license may not be royalty-free.

6.3.8 RIGHTS IN TRP. In the event that UNL elects to establish property rights other than patents to any tangible research property (TRP), including but not limited to biological materials,

developed during the course of the Research, UNL and the Sponsor will determine the disposition of rights to such property by separate agreement. UNL will, at a minimum, reserve the right to use and distribute TRP for non-commercial research purposes.

6.3.9 LICENSE EFFECTIVE DATE. All licenses elected by the Sponsor pursuant to Sections 6.3.2, 6.3.5 and 6.3.8 of this Article 6.3 become effective as of the date the Parties sign a subsequent license agreement.

6.3.10 BACKGROUND INTELLECTUAL PROPERTY. UNL shall retain full right, title, and interest in and to all UNL intellectual property in existence prior to the execution of (and not arising out of) this Agreement.

6.3.11 NUTECH VENTURES. UNL has entered into an agreement with NUtech Ventures ("NUtech"), a 501(c)(3) supporting organization of UNL, whereby upon assignment from UNL NUtech has the exclusive worldwide rights to market and commercialize any UNL patent rights, copyrights, inventions or discoveries and technology derived therefrom ("UNL IP"). NUtech is also responsible for obtaining patent or copyright protection, or otherwise protecting or disposing of UNL IP as it sees fit. UNL may assign its interest to UNL IP under this Agreement to NUtech without further approval from Sponsor.

7 GENERAL PROVISIONS

7.1 **REPRESENTATIONS AND WARRANTIES**. UNL MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE RESEARCH OR ANY INTELLECTUAL PROPERTY RIGHTS, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, VALIDITY OF ANY INTELLECTUAL PROPERTY RIGHTS OR CLAIMS, WHETHER ISSUED OR PENDING, AND THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE. SPECIFICALLY, AND NOT TO LIMIT THE FOREGOING, UNL MAKES NO WARRANTY OR REPRESENTATION (I) REGARDING THE VALIDITY OR SCOPE OF THE RESEARCH OR ANY INTELLECTUAL PROPERTY RIGHTS OPTIONED OR GRANTED HEREUNDER AND (II) THAT THE EXPLOITATION OF THE RESEARCH OR ANY INTELLECTUAL PROPERTY RIGHTS WILL NOT INFRINGE ANY PATENTS OR OTHER INTELLECTUAL PROPERTY RIGHTS OF UNL OR OF A THIRD PARTY.

IN NO EVENT SHALL EITHER PARTY, ITS TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES, STUDENTS AND AFFILIATES, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING ECONOMIC DAMAGES OR INJURY TO PERSONS OR PROPERTY AND LOST PROFITS, REGARDLESS OF WHETHER THE PARTY WAS ADVISED, HAD OTHER REASON TO KNOW OR IN FACT KNEW OF THE POSSIBILITY OF THE FOREGOING. ARTICLE 6.3 SHALL SURVIVE THE EXPIRATION OR ANY EARLIER TERMINATION OF THIS AGREEMENT.

7.2 **LIABILITY.** Each Party agrees that it will be responsible for its own acts and the results thereof and shall not be responsible for the acts of the other party and the results thereof. Each Party therefore agrees that it will assume all risk and liability to itself, its agents or employees for any injury to persons or property resulting in any manner from the conduct of its own operations and the operations of its agents or employees under this Agreement, and for any loss, cost, or damage caused thereby during the performance of this Agreement. Nothing contained in this

clause or other clauses of this Agreement shall be construed to be a waiver of any sovereign or governmental immunity rights or defenses by either of the Parties.

7.3 **NOTICES.** Any notices required to be given or which shall be given under this Agreement shall be in writing and be addressed to the Parties as shown below. Notices shall be deemed to have been given or made as of the date received.

If to UNL:	University of Nebraska - Lincoln Director, OSP 151 Prem S. Paul Research Center 2200 Vine Street PO Box 830861 Lincoln, NE 68583-0861 unlosp@unl.edu
With copy to:	Dr. David Admiraal University of Nebraska-Lincoln W150F Nebraska Hall 900 N 16th Street Lincoln, NE 68588-0531 dadmiraal@unl.edu
If to Sponsor:	Lower Platte South NRD 3125 Portia St Lincoln, NE 68521
With copy to:	Paul Zillig General Manager

7.4 **ASSIGNMENT.** Neither party shall assign this Agreement to another without the prior written consent of the other party hereto. Any other purported assignment shall be voidable.

7.5 **INDEPENDENT CONTRACTOR**. In the performance of all activities hereunder, (i) UNL shall be deemed to be and shall be an independent contractor, and as such, shall not be entitled to any benefits applicable to employees of the Sponsor, and (ii) neither party is authorized or empowered to act as agent for the other for any purpose and shall not on behalf of the other enter into any contract, warranty, or representation as to any matter. Neither party shall be bound by the acts or conduct of the other.

7.6 **GOVERNING LAW.** This Agreement shall be governed by the laws of the State of Nebraska.

7.7 **FORCE MAJEURE.** Neither Party shall be responsible to the other for failure to perform any of the obligations imposed by this Agreement, provided such failure shall be occasioned by fire, flood, explosion, lightning, windstorm, earthquake, subsidence of soil, failure or destruction, in whole or in part, of machinery or equipment, or failure of supply of materials, discontinuity in the supply of power, governmental interference, civil commotion, riot, war, pandemic, strikes,

labor disturbance, transportation difficulties, labor shortage or any cause beyond its reasonable control.

7.8 **EXPORT CONTROLS.** UNL is subject to United States laws and regulations controlling the export of goods, software and technology including technical data, laboratory prototypes and other commodities. UNL's policy is to comply with all applicable laws and regulations including the Arms Export Control Act, the International Traffic in Arms Regulations ("ITAR"), the Export Administration Regulations ("EAR") and the laws and regulations implemented by the Office of Foreign Assets Control, U.S. Department of the Treasury ("OFAC"). Diversion contrary to U.S. law is prohibited. The transfer of certain technical data, services and commodities may require a license from the cognizant agency of the United States Government and/or written assurances by the Sponsor that the Sponsor will not re-export or retransfer the data or commodities, other than prohibited information, to certain foreign countries without prior approval of the cognizant U.S. government agency. While UNL agrees to cooperate in securing any license which the cognizant agency deems necessary in connection with this Agreement, UNL cannot guarantee that such licenses will be granted. The Sponsor agrees to obtain permission from the U.S. government to re-transfer or re-export for any goods, software and technology that requires such authorization and will not allow any U.S.-origin goods, software or technology to be used for any purposes prohibited by United States law, including, without limitation, support for terrorism or for the development, design, manufacture or production of nuclear, chemical or biological weapons of mass destruction.

7.9 **ENTIRE AGREEMENT.** Unless otherwise specified, this Agreement and its Attachments embody the entire understanding between UNL and the Sponsor for the Research, and any prior or contemporaneous representations, either oral or written, are hereby superseded. No amendments or changes to this Agreement, including without limitation; changes in the statement of work, period of performance or total estimated cost, shall be effective unless made in writing and signed by authorized representatives of the Parties. In the event of any inconsistency between the terms of this Agreement and the documents referenced or incorporated into this Agreement, the terms of this Agreement prevail.

7.10 **COUNTERPARTS.** This Agreement and any amendment hereto may be executed in counterparts and all such counterparts taken together shall be deemed to constitute one and the same instrument. If this Agreement is executed in counterparts, no signatory hereto will be bound until all the Parties named below have duly executed a counterpart of this Agreement.

7.11 **COMPLIANCE WITH CIVIL RIGHTS LAWS AND EQUAL OPPORTUNITY EMPLOYMENT.** Sponsor shall comply with all applicable local, State and Federal statutes and regulations regarding civil rights laws and equal opportunity employment. Neither Sponsor nor any subcontractors shall discriminate against any employee or applicant for employment, to be employed in the performance of this Agreement, with respect to the employee or applicant's hire, tenure, terms, conditions or privileges of employment, because of his or her race, color, religion, sex, disability or national origin.

7.12 **ELECTRONIC SIGNATURES.** Each party agrees that the electronic signatures, whether digital or encrypted, of the parties included in this Agreement are intended to authenticate this writing and to have the same force and effect as manual signatures. Delivery of a copy of this Agreement

or any other document contemplated hereby bearing an original or electronic signature by facsimile transmission (whether directly from one facsimile device to another by means of a dial-up connection or whether mediated by the worldwide web), by electronic mail in "portable document format" (".pdf") form, or by any other electronic means intended to preserve the original graphic and pictorial appearance of a document, will have the same effect as physical delivery of the paper document bearing an original or electronic signature. The parties further waive any right to challenge the admissibility or authenticity of this Agreement in a court of law based solely on the absence of an original signature.

IN WITNESS WHEREOF, the Sponsor and UNL, intending to be legally bound, have executed this Agreement as of the Effective Date by their respective duly authorized representatives.

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

By: _____

Name: Paul Zillig

Title: General Manager

Date: _____

BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA ON BEHALF OF THE UNIVERSITY OF NEBEBRASA-LINCOLN

By: _____

Name: David B. Doty

Title: Director, Office of Sponsored Programs
University of Nebraska-Lincoln

Date: _____

Principal Investigator's Acknowledgement:

I have read this Agreement and agree to perform my obligations as Principal Investigator under this Agreement. I will inform students and other participants performing research services of the terms and conditions of this Agreement.

Signature: _____

Name: Dr. David Admiraal

Date: _____

Railroad Bridge Flume Scour Model

Project Summary

The primary goal of this project is to use a UNL physical model to investigate scour risk and mitigation for a flume under the Deadmans Run railroad bridges. The primary model and infrastructure are already in place, but the model itself will require significant modification downstream of the flume apron and at the model outlet. The reach upstream of the flume may also be modified depending on initial velocity measurements. Proposed modifications will include installation of a downstream scour basin, a sediment trap at the end of the flume, and an instrument carriage over the primary scour basin. A smaller upstream scour basin may also be installed if deemed necessary. This will be decided in discussion with project stakeholders based on preliminary velocity measurements. The model, originally built to investigate flume design, has provided information about bridge impacts, flume effectiveness, and inlet modifications. Extension of the model to also study the efficacy of different apron designs for minimizing downstream scour impacts will also be useful. Proposed work includes testing downstream scour at three discharges (equivalent prototype discharges of 8000, 10000, and 12000 cfs) at five tailwaters (normal depth through an established maximum), for two different riprap gradations (conservative and erodible) with the possibility of a third (highly mobile pea-gravel), and with two to three apron modifications. Additional tests will be performed upstream of the flume.

Objectives

With the goal of mitigating scour, the objectives of the proposed work are to:

1. Measure near-bed velocities downstream of the model apron,
2. Evaluate scour potential of an in-place movable bed downstream of the model apron, including measurements of scour depth and location,
3. Estimate appropriate rip-rap sizes and distribution for scour mitigation purposes,
4. Test scour mitigation strategies that include apron end-sill modifications, and
5. Test bed mobility upstream of the flume. This objective will be done last because piezometric head measurements will be more accurate without an upstream scour basin in place, an upstream scour basin will impact calibrated roughness, and it is considered one of the least time-critical elements of the project.

Tasks

To meet the study objectives, the tasks done by UNL will include:

1. Measure Velocity Distributions – Profiles will be measured downstream of the apron, including at the upper and lower end of the proposed scour basin. Profiling locations and detail have been selected in discussion with program sponsors and are described in Appendix A. Profiles will be collected for three discharges (prototype: 8,000; 10,000; and 12,000 cfs) and three tailwaters. The lowest tailwater is most important, the highest will be useful as an envelope, and a third tailwater will be selected between these two tailwaters. In summary, a total of about twelve cross-sections will be collected for nine runs (3 discharges by 3 tailwaters) with some of the profiling sections more detailed than others. Additional velocity data will be collected as noted in the appendix. Note that

tailwater depths for the 8,000 cfs discharge may be fairly low, reducing the number of profile points that can be collected for these tailwaters.

2. Install Downstream Scour Basin – A scour basin will be installed downstream of the model flume. To do this, roughness elements will be removed and the bed will be excavated for ten to fifteen feet downstream of the flume apron. The initial plan is to remove the center of the channel, including the channel shelves, and to excavate to the floor of the lab. Then, a drainable basin will be built to contain the movable bed in the excavated part of the model. Piezometers will be relocated to the edges of the basin.
3. Install Sediment Trap – A sediment trap will be installed at the downstream end of the model for trapping sediment that is carried from the scour basin. The trap will have a removable floor and an excavation strategy for quickly emptying the trap.
4. Construct scour basin carriage – A carriage system will be installed above the scour basin. This system will allow precise measurements of scour depths and velocities. In addition, a sediment grading device will be installed (a rake to set initial bed levels)
5. Sieving and installation of sediment – sediment will be selected for the model study in consultation with USACE and LPSNRD. Most likely, we will choose two sizes of limestone. The material samples will be sieved, as needed, to achieve appropriate gradations. The test material will be installed in the scour basin above a base layer of sand. Filter cloth will be installed between the riprap test material and the base layer to prevent erosion of the base layer. The riprap test material will then be graded in place.
6. Scour Data Collection – The model will be used to collect scour and water velocity information for a range of conditions, including:
    a. Discharges ranging from 2.56 to 3.84 ft^3/s (prototype: 8,000 to 12,000 ft^3/s).
    b. Two sediment material sizes – a conservative size and a mobile size. The purpose of testing the mobile size is to estimate the minimum possible sediment size. Pea gravel may also be used to identify areas with low scour potential.
    c. Tailwater depths ranging from normal flow depth to highest projected tailwater depth. It is expected that there will be 5 to 10 tailwater elevations recorded for each discharge condition.
    d. Different apron types –three apron modifications will be tested. Examples are shown in Figures 1b-1d, but actual modifications will be selected in consultation with USACE and LPSNRD. For these tests, impacts on velocity and scour downstream of the apron will be recorded, and will include velocity profiles immediately downstream of the apron.

   In order to collect as much data as possible, the bed will be reset only as needed. For example, the bed may not be reset between different tailwaters associated with a discharge. Instead, the tests will begin with the highest tailwater and proceed to the lowest tailwater, measuring increments in scour depth after each test, but not resetting the bed until a new discharge is set.

7. Evaluation of upstream scour impacts – A scoping study will be done to determine what the scour potential is upstream of the flume for the range of discharges. Tailwater impacts will be investigated, but the worst-case scour is expected to correspond with the lowest tailwater. Information about non-erodible sizes and reinforcement requirements will be gathered. As needed, an upstream scour basin will be installed based on preliminary observations of sediment stability. This basin is likely to be quite different than the downstream basin, and due to the accelerating flow, general scour is more likely than local scour.

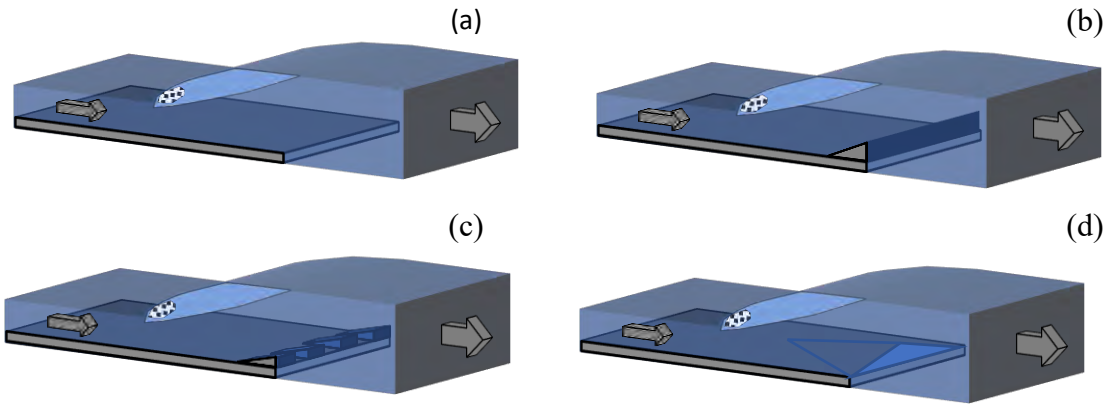


Figure 1 Examples of apron arrangements, including: (a) apron only, (b) end sill, (c) dentated sill, and (d)inverted-v apron.

8. Reporting – a final report will be developed. However, sub-reports will be developed throughout the project so that data can be used as it is collected.

Summary of Testing

In summary, testing will include:

1. Prototype discharges between 8,000 and 12,000 cfs (Focusing on 10,000 and 12,000 cfs)
2. Tailwater depths covering normal depth to high tailwater at three to five tailwater elevations per discharge.
3. Velocity measurements prior to installation of a scour basin for a range of discharges and tailwaters at twelve cross-sections downstream of the apron (with varying levels of detail).
4. Additional velocity measurements during scour tests. Near-bed measurements will be the focus of the work, but profile information will also be collected.
5. Two sediment gradations:
   a) a first gradation selected based on velocity evaluations and design criteria
   b) a second gradation based on initial tests – this could be a coarser or finer gradation depending on results of the first tests

   A third gradation (pea gravel) for identifying low scour zones may also be tested.
6. Three end sill types for reducing downstream scour.
7. Near-bed velocity measurements and sediment mobility tests upstream of the flume for identifying scour potential.

Velocity measurements will be made with an acoustic doppler velocimeter (ADV) where possible. These measurements are limited to depths of ~10 cm (4 inches) or more and are not possible near high shear or aeration zones (e.g., near the jump). The ADV should work well over the movable bed. Additional velocities will be measured with a Preston tube or mini-propeller meter, in places where the ADV is not suitable.

The proposed plan is to collect scour measurements with point gages mounted on a carriage. However, to improve data quality, we will attempt to use cameras and structure-from-motion to get accurate spatial scour distributions.

Scope and Responsibilities

This section defines the scope of the proposal. The role of UNL in this project will be to:

1. Measure velocities downstream of the apron in the existing model.
2. Design and build a scour basin downstream of the flume apron in the existing model.
3. Modify the outlet of the model flume to trap excess sediment.
4. Test velocities and scour behavior downstream of the flume for two sediment sizes. Pea gravel may also be used to test for bed mobility.
5. Modify the apron to test at least two scour mitigation methods; these methods will be selected early in the project and may include an end sill, a dentated sill, a sloping apron, or another mechanism.
6. Test for critical velocities upstream of the flume. Design and build a scour basin upstream of the flume apron as needed. These tests and the scour basin itself may be quite different than those downstream of the flume because the flow conditions are quite different. For the purposes of budget estimation, it will be assumed that the basin will have a similar depth as the one downstream of the apron. But in consultation with USACE and LPSNRD, it may later be decided to focus on identifying critical velocities and locations as opposed to scour depth, which should not be appreciable in the prototype.
7. Deliver a report of model results.

In their collaborative role with UNL, USACE and LPSNRD are expected to:

1. Provide input regarding preliminary basin design.
2. Help to select the best sizes of sediments to test in the scour basins.
3. Participate in the selection of operating scenarios.

USACE Engineer Research and Development Center (ERDC) expertise will be provided for oversight.

Timeline

A timeline is provided in Table 1, below.

The first step will be collection of velocity data. These data are needed to confirm useful sediment sizes and gradations.

Following the collection of velocity data, the shop will begin modifications of the model to include a downstream scour basin and sediment trap. When these are complete, the shop will start construction of an instrument carriage. It is expected that construction will take approximately two months.

The sediment sample size to test first will be selected and sieved (as needed) before basin construction is complete so that the sediment can be ready for installation. Once the construction is complete, the first sediment sample will be installed in the scour basin. After a first round of data collection, an additional sample size will be selected and installed.

Testing will begin immediately after basin construction, but the order of testing will be selected in consultation with USACE in order to best meet the critical timing of the project.

The bulk of the tests are associated with the 6th task, but additional testing will focus on potential scour upstream of the flume. The upstream reach may or may not be susceptible to scour, so initial evaluation tests will be completed prior to making any modifications. Then, as needed, a scour basin (likely very different from the downstream basin) will be installed in the model.

A final report and presentation will be given at the end of the project, detailing the results of the model tests. However, results will be reported as data are collected to expedite implementation.

Table 1 Preliminary Timeline

Task		Description	2022						2023					
			J	A	S	O	N	D	J	F	M	A	M	J
			1	2	3	4	5	6	7	8	9	10	11	12
1	Velocity Data	Measure Velocities in Unmodified Model												
2	Scour Basin	Install downstream scour basin												
3	Sediment Trap	Install sediment trap												
4	Instrument Carriage	Design and build instrument carriage												
5	Sediment	Select, sieve and install sediment sample												
6	Data Collection	Conduct scour tests												
7	Upstream Scour	Check the stability of bed upstream of flume												
8	Report	Present Final Report												

Budget Description

The following funds are requested for the proposed project:

1. Faculty labor and benefits ($15,661) – one month of faculty time is being allocated to the project
2. Graduate student labor and benefits ($23,559) – if available, a graduate student will be hired for a six-month period to collect data in the model. Note that due to the timing of the project, it may be difficult to quickly find a student for the job. If a graduate student is unavailable, the PI will work with the project sponsor to establish an alternative

staffing plan (for example, hiring an undergraduate student). The cost of the alternative budget will not exceed that of the submitted budget.

3. Shop labor ($16,000) – the mechanical engineering shop will be hired to do much of the model reconstruction. Shop fees are $40 per hour, and we are allocating 400 hours of work to modify the existing model.
4. Materials and supplies ($3,405) – materials will be needed to construct the scour basins and sediment recovery trap, build the instrument carriage and instrument supports, and build scour basin and sediment trap draining infrastructure. Materials include ready-mix concrete, Portland cement, vermiculite, support rails, structural aluminum, silicone, and other materials. In addition, different gradations of limestone and pea-gravel will need to be purchased for the tests.
5. Indirect ($28,607) – the university charges 55.5% F&A on direct costs, not including graduate student tuition.

Total: $87,232

More detailed budget information is provided separately.

Appendix A. Summary of Proposed Tests

Table A.1 Summary of Planned Velocity Measurements over Nonerodable Bed

Test Category	*Velocity Measurements*
Preliminary Velocity Measurements	**12000 cfs:** ***Low tailwater (worst case)*** – Six sections downstream of apron. Five profiles per section and five to eight velocity measurements per profile. Two outer profiles per section with one velocity measurement each if depth is high enough. Six low resolution sections downstream of apron. Centerline profile with three to five velocity measurements per profile. Flume – six Preston measurements near flume outlet –at 0.2× and 0.8×Depth for three equally distributed transverse locations ***Normal tailwater –*** Three sections immediately downstream of apron. Five profiles per section and five velocity measurements per profile. Two outer profiles per section with one velocity measurement each. Nine low resolution sections downstream of apron. Centerline profile with three velocity measurements per profile. Flume – six Preston measurements near flume outlet –at 0.2× and 0.8×Depth for three equally distributed transverse locations ***High tailwater (submerged jump) –*** Same as Low tailwater, plus: Two sections within apron to measure recirculation zones. Seven horizontal by three vertical points per section. Flume – six to eight Preston measurements near flume outlet –at 0.2× and 0.8×Depth for three equally distributed transverse locations. Two additional on shoulders, if needed. **10000 cfs:** **Same as 12000 cfs** **8000 cfs:** ***Low tailwater (worst case)*** – Twelve low resolution sections downstream of apron. One profile per section and three velocity measurements per profile. Flume – six Preston measurements near flume outlet –at 0.2× and 0.8×Depth for three equally distributed transverse locations ***Normal tailwater –*** Same as low tailwater ***High tailwater (submerged jump) –*** Same as low tailwater plus two low resolution profiles within the apron area

Table A.2 Summary of Planned Erodible Bed Measurements

Test Category	*Planned Measurements*
Scour Basin Measurements	**Design sediment size** **12000 cfs:** five tailwater elevations. Measure bed profile after it has reached equilibrium for each tailwater. Collect twelve three- to five-point velocity profiles along the centerline (at 12 sections) after the bed reaches equilibrium. Collect a detailed velocity set similar to the low tailwater velocity measurements over the nonerodable bed for the worst-case scour event. **10000 cfs:** Same as 12000 cfs **8000 cfs:** Same as 12000 cfs **Limiting sediment size** Repeat design sediment size tests with second size
Apron Modification Measurements	**Three Apron Modifications (sill, dentated sill, wedge or other)** **Selected final sediment size only** **12000 cfs:** five tailwater elevations. After bed reaches equilibrium, measure bed profile. For highest, medium, and lowest tailwater measure three velocity sections immediately downstream of apron. Five velocity profiles per section and five velocity measurements per profile. Two additional one-point profiles on outer edges for each section for high tailwater. **10000 cfs:** Same as 12000 cfs **8000 cfs:** Same as 12000 cfs
Upstream Scour Measurements	This set of tests is not as well defined, because we'll need to talk about what parts of the flume entrance are expected to be nonerodable. I may want some guidance from ERDC on how best to organize these tests, but I do not anticipate these being very detailed compared to the downstream basin. The initial plan is to do a number of flows/tailwaters to measure highest velocities in places where the bed is expected to be erodible. We can also install riprap in places where the velocities are high to see how it performs over a range of tests.

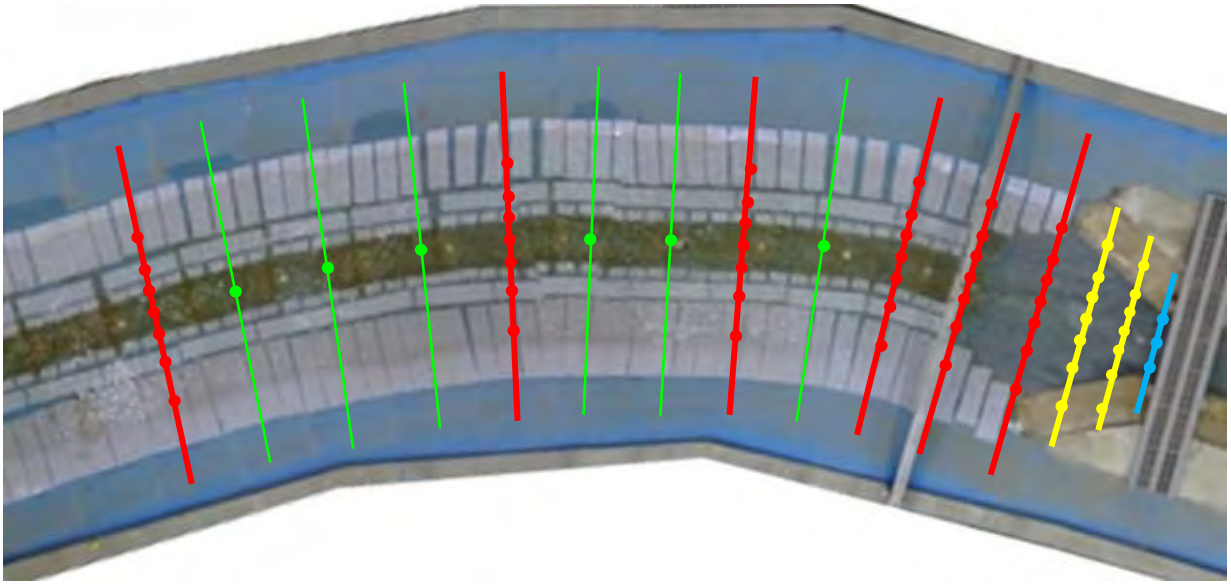


Figure A.1 – Proposed velocity profile locations. Blue line is location of Preston tube measurements (3 profiles by 2 points). Red lines are high resolution cross sections for some tests and lower resolution for others. Green lines are low resolution cross sections (one profile at the centerline). Yellow show cross sections done for some submerged jump tests.

Funding Agency: LPSNRD
PI Name: David Admiraal
Project Title: Model evaluation of scour protection for Deadmans Run Flume

Project Start Date: 8/1/2022
Project End Date: 6/30/2023

UNL Basic Request Budget			
	Person Months	Year 1	**Total**
Senior Personnel	Yr1		
David Admiraal	1.00	12,047	12,047
Total Senior Personnel		***12,047***	***12,047***
Other Personnel	# of Ppl		
Post Docs	0	-	-
Other Professionals	0	-	-
Graduate Students	0.50	15,000	15,000
Undergraduate Students	0	-	-
Secretarial	0	-	-
Other	0	-	-
Total Other Personnel		***15,000***	***15,000***
Fringe Benefits		12,173	12,173
Total Salaries and Benefits		**39,220**	**39,220**
Equipment		-	-
Travel		-	-
Supplies		3,405	3,405
Subawards		-	-
Other		16,000	16,000
Total Other Direct Costs		**19,405**	**19,405**
Total Direct Costs		**58,625**	**58,625**
F&A Base	MTDC	51,545	51,545
F&A	55.5%	28,607	**28,607**
Total Request		**87,232**	**87,232**

ACCESS AGREEMENT

This Access Agreement ("Agreement") is made effective this ____ day of _____2022 (the "Effective Date"), by and between Lancaster County, Nebraska ("Grantor") and the Lower Platte South Natural Resources District ("Grantee"). Collectively Grantor and Grantee may be referred to as "the Parties," and individually each may be referred to as a "Party."

WHEREAS, Grantor has general supervision and control of the public roads of Lancaster County, including that portion of S. 14th Street that intersects with Yankee Hill Road, and its adjacent right of way, in Lancaster County, Nebraska (the "Property");

WHEREAS, Grantee has requested access to the Property for purposes of performing geotechnical and survey work for a stream stability project at the Wilderness Park Trail Bridge. The anticipated access route to the Wilderness Part Trail Bridge is attached as Exhibit A, and a description of the project is attached as Exhibit B; and

WHEREAS, Grantor agrees to provide Grantee access to the Property to conduct the activities specifically identified in this Agreement.

NOW THEREFORE, in consideration of the foregoing and in consideration of the mutual covenants in this Agreement, which the parties acknowledge as adequate and sufficient, it is agreed as follows:

1. **Work**. Grantor shall provide Grantee and its agents and contractors with reasonable access to the Property from the date first written above, and complete the Work in locations and across those portions of the Property as mutually agreed upon between Grantor and Grantee. Such access shall be at reasonable times and as mutually agreed upon by Grantor and Grantee. Grantee and its agents and contractors shall conduct the Work in a manner that does not unreasonably interfere with the public's use of the Property and minimizes any damage to the Property. Specifically, Grantee agrees that Grantee and its agents and contractors will not unload its equipment onto the Property.

2. Grantee acknowledges that access to the Property is in its "as is" condition and that Grantor makes no representations or warranties with respect to the condition of the Property or its fitness for any particular use.

3. **Term**. The term of this Agreement shall commence upon the Effective Date and shall terminate on June 30, 2023 unless terminated earlier by either Party by providing written notice to the other Party, or when Grantee notifies Grantor that the Work is complete.

4. **Insurance**. Grantee and each of Grantee's contractors performing geotechnical and survey services, shall maintain in force during the term of the Agreement the following insurance coverage:

(i) Commercial General Liability Insurance with minimum limits of $1,000,000.00 per occurrence and $2,000,000.00 in the aggregate. Such insurance shall be on an occurrence basis with respect to the Grantee's activities on the Property and shall list Owner and Grantor as an additional insured.

(ii) Statutory Workers' Compensation Insurance and Employer's Liability Insurance with

minimum limits of at least $500,000.

(iii) Business Auto Liability Insurance which insures against bodily injury and property damage claims arising out of the ownership, maintenance or use of "any auto." A minimum of $1,000,000 combined single limit shall apply.

(iv) In the event Grantee or any of Grantee's contractors are self-insured for any insurance coverages required in the Agreement, they are required to complete a Self-Insured Certification. If Grantee or any of Grantee's contractors are self-insured for Workers Compensation, they shall provide Grantor a copy of its Nebraska Certificate of Self-Insurance for Workers' Compensation.

5. **Indemnification**. Grantee by accepting and conducting the Work agrees, to the extent allowed by law, to indemnify, defend, and hold harmless the County, its elected officials, officers, employees, agents, consultants, and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorney fees, arising out of or resulting from Grantee's physical destruction or injury to utilities during Grantee's Work, but only to the extent caused by the negligent, wrongful, or intentional acts or omissions of Grantee, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by the negligence of a party indemnified hereunder. Such obligations shall not be construed to negate, abridge, or reduce obligations of indemnity which would otherwise exist as to a part or person described in this Agreement. Nothing herein shall be construed to be a waiver of sovereign immunity by either party.

6. **Governing Law**. Grantee and its officers, employees, contractors and agents shall comply with all Applicable Laws while accessing the Property. This Agreement shall be governed by the law of the State of Nebraska.

7. **Severability; Waiver**. If any provision of this Agreement is found to be unenforceable in any respect, the validity, legality and enforceability of the remaining provisions shall not in any way be affected of impaired. A waiver of any term or provision of this Agreement by Grantor shall not be deemed to be a waiver of such provision on any subsequent breach of the same or any other provision contained in this Agreement. Any such waiver must be in writing to be effective, and no such waiver or waivers shall serve to establish a course of performance between the parties contradictory to the terms hereof.

8. **Notices**. Any notices to be sent pursuant to this Agreement shall be sent by either (i) United States Postal Service certified mail, return receipt requested, (ii) by a nationally recognized overnight courier service, with signature required, (iii) by email notice return receipt requested, or (iii) by person service at the following addresses:

To Grantee:
_____
_____
_____
_____
_____

To Grantor:
Lancaster County
Attn: Alex Olson
444 Cherrycreek Rd, Suite C
Lincoln, NE 68528
Aolson@lancaster.ne.gov

9. **Independent Contractor**. Nothing in this Agreement shall be construed or interpreted as authorizing either party, its agents or employees, to act as agents or representatives for or on behalf of the other, or to incur any obligation of any kind on behalf of the other, nor does anything herein create a joint venture or partnership between the parties.

10. **Rights of Parties**. This Agreement does not create any lease, tenancy right or other title or interest in, to or with respect to the Property or any portion thereof. Grantee's right of access is not exclusive and is subject to all Applicable Laws. Nothing herein contained shall be deemed to be a gift or dedication of the Property, or any part thereof, or any portion of any property owned by Grantor to the general public, or for any public use or purpose whatsoever. Except as specifically provided herein, no rights, privileges or immunities of any party hereto shall inure to the benefit of any third party, nor shall any third party be deemed to be a beneficiary of any of the provisions contained in this Agreement.

11. **Entire Agreement.** This Agreement represents the entire agreement between the parties and all prior negotiations are representations are hereby expressly excluded from this Agreement. This Agreement may be amended only by written agreement of both parties. This Agreement may not be assigned by Grantee without the prior written consent of Grantor, which consent may be withheld in Grantor's sole and absolute discretion.

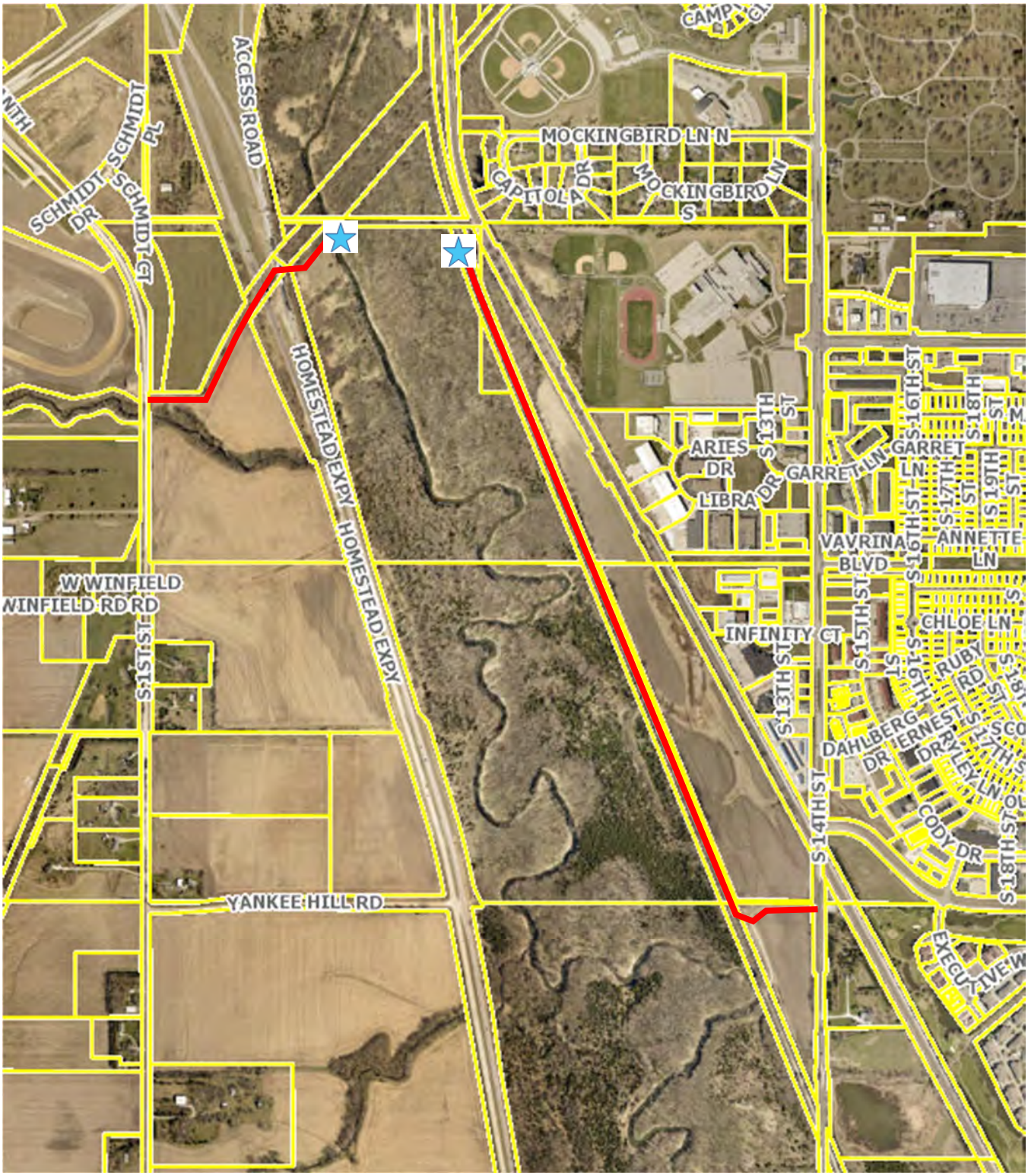
12. **Work Status Verification**. Grantee, its agents and contractors, shall use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska pursuant to Neb. Rev. Stat. §§ 4-108 to 4-114, as amended.

13. **Nondiscrimination**. Grantee agrees that neither it nor any of its agents or contractors shall discriminate against any employee, or applicant for employment to be employed in the performance of this Agreement, with respect to hire, tenure, terms, conditions or privilege of employment because of the race, color, religion, sex, disability, or national origin of the employee or applicant in accordance with the Nebraska Fair Employment Practice Act, Neb. Rev. Stat. § 48-1122, as amended.

Executed by the parties as of the date first written above.

Lower Platte South Natural Resources District, Grantee	Lancaster County, Nebraska Grantor
By:_____	By: _____
Name: _____	Name: _____
Its: _____	Its: _____

Lower Platte South Natural Resources District
South Salt Creek Project 6 – Geotechnical Access Exhibit



7.4.6 Project SSC-6: Grade Control Main Stem SCR030 at Old Railroad Bridge and Knickpoint on Tributary SC050R005 at Wilderness Park Tail Bridge

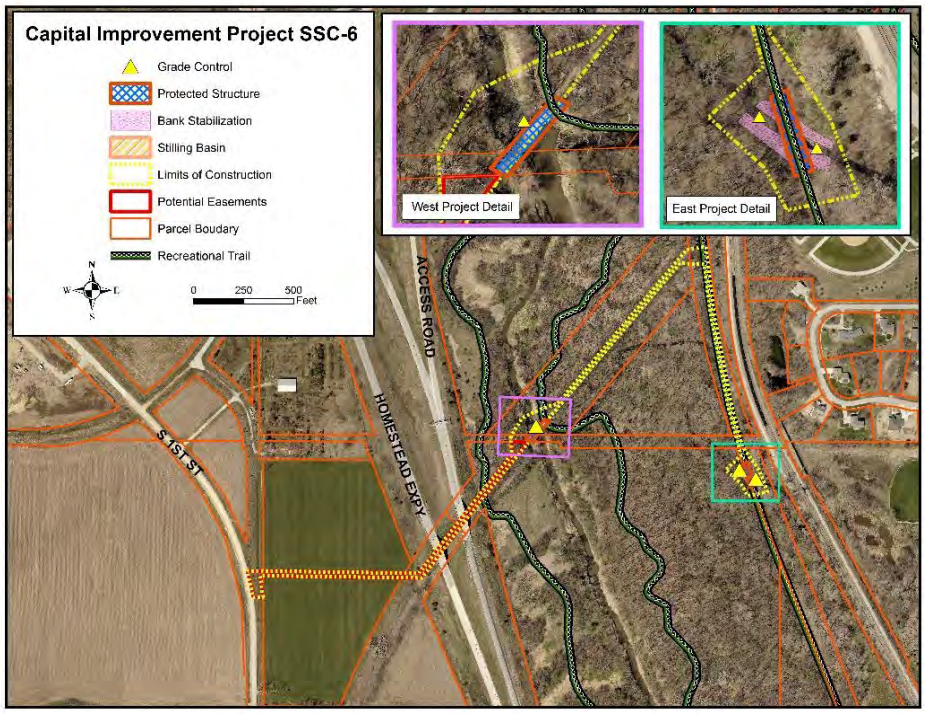
Problem description: There is an existing rock rubble knickzone on the main stem SCR030 at the old railroad bridge located approximately 2,500 feet south of W Denton Rd and 450 feet east of Highway 77. The rubble does not appear to provide reliable stability of the knickzone. Also, incision along tributary SC050R005 is undermining the trail bridge piers and exposing a fiber optic line in channel bed. The bridge is located west of the northwest corner of Lincoln Southwest High School, about 275 feet west of the railroad tracks. MCI plans to lower the exposed cable line and the MCI construction plans are available with the City Parks Department.

Figure 7-16: Knickpoint Downstream of old Railroad Bridge Knickpoint

Recommendation: Recommend constructing a grade control and associated bank stabilization on the main stem at the old railroad bridge to stop incision from propagating upstream. Also recommend grade controls and associated bank stabilization along approximately 150 feet of the tributary at the trail bridge to stop incision and protect the bridge. The tributary project reach should beginning downstream of the bridge and extending to a point upstream of the bridge to the knickpoint in the channel bed where the exposed fiber optic line is/was located in the channel.

Figure 7-17: Trail Bridge with exposed footings.

Impact to Special Areas and Water Quality: The project is located within Salt Valley Corridor, Wilderness Park, and within a woodland. Consideration during design and construction should be provided to minimize disturbance and reduce impacts to the special areas and water quality to the greatest extent practical.



Estimated Project Cost: $447,000

Figure 7-18: Conceptual Layout of SSC-6.

Pamela L. Dingman, P.E.
County Engineer

444 Cherry Creek Road, Bldg. C
Lincoln, Nebraska 68528
Phone: 402-441-7681 Fax: 402-441-8692
Email: coeng@lancaster.ne.gov

June 17, 2022

Lower Platte South Natural Resources District
Attn Paul Zillig
3125 Portia St
Lincoln NE 68501

Re: Ash Hollow Channel Stabilization
Interlocal Agreement

Dear Mr. Zillig,

In accordance with the Interlocal Agreement dated 01/05/1982, Lancaster County is requesting the reimbursement of the agreed costs for Engineering services for Ash Hollow Channel Stabilization as proposed from Intuition & Logic Engineering Inc. The cost is $146,782.00 of which $48,927.33 would be a one third apportionment to the LPSNRD.

If you should have any questions, please feel free to contact Karen Wilson. She may be reached by phone at (402) 441-8334 or email kwilson@lancaster.ne.gov.

Sincerely,

Pamela L. Dingman, P.E.
Lancaster County Engineer

PLD/ach
enclosures

Lancaster County Engineering Department
444 Cherry Creek Rd Bldg C
Lincoln NE 68528
(402) 441-7681

Invoice to		**Amount Due**
Lower Platte South Natural Resources District Attn Paul Zillig 3125 Portia St Lincoln NE 68501		**$48,927.33**
Invoice for		
Ash Hollow Channel	Invoice Date: 6/17/2022 Due Date: net 30 days	

Description	**Qty**	**Unit price**	**Total price**
Engineering services for Ash Hollow Channel Stabilization Intuition & Logic Engineering Inc proposal			
1/3 share of $146,782.00 cost			$48,927.33

Total	**$48,927.33**

Please remit payment to: **Lancaster County Engineering**
444 Cherry Creek Rd Bldg C
Lincoln NE 68528

Lancaster County Nebraska
Ash Hollow Channel Stabilization
Scope of Service

The purpose of the following scope of services is to develop channel and bank stabilization design, plans, specification, costs and construction documents for the Ash Hollow Channel located in Waverly, NE.

1.0 Schematic Design

I&L will use existing GIS contour data and field observations to evaluate channel stabilization, construction access, and easement options for the Ash Hollow Channel as follow:

1.1 Kickoff Meeting and Field Analysis

I&L will coordinate and attend a project kickoff meeting with County, NRD and City staff. In conjunction with the kickoff meeting, I&L will walk the channel and record erosion and geomorphic observations for use in identifying the process driving erosion and associated solutions to stabilize the channel. All photos, notes and GIS data will be submitted to the County electronically in their original file format.

1.2 Hydraulic Analysis

1.2.1 HEC RAS Modeling

I&L will develop a HEC RAS model to illustrate design performance and support permits. I&L will use the hydrologic and hydraulic data from the effective FEMA model as follows:

1.2.2 Effective Model – Obtain FEMA regulatory model

1.2.3 Duplicate Effective Model – Repeat FEMA results

1.2.4 Corrected Effective Model – Correct errors and bring model to current modeling standards

1.2.5 Existing Conditions Model – Add current topography and geometry.

1.2.6 Proposed Conditions Model – Model the effect of proposed designs on the regulatory floodway and floodplain.

1.3 Schematic Design Meeting

I&L will coordinate and host a virtual meeting with the County, NRD, City and others as needed to review field observations and potential approaches. During the meeting we will discuss the advantages and challenges of each approach based on potential costs, disturbance, constructability, access, and easement. The meeting objective is to agree on the schematic design approach.

1.4 Follow-up Coordination and Schematic Approach Approval

The County, City and NRD will evaluate the design approach and discuss any questions or concerns until they have reach consensus on the approved approach. I&L will be available as needed to provide input into these discussions.

2.0 Surveying

Provide boundary and topographic surveying sufficient to produce final plans and easement documents.

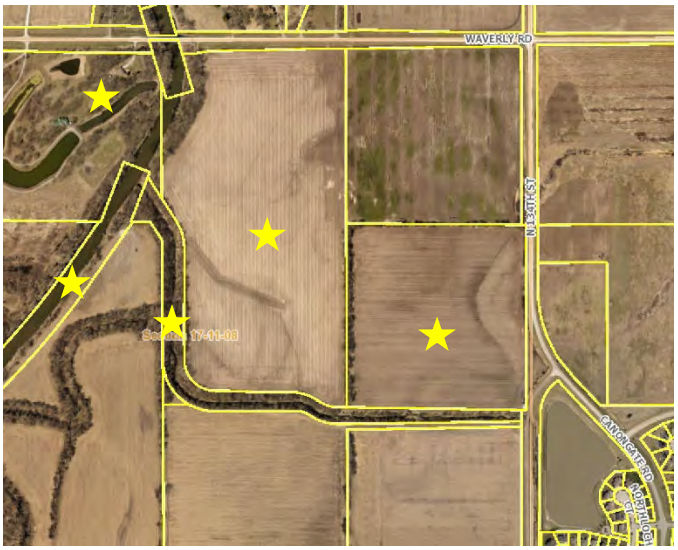
2.1 Boundary Data

Provide boundary data sufficient to produce easement documents based on County records for the parcels indicated by yellow stars in the boundary information exhibit. Locate enough property corners to closely approximate boundary lines on the survey. Include parcel information and meets and bounds data.

2.2 Topographic Survey
Provide normal and customary topographic surveying sufficient to produce 1’ contours. The potential topographic surveying limits are indicated by solid red lines in the survey exhibit. The final survey limits are expected to change based on the schematic approach. The KMZ file for topographic surveying limits is available upon request.

2.3 Channel Profile Survey
Provide profile survey of approximately 5,500 feet of channel as indicated by the light blue lines in the survey limits exhibit. The KMZ file for surveying limits is available upon request.

2.4 Horizontal and Vertical Control
Establish survey control using existing available reference control monuments and place site control points and benchmarks with reference ties for use during construction.



Boundary Information Exhibit

Survey Exhibit

3.0 Geotechnical Services
Geotechnical data is necessary for creek bank slope stability design and other situations where soil stability may affect design.

3.1 Geotechnical Exploration
The Geotechnical engineer will obtain soil samples in the field. The final number and location of geotechnical borings will be determined on site by the geotechnical engineer and based on the schematic design approach. Care will be taken to minimize damage to property during the geotechnical exploration. Any damage will be restored to the pre-exploration condition by the geotechnical engineer. Boring holes will be backfilled with cutting, clay, plugs and/or other material as determined by the geotechnical engineer. Boring locations will be illustrated in the geotechnical report.

3.2 Laboratory Testing and Report
The soil samples will be laboratory tested for the appropriate soil parameters to support the final design. Laboratory Tests results and implications will be summarized in the geotechnical report.

3.3 Global Stability
The geotechnical engineer will evaluate slope stability for proposed bank stabilizations.

3.4 Geotechnical Report
The geotechnical engineer will evaluate the soils for retaining wall and foundation suitability, as appropriate for the design, and make design recommendations for proposed improvements as

needed to support the final design. The results and geotechnical engineer's recommendations will be summarized in the geotechnical report.

4.0 60% Design, Plans and Cost Estimate

4.1 Preliminary Design

I&L will locate and size channel stabilization in accordance with accepted design standards (City, NRD, County, State, Federal and others). Design may include:

- 4.1.1 Demolition and temporary relocation of facilities
- 4.1.2 Pipes, manholes, culverts as needed
- 4.1.3 Headwalls, structures, debris deflectors and weirs as needed
- 4.1.4 Channel protection, retaining walls, other
- 4.1.5 Bio- stabilization channel erosion protection as appropriate
- 4.1.6 Pavement, curb, guardrail, fencing as needed
- 4.1.7 Construction access and limits of disturbance
- 4.1.8 Utility relocations as needed
- 4.1.9 Preliminary Easement/ROW requirements as needed
- 4.1.10 Removal, replacement and/or relocation of amenities
- 4.1.11 Other design items as needed

4.2 Utility Coordination

I&L will submit preliminary plans to the utility companies for their review and identification of utility locations as appropriate. I&L will coordinate directly with each utility to either 1) utility verifies that there is no conflict or 2) develop a mutually agreed plan to address each utility conflicts identified. I&L will PDF all letters, maps, notes, and correspondence documenting the findings of "no conflict" or the agreed upon resolution.

4.3 60% Plans

Plans will be produced in AutoCAD Civil 3D to illustrate the design and develop quantities. The plans may include: Cover, Notes and Quantities, Overall Location Plan, Access and Easement Information, Plan, Profile, Sections, Elevations, Details, and Notes.

4.4 Quantities

Quantities will be developed in bid tab format based on the preliminary design.

4.5 Cost Opinion

Unit cost data will be estimated using bid tabs for similar project and local available bid tab databases appropriate for these projects.

4.6 Quality Control Check

The project Quality Control Manager (QCM), a senior design engineer, will review the design plans, calculations and cost opinion to check for practicality and that I&L's design protocols were followed in developing and documenting the design.

4.7 60% Plan Submittal

I&L will submit plans and cost opinions to the County electronically in PDF format. The submittal will include electronic files (MS Word, MS Excel, AutoCAD, Esri) as requested by the County.

4.8 60% Plan Review Meeting

I&L will schedule and attend a meeting with the County, NRD and City to review the preliminary design, plans and cost opinion. I&L will prepare meeting summary notes in PDF format and submit them to the County via email for review and comment. On site field data collection associated with permit requirements and wetlands will occur in conjunction with the 60% review meeting.

4.9 Preliminary Plans, Cost Review and Approval

The County will review the preliminary plans submittal and provide comments and conditional approval. I&L will incorporate the review comments into the final design plan.

5.0 Easement Documents and Land Rights Exhibits

5.1 Land Rights Exhibits

I&L will prepare Land Rights Exhibits as needed. The exhibits will illustrate the location of easements and construction disturbance limits on an aerial photo. The exhibits will include parcel information, the easement area quantity, and the construction disturbance areas quantity. Land Rights Exhibits will be prepared in PDF format and submitted to the County via email as needed to support the County's efforts.

5.2 Easement Documents

Easement Documents shall include a plat illustrating each easement and a script providing meets and bounds description of the easement in addition to the standard NRD language. I&L will submit Easement Documents to the County via email in PDF format for the County's use in acquiring easements. Easement documents will be formatted for printing on 8½"X11" media. I&L will also submit all final easement locations in GIS Shape File format acceptable to the County.

6.0 Permitting

I&L will prepare and submit the necessary required permits for review and approval:

6.1 US Army Corps of Engineer 404 Nationwide

6.1.1 Tributary Hydrology & Hydraulics

Develop Ash Hollow drainage area hydrologic model and evaluate flow rates to determine existence of wetland hydrology.

6.1.2 Obligate Species

Field observations and record presence of obligate species. Field observation will occur in conjunction with the 60% design review meeting.

6.1.3 Field Soil Testing for Hydric Conditions

Field exploration and document soil characteristics at limited locations based on regulatory requirements. Field exploration will occur in conjunction with the 60% design review meeting.

6.1.4 Nebraska Stream Condition Assessment Procedure (NeSCAP)

National Wetland Inventory Data

6.2 DNR 401
6.3 Land Disturbance
6.4 City Grading Permit
6.5 Floodplain Development Application
6.6 FEMA No-Rise Certification

7.0 Final Plans, Specifications, Cost Opinion and Construction Documents

7.1 Final Design Plans

Final plans will be produced in AutoCAD Civil 3D to illustrate the design and for use as a base for the final cost opinion. The Final plans may include the following sheets: Cover, Notes and Quantities, Overall Location Plan, Access and Easement Information, Benchmark and Reference Ties, Demolition and Utility Relocation, Plan Profile Sheets, Pipe Profiles as needed, Cross Sections Sheets, Retaining Wall Elevation, Details and Notes, Planting and Restoration Plan, Erosion and Sediment Control.

7.2 Specifications

7.2.1 Standard Specifications

The Project Standard Construction Specifications will be the County's approved specifications.

7.2.2 Special Provisions

Special provisions will be prepared for all items not specifically covered in the project standard specifications.

7.3 Construction Documents

I&L will prepare construction documents using the County standard format. Construction Documents may include: Project Description, Invitation to Bidders, Contract Agreement, Bid Tab, General Conditions, Standard Specifications, Special Provisions, Bond Forms (Bid, Payment, Performance), Project Construction Forms (Notice of Award, Notice to Proceed, Application for Payment, Change order, among others as appropriate)

7.4 Final Quantities

I&L will develop final quantities based on the final design. The final quantities will be in the final bid tab format using the bid tab item descriptions and units.

7.5 Final Cost Opinion

I&L will prepare the final opinion of construction costs based on the bid tab final quantities and unit cost information appropriate for this region.

7.6 Quality Control Check

The project QCM will review the design plans, calculations and cost opinion to check for practicality and that I&L's design protocols were followed in developing and documenting the design.

7.7 Final Plan, Specifications, Costs, and Construction Documents Submittal

I&L will submit final plans, specifications, cost opinion, and construction documents to the County as electronically in PDF format.

7.8 Final Plans, Specs and CDs Review Meeting

I&L will coordinate and attend a virtual meeting with the County, NRD and City to review the final plans, specifications, construction documents, and cost opinion. I&L will prepare meeting summary notes in PDF format and submit them to the County via email for review and comment.

7.9 Final Submittal Review and Approval

The County will review the Final Plans Submittal documents and provide comments and conditional approval. I&L will incorporate the review comments into the approved documents.

8.0 Approved Documents

Upon approval of the Final Submittal documents, I&L will prepare and submit the approved documents. The submittal will include:

8.1 Electronic Bid Documents Submittal – I&L will coordinate with and submit electronic copy of Plans, Specifications and Construction Documents in PDF format to the County designated electronic plan rooms for use in project bidding.

8.2 Electronic Files – I&L will submit electronic copy of Plans, Specifications and Construction Documents to the County in PDF format. I&L will also submit all the approved documents in their original electronic format (MS Word, MS Excel, MS PowerPoint, AutoCAD, Microstation, HEC-RAS, others).

9.0 Bidding Services

9.1 Pre-Bid Meeting

I&L will attend a pre-bid meeting to review the plans and answer questions.

9.2 Requests for Information

I&L will respond to written requests for information during the bidding process and make the resulting information available to the other potential bidders via email notifications.

9.3 Addendum

I&L will prepare contract addendum in a timely fashion during the bidding period and make the addendum available to the other potential bidders via email notification.

9.4 Bid Tab Review and Recommendation

I&L will review the responses and prepare a table in MS Excel summarizing the bid tabs from respondents. Review shall include checking references from respondents to verify each respondent possesses the required construction experience. I&L shall prepare a memorandum summarizing the review findings and recommending a respondent to the County. The memorandum will be in PDF format and will contain the bid tabs.

Lancaster County Nebraska - Ash Hollow Channel Stabilization

Fee Worksheet Summary

INTUITION LOGIC

Description	Principal	Project Manager	Engineer EI	CAD/ GIS/ Designer	Subtotal Hours	Subtotal Personnel Cost	Direct Expenses	Sub Consultant Expenses	Subtotal
Schematic Design	0	60	102	16	178	$ 22,290.00	$ 2,377.00	$ -	$ 24,667.00
Surveying	0	4	0	0	4	$ 660.00	$ -	$ 27,600.00	$ 28,260.00
Geotechnical	0	4	0	0	4	$ 660.00	$ -	$ 23,123.00	$ 23,783.00
60% Design, Plans, and Cost	2	48	65	75	190	$ 23,070.00	$ 2,276.00	$ -	$ 25,346.00
Easement Documents	0	8	14	0	22	$ 2,790.00	$ -	$ 2,400.00	$ 5,190.00
Permitting	0	36	86	0	122	$ 14,970.00	$ -	$ -	$ 14,970.00
Final Plans, Specifications, Cost and CDs	3	21	68	56	148	$ 17,160.00	$ -	$ -	$ 17,160.00
Approved Documents	0	2	12	5	19	$ 2,115.00	$ -	$ -	$ 2,115.00
Bidding Services	0	17	10	2	29	$ 4,065.00	$ 1,226.00	$ -	$ 5,291.00
Subtotal =	**5**	**200**	**357**	**154**	**716**	**$ 87,780.00**	**$ 5,879.00**	**$ 53,123.00**	**$ 146,782.00**
	0.7%	27.9%	49.9%	21.5%	100%	59.8%	4.0%	36.2%	100%

Lancaster County Nebraska - Ash Hollow Channel Stabilization

Fee Worksheet

INTUITION & LOGIC

		Personnel Type/ Title	Principal	Project Manager	Engineer EI	CAD/ GIS/ Designer	Subtotal Hours	Subtotal Personnel Cost	Direct Expenses	Sub Consultant Expenses	Subtotal
		Personnel Billing Rate	**225.00**	**165.00**	**105.00**	**105.00**					
	Schematic Design										
							-	$ -			$ -
		Kickoff Meeting and Field Work		20	20		40.00	$ 5,400.00			$ 5,400.00
2	$ 680	Air Fair Round Trip					-	$ -	$ 1,360.00		$ 1,360.00
3	$ 75	Rental Car per diem					-	$ -	$ 225.00		$ 225.00
4	$ 109	Hotel per diem					-	$ -	$ 436.00		$ 436.00
4	$ 64	Meals per diem					-	$ -	$ 256.00		$ 256.00
4	$ 25	Airport Parking					-	$ -	$ 100.00		$ 100.00
		Site Visit and Meeting Summary		2	2		4.00	$ 540.00			$ 540.00
							-	$ -			$ -
		HEC RAS Modeling					-	$ -			$ -
		Effective		1	4		5.00	$ 585.00			$ 585.00
		Duplicate Effective		1	4		5.00	$ 585.00			$ 585.00
		Corrected Effective		1	4		5.00	$ 585.00			$ 585.00
		Existing Conditions		2	8		10.00	$ 1,170.00			$ 1,170.00
		Proposed Conditions		8	16	8	32.00	$ 3,840.00			$ 3,840.00
		Documentation		1	6		7.00	$ 795.00			$ 795.00
							-	$ -			$ -
		Schematic Design					-	$ -			$ -
		Field Data Analysis		4	2		6.00	$ 870.00			$ 870.00
		Grade Control		4	2		6.00	$ 870.00			$ 870.00
		Bank Stabilization		2	4		6.00	$ 750.00			$ 750.00
		Access		2	4		6.00	$ 750.00			$ 750.00
							-	$ -			$ -
		GIS Exhibits		1	8	8	17.00	$ 1,845.00			$ 1,845.00
		Costs		1	2		3.00	$ 375.00			$ 375.00
							-	$ -			$ -
		Virtual Schematic Design Meeting		4	6		10.00	$ 1,290.00			$ 1,290.00
		Meeting summary and notes		2	2		4.00	$ 540.00			$ 540.00
		Follow-up coordination		4	8		12.00	$ 1,500.00			$ 1,500.00
							-	$ -			$ -
		Subtotal =	**0**	**60**	**102**	**16**	**178.00**	**$ 22,290.00**	**$ 2,377.00**	**$ -**	**$ 24,667.00**

Lancaster County Nebraska - Ash Hollow Channel Stabilization

Fee Worksheet

INTUITION & LOGIC

		Personnel Type/ Title	Principal	Project Manager	Engineer EI	CAD/ GIS/ Designer	Subtotal Hours	Subtotal Personnel Cost	Direct Expenses	Sub Consultant Expenses	Subtotal
		Personnel Billing Rate	**225.00**	**165.00**	**105.00**	**105.00**					
	Surveying										
							-	$ -			$ -
		Coordination		4			4.00	$ 660.00			$ 660.00
1	$ 27,600	Benesch					-	$ -	$ -	$ 27,600.00	$ 27,600.00
							-	$ -			$ -
		Subtotal =	**0**	**4**	**0**	**0**	**4.00**	**$ 660.00**	**$ -**	**$ 27,600.00**	**$ 28,260.00**
	Geotechnical										
							-	$ -			$ -
		Coordination		4			4.00	$ 660.00			$ 660.00
1	$ 18,123	Benesch Field Samples, lab testing, Report					-	$ -	$ -	$ 18,123.00	$ 18,123.00
2	$ 2,500	Benesch Global Stability Analysis					-	$ -	$ -	$ 5,000.00	$ 5,000.00
							-	$ -			$ -
		Subtotal =	**0**	**4**	**0**	**0**	**4.00**	**$ 660.00**	**$ -**	**$ 23,123.00**	**$ 23,783.00**
	60% Design, Plans, and Cost										
							-	$ -			$ -
		HEC RAS Modeling					-	$ -			$ -
		Add thalweg survey to corrected effective model		1	4	4	9.00	$ 1,005.00			$ 1,005.00
		Revise Proposed Conditions per approved approach		4	8		12.00	$ 1,500.00			$ 1,500.00
		Documentation		1	6		7.00	$ 795.00			$ 795.00
		Preliminary Design					-	$ -			$ -
		Final rock sizing		1	4		5.00	$ 585.00			$ 585.00
		Restoration and Planting Plan		1	4		5.00	$ 585.00			$ 585.00
		SWPPP		4	8		12.00	$ 1,500.00			$ 1,500.00
		Utility Coordination					-	$ -			$ -
		Utility Submittal		1	4		5.00	$ 585.00			$ 585.00
	8	Utility Submittals					-	$ -			$ -
	21	11X17 Sheets Pages per plan set					-	$ -			$ -
168	$ 1	Printing 11X17 cost per sheet (double sided)					-	$ -	$ 168.00		$ 168.00
8	$ 3	Envelopes and Postage					-	$ -	$ 24.00		$ 24.00
		Utility Coordination		1	4		5.00	$ 585.00			$ 585.00
		Utility Documentation			1		1.00	$ 105.00			$ 105.00

Lancaster County Nebraska - Ash Hollow Channel Stabilization

Fee Worksheet

INTUITION & LOGIC

		Personnel Type/ Title	Principal	Project Manager	Engineer EI	CAD/ GIS/ Designer	Subtotal Hours	Subtotal Personnel Cost	Direct Expenses	Sub Consultant Expenses	Subtotal
		Personnel Billing Rate	**225.00**	**165.00**	**105.00**	**105.00**					
		Preliminary Plans					-	$ -			$ -
1		Cover		1		3	4.00	$ 480.00			$ 480.00
1		Notes and Quantities		1		3	4.00	$ 480.00			$ 480.00
2		Overall Location, Boundary, Easement Plan		2		6	8.00	$ 960.00			$ 960.00
1		Demolition and Utility Relocation		1		3	4.00	$ 480.00			$ 480.00
8		Plan Profile Sheets		8		24	32.00	$ 3,840.00			$ 3,840.00
4		Cross Sections Sheets		4		12	16.00	$ 1,920.00			$ 1,920.00
0		Pipe Profile Sheets		0		0	-	$ -			$ -
0		Headwall/Retaining Elevation and Details		0		0	-	$ -			$ -
3		Civil Details		3		9	12.00	$ 1,440.00			$ 1,440.00
0		Structural Details		0		0	-	$ -			$ -
0		Traffic Control		0		0	-	$ -			$ -
0		Planting and Restoration Plan		0		0	-	$ -			$ -
0		SWPPP		0		0	-	$ -			$ -
1		Others		1		3	4.00	$ 480.00			$ 480.00
		Preliminary Quantities		1	8	8	17.00	$ 1,845.00			$ 1,845.00
		Preliminary Cost Opinion		1	2		3.00	$ 375.00			$ 375.00
		Quality Control Check	2				2.00	$ 450.00			$ 450.00
		Preliminary Submittal		1	2		3.00	$ 375.00	$ -		$ 375.00
							-	$ -			$ -
		60% Plan Review Meeting and Field Work - two persons, evening flight in, meeting and field work next day, fly out in morning. Split time with permitting.		8	8		16.00	$ 2,160.00			$ 2,160.00
2	$ 680	Air Fair Round Trip					-	$ -	$ 1,360.00		$ 1,360.00
2	$ 75	Rental Car per diem					-	$ -	$ 150.00		$ 150.00
2	$ 109	Hotel per diem					-	$ -	$ 218.00		$ 218.00
4	$ 64	Meals per diem					-	$ -	$ 256.00		$ 256.00
4	$ 25	Airport Parking					-	$ -	$ 100.00		$ 100.00
		Meeting Summary		2	2		4.00	$ 540.00			$ 540.00
							-	$ -			$ -
		Subtotal =	**2**	**48**	**65**	**75**	**190.00**	**$ 23,070.00**	**$ 2,276.00**	**$ -**	**$ 25,346.00**

Lancaster County Nebraska - Ash Hollow Channel Stabilization

Fee Worksheet

INTUITION & LOGIC

		Personnel Type/ Title	Principal	Project Manager	Engineer EI	CAD/ GIS/ Designer	Subtotal Hours	Subtotal Personnel Cost	Direct Expenses	Sub Consultant Expenses	Subtotal
		Personnel Billing Rate	**225.00**	**165.00**	**105.00**	**105.00**					
	Easement Documents										
							-	$ -		$ -	$ -
		Coordination		2			2.00	$ 330.00		$ -	$ 330.00
		Land Rights Exhibits		4	12		16.00	$ 1,920.00		$ -	$ 1,920.00
2	$ 300	Benesch Title Reports		1	1		2.00	$ 270.00		$ 600.00	$ 870.00
2	$ 900	Benesch Easement Plats and Scripts		1	1		2.00	$ 270.00		$ 1,800.00	$ 2,070.00
							-	$ -			$ -
		Subtotal =	**0**	**8**	**14**	**0**	**22.00**	**$ 2,790.00**	**$ -**	**$ 2,400.00**	**$ 5,190.00**
	Permitting										
							-	$ -		$ -	$ -
		USACE 404 Nationwide					-	$ -		$ -	$ -
1	$ -	Wetland - Hydric Soil and Obligate Species Field data gathering (travel costs are in 60% design review meeting)		8	8		16.00	$ 2,160.00		$ -	$ 2,160.00
		Wetland - Ash Hollow Hydrology (HEC-HMS Model)		4	16		20.00	$ 2,340.00		$ -	$ 2,340.00
		Wetland Documentation for 404		2	8		10.00	$ 1,170.00		$ -	$ 1,170.00
		NeSCAP		8	6		14.00	$ 1,950.00		$ -	$ 1,950.00
		Coordination with Omaha District		8	24		32.00	$ 3,840.00		$ -	$ 3,840.00
		DNR 401		1	2		3.00	$ 375.00		$ -	$ 375.00
		Land Disturbance		1	6		7.00	$ 795.00		$ -	$ 795.00
		City Grading Permit		1	2		3.00	$ 375.00		$ -	$ 375.00
		Floodplain Development Permit		1	2		3.00	$ 375.00		$ -	$ 375.00
		FEMA No-Rise Certification		2	12		14.00	$ 1,590.00		$ -	$ 1,590.00
							-	$ -			$ -
		Subtotal =	**0**	**36**	**86**	**0**	**122.00**	**$ 14,970.00**	**$ -**	**$ -**	**$ 14,970.00**

Lancaster County Nebraska - Ash Hollow Channel Stabilization

Fee Worksheet

INTUITION & LOGIC

		Personnel Type/ Title	Principal	Project Manager	Engineer EI	CAD/ GIS/ Designer	Subtotal Hours	Subtotal Personnel Cost	Direct Expenses	Sub Consultant Expenses	Subtotal
		Personnel Billing Rate	**225.00**	**165.00**	**105.00**	**105.00**					
	Final Plans, Specifications, Cost and CDs										
							-	$ -			$ -
		Final Plans					-	$ -			$ -
1		Cover			1	2	3.00	$ 315.00			$ 315.00
1		Notes and Quantities			1	2	3.00	$ 315.00			$ 315.00
2		Overall Location, Boundary, Easement Plan		1	2	4	7.00	$ 795.00			$ 795.00
1		Demolition and Utility Relocation			1	2	3.00	$ 315.00			$ 315.00
8		Plan Profile Sheets		4	8	16	28.00	$ 3,180.00			$ 3,180.00
4		Cross Sections Sheets		1	4	8	13.00	$ 1,425.00			$ 1,425.00
0		Pipe Profile Sheets		0	0	0	-	$ -			$ -
0		Headwall/Retaining Elevation and Details		0	0	0	-	$ -			$ -
3		Civil Details		1	3	6	10.00	$ 1,110.00			$ 1,110.00
0		Structural Details		0	0	0	-	$ -			$ -
0		Traffic Control		0	0	0	-	$ -			$ -
3		Planting and Restoration Plan		1	3	6	10.00	$ 1,110.00			$ 1,110.00
4		SWPPP		1	4	8	13.00	$ 1,425.00			$ 1,425.00
1		Others		1	1	2	4.00	$ 480.00			$ 480.00
		Standard Specifications		1			1.00	$ 165.00			$ 165.00
		Special Provisions		2	12		14.00	$ 1,590.00			$ 1,590.00
		Construction Documents (CD)			4		4.00	$ 420.00			$ 420.00
		Final Quantities		1	16		17.00	$ 1,845.00			$ 1,845.00
		Final Cost Opinion		2			2.00	$ 330.00			$ 330.00
		Quality Control Check	3				3.00	$ 675.00			$ 675.00
		Final Submittal		1	2		3.00	$ 375.00			$ 375.00
							-	$ -			$ -
		Submittal Review Meeting Coordination		1	1		2.00	$ 270.00			$ 270.00
		Attend Meeting (virtual meeting)		2	3		5.00	$ 645.00			$ 645.00
		Meeting Summary		1	2		3.00	$ 375.00			$ 375.00
							-	$ -			$ -
		Subtotal =	**3**	**21**	**68**	**56**	**148.00**	**$ 17,160.00**	**$ -**	**$ -**	**$ 17,160.00**

Lancaster County Nebraska - Ash Hollow Channel Stabilization

Fee Worksheet

INTUITION & LOGIC

		Personnel Type/ Title	Principal	Project Manager	Engineer EI	CAD/ GIS/ Designer	Subtotal Hours	Subtotal Personnel Cost	Direct Expenses	Sub Consultant Expenses	Subtotal
		Personnel Billing Rate	**225.00**	**165.00**	**105.00**	**105.00**					
	Approved Documents						-	$ -			$ -
							-	$ -			$ -
		Electronic Bid Documents – Submit electronic copy Plans and Construction Documents in PDF format for use in electronic plan rooms and project bidding. Submittal shall be via email, DVD or other media as requested by LPSNRD.		1	6	4	11.00	$ 1,215.00			$ 1,215.00
		Electronic Files – I&L will electronically submit all of the approved documents in their original electronic format (MS Word, MS Excel, MS PowerPoint, AutoCAD, MicroStation, HEC-RAS, others) and in PDF format.		1	6	1	8.00	$ 900.00			$ 900.00
							-	$ -			$ -
		Subtotal =	**0**	**2**	**12**	**5**	**19.00**	**$ 2,115.00**	**$ -**	**$ -**	**$ 2,115.00**
	Bidding Services						-	$ -			$ -
							-	$ -			$ -
		Notify Potential Contractors		1			1.00	$ 165.00			$ 165.00
		Pre-Bid Meeting		12			12.00	$ 1,980.00			$ 1,980.00
		Attend Meeting - evening flight in, meetings next day, morning flight out, 1 people					-	$ -			$ -
1	$ 680	Air Fair Round Trip					-	$ -	$ 680.00		$ 680.00
2	$ 75	Rental Car per diem					-	$ -	$ 150.00		$ 150.00
2	$ 109	Hotel per diem					-	$ -	$ 218.00		$ 218.00
2	$ 64	Meals per diem					-	$ -	$ 128.00		$ 128.00
2	$ 25	Airport Parking					-	$ -	$ 50.00		$ 50.00
		Requests for Information		1	3		4.00	$ 480.00			$ 480.00
		Addendum		1	3	2	6.00	$ 690.00			$ 690.00
		Bid Tab Review and Recommendation		1	2		3.00	$ 375.00			$ 375.00
		Summary and Recommendation Memo		1	2		3.00	$ 375.00	$ -		$ 375.00
							-	$ -			$ -
		Subtotal =	**0**	**17**	**10**	**2**	**29.00**	**$ 4,065.00**	**$ 1,226.00**	**$ -**	**$ 5,291.00**
		Subtotal Hours	**5.00**	**200.00**	**357.00**	**154.00**	**716.00**	**$ 87,780.00**	**$ 5,879.00**	**$ 53,123.00**	**$ 146,782.00**
		Subtotal Personnel Cost	**$1,125**	**$33,000**	**$37,485**	**$16,170**	CHECK	$ 87,780.00			
										TOTAL =	**$ 146,782.00**

AGREEMENT

THIS AGREEMENT made and entered into the 5th day of JANUARY, 1982, by and between the City of Waverly, Nebraska, hereinafter referred to as "Waverly"; the County of Lancaster, Nebraska, hereinafter referred to as "Lancaster"; and the Lower Platte South Natural Resources District, hereinafter referred to as "LPS".

WHEREAS, the parties hereto have previously entered into an Agreement, dated February 21, 1979, for the construction of the project known as the Ash Hollow Drainway; and

WHEREAS, paragraph 5 of said Agreement provides as follows:

> After completion, Lancaster Will be responsible for routine maintenance of the improved and relocated Ash Hollow Drainway north of the CB&Q Railroad. Maintenance other than routine will be mutually agreed upon by the parties; and

WHEREAS, the parties now wish to clarify their respective responsibilities in regard to maintenance of said project.

NOW, THEREFORE, in consideration of the mutual covenants, promises contained herein it is agreed as follows by the parties hereto:

1) For purposes of the above-referenced paragraph 5 of the Agreement of February 21, 1979, the term "routine maintenance" shall mean that maintenance that can be performed by laborer only without the use of heavy equipment. Maintenance necessitated by serious erosion or blockage of any portion of the channel or maintenance requiring the use of heavy equipment shall not be considered routine maintenance.

2) In the event that maintenance other than routine maintenance is required, the following procedure shall be employed:

a) The Lancaster County Engineer's Office, upon becoming aware of the need for such maintenance shall immediately take the necessary action to have the maintenance performed and shall contact Waverly and LPS by mail of the need for such maintenance, the general nature of the maintenance required and the approximate cost of such maintenance. The cost of such maintenance shall be shared equally by the parties.

EXECUTED by the CITY OF WAVERLY this 7 day of December, 1981.

ATTEST: [illegible] CITY OF WAVERLY, NEBRASKA

BY: [illegible]
Title

EXECUTED by the LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT this 21st day of December, 1981.

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

BY: [illegible] Chairman
Title

EXECUTED by THE COUNTY OF LANCASTER, NEBRASKA, this 5th day of JANUARY, 1982.

BY THE BOARD OF COUNTY COMMISSIONERS OF LANCASTER COUNTY, NEBRASKA

APPROVED AS TO FORM THIS 5th DAY OF Jan, 1981.

MICHAEL G. HEAVICAN
Chief Deputy County Attorney

[illegible]
[illegible]
Joseph R. Edwards

MGH/MET/jh
10/6/81

AGREEMENT

THIS AGREEMENT made and entered into this 21 day of February, 1979, by and between the City of Waverly, Nebraska, hereafter referred to as "Waverly"; the County of Lancaster, Nebraska, hereafter referred to as "Lancaster" and Lower Platte South Natural Resources District, hereafter referred to as "LPS".

WITNESSETH:

WHEREAS, there exists a drainage area called "Ash Hollow" which is located in the vicinity from the CB&Q Railroad north to the Salt Creek and lies generally west of Waverly and within the boundaries of Lancaster and LPS, and

WHEREAS, Ash Hollow historically has been susceptible to flooding which disrupts activities and plans of the parties to this Agreement, and

WHEREAS, Waverly seeks to improve and relocate the Ash Hollow drainway at an estimated total cost of $380,000.00, and

WHEREAS, certain county roads under the jurisdiction of Lancaster need to be relocated and improved as part of a project to make them safer, particularly in regard to crossing the CB&Q Railroad.

WHEREAS, proper drainage is needed for the relocated county roads, and

WHEREAS, Lancaster and LPS agree to cooperate and contribute to the costs of the entire drainage and road project under certain terms and conditions as follows:

NOW, THEREFORE, in consideration of the mutual covenants and promises contained herein the parties agree as follows:

1. Lancaster will be the sponsoring agency for the project and will be responsible for obtaining right-of-way for the drainage canal and roadways involved, and for obtaining the necessary plans and specifications, engineering drawings and other studies necessary for the completion of the project. Waverly and LPS hereby specifically authorize Lancaster to make all project right-of-way appraisals and secure land purchases for project. All real property purchased under this agreement shall be held in the name of Lancaster and Lancaster shall be responsible for any condemnation actions necessary for acquisition of real property. Waverly and LPS shall consult with and join Lancaster in any condemnation actions if deemed so necessary by the parties prior to any condemnations.

2. Lancaster will be responsible for letting the project for bids and for supervising the completion of the project.

3. Lancaster will have overall responsibility for the project and will do all things necessary for the completion of the project.

4. Lancaster will own all material excavated from the project for

the purposes of constructing a county road west of Waverly, said road to have sufficient ditch capacity to adequately handle the flow from Waverly's drainage canal lying between Meadowdale and North Meadows Addition to Waverly.

5. After completion, Lancaster will be responsible for routine maintenance of the improved and relocated Ash Hollow drainway north of the CB&Q Railroad. Maintenance other than routine will be mutually agreed upon by the parties.

6. The parties shall contribute to the costs of the project as follows: Lancaster, one-third of the total, not to exceed $100,000.00; LPS, one-half of the balance, not to exceed $140,000.00; Waverly, the balance of the costs of the project.

7. All funds will be disbursed by Lancaster and the other parties will be billed by Lancaster for their proportionate share.

8. Waverly agrees to plant 190 trees in the area benefited by the project to mitigate the loss of trees caused by the construction.

9. This agreement shall be terminated, except as provided in paragraph 5, at the time of the completion of the project.

EXECUTED by the City of Waverly this 5 day of February, 1979.

CITY OF WAVERLY, NEBRASKA

BY: Wayne Marolf

EXECUTED by the County of Lancaster this 2nd day of January, 1979.

APPROVED:

Carl S [signature]

BOARD OF COUNTY COMMISSIONERS
COUNTY OF LANCASTER, NEBRASKA

[signature]

[signature]

Robert E. Colin, Sr. was absent.

SEAL OF LANCASTER COUNTY NEBRASKA

EXECUTED by the Lower Platte South this 21st day of February, 1979.

LOWER PLATTE SOUTH
NATURAL RESOURCES DISTRICT

BY: [signature]
Chairman

APPROVED AS TO FORM
2 Jan 79
Ronald D. Lahners
LANCASTER COUNTY ATTORNEY

RDL/MGH/sg
01/02/79