Agenda Item 8. a, b, c, d

Memorandum

To: Programs, Projects, and Operations Subcommittee

Subject: FY 2012 Urban Cost Share Programs
- Recreation Area Development Program
- Urban Drainageway Program
- Urban Conservation Assistance Program
- Trails Assistance Program

Date: April 11, 2011

From: Gerry Bowen

The District solicited applications for the urban cost share programs from the various units of government in the District for the upcoming fiscal year. The following applications were received.

Recreation Area Development

The Recreation Area Development Program (RAD) cost shares with units of government to develop and improve recreation areas within their jurisdiction. The cost share rate is 50%. On projects requesting more than $20,000, the Policy Manual requires Board approval. On all others, Management has approval authority.

The following applications have been approved by Management.

- The City of Dakota City has requested assistance to assist in rehabilitation measures in the Dakota City Depot Project to be used as a trailhead. The estimated cost of the improvements is $190,240. The local share is 20% of this amount, or $38,048. They are requesting 50% of this amount, or **$19,024** in cost share assistance.

- The Winnebago Tribe (through its Ho Chunk Community Development Corporation) has requested assistance to improve its Veterans Memorial Park Campground. Specifically, they are requesting assistance on grading and landscaping the site, and improvements to restroom/shelter in the park. The total estimated cost of all improvements is $308,582. They are requesting **$15,059** in cost share from the District.

The following application requires Board approval.

- The City of Omaha has requested assistance to relocate a shade structure from Rosenblatt Stadium to Youngman Park (Site 13). The project includes site preparation and a parking lot to serve the area. The total cost of the project is estimated at $198,062. They are requesting the maximum under the program, or **$50,000**.

- The City of Omaha has requested assistance to replace an undersized road culvert (36") in Ta-Ha-Zouka Park in Elkhorn with an arched pipe (21' x 8'). This park road is the only access to the west side of the park. The total estimated cost of the project is $252,586. They are requesting the maximum under the program, or **$50,000.**

The following table summarizes the RAD project requests for FY 2012. The FY 2011 budget for this program was $307,633.

Sponsor	Total Estimated Cost	Cost Share Requested by Sponsor	FY 12 Cost Share Recommended by Management
Dakota City (trailhead)	$190,420	$19,024	$19,024
Winnebago Tribe (Veterans Park)	$308,582	$15,059	$15,059
Omaha (Youngman Shelter)	$198,062	$50,000	$50,000
Omaha (Ta-Ha-Zouka Park)	$252,586	$50,000	$50,000
Total	**$949,650**	**$134,083**	**$134,083**

- **Management recommends that the Subcommittee recommend to the Board that the applications from the City of Dakota City for $19,024, the Winnebago Tribe for $15,059, the City of Omaha (Youngman Park) for $50,000, and the City of Omaha (Ta-Ha-Zouka Park) for $50,000 be approved, for a total of $134,083, subject to funding in the FY 2012 budget.**

Urban Drainageway Program

The Urban Drainageway Program (UDP) cost shares with units of government to solve erosion, flooding, and other stormwater management concerns on major drainageways within their jurisdiction. The program guidelines were revised by the Board in January. The revisions encourage projects aimed at restoration and rehabilitation (greener solutions) with the cost share rate varying between 40% for Level 3 projects (predominantly hard armoring techniques), 60% for Level 2 projects (combination of hard armoring and bioengineering), and 75% for Level 1 projects (full restoration). Board approval is required on all applications. (*NOTE: The new program guidelines require that an application be made to either the Nebraska Environmental Trust or NDEQ's 319 program. This was waived the first year since the sponsors will not have an opportunity to apply before this fall. However, sponsors have been notified that projects anticipated for FY 13 and beyond will have to meet this requirement.*)

Two projects were approved for funding by the District prior to the changes made in the program in 2011 and will have components in FY 12.

- Millard Park (Sarpy County SID #162) (167th & Harrison) has requested assistance to stabilize a drainageway (Mission Creek, a tributary of the South Branch Papillion Creek) with a combination of grade stabilization structures and streambank lining. This multi-phased project was approved (prior to the revisions to the program in 2011) for funding by the Board in 2009 at a cost share rate of 60%. At that time, it was estimated that the cost of all phases would be $600,840, with the cost share at $360,500 (60% for all phases). Phase 1 was originally estimated to cost $105,500 (cost share $63,300). After final design of Phase 1, the estimated cost increased to $329,200 and the Board approved increasing the cost share to $197,460. Eventually, Phase 1 was completed in 2009 at a total cost of $258,123 (District share $154,874). The remaining four phases of the project have been re-estimated to a total cost of $1,303,100, making the overall estimated cost of the project $1,561,223. The SID is now requesting 60% of this amount, or $936,734. Further, in FY 12, the SID is requesting cost share assistance on Phase 2 of the project. The total estimated cost of Phase 2 is $281,300, with a cost share request of 60%, or **$168,780**.

- The City of LaVista was approved in 2010 under the old UDP program at the 60% level. They did not plan to construct the project until FY 12, so no funds were included in the FY 11 budget. The project is ready to proceed. The total estimated cost of the project is $431,500. They are requesting 60% of this amount, or **$258,900.**

The District received the following applications under the new Urban Drainageway Program.

- The Douglas County, serving as the lead agency on a multi-jurisdiction (Sarpy County, City of LaVista, Brookhaven (Douglas SID #294), Brookhaven West (Douglas SID #435), Brook Valley (Sarpy SID #59) and the City of Omaha) project to stabilize a portion of Hell Creek. The project sponsors have requested Level 2 funding, or 60%. Management concurs with this request. The project is intended to stabilize the area surrounding the Harrison Street Bridge with a combination of hard armoring in places and stream restoration techniques in others. The project is anticipated to have a total of three phases to be applied for in future years, but with a different combination of sponsoring agencies. The current project is planned for construction in 2011-12 and is estimated to cost $1,477,300. The request is for 60% of this amount, or **$886,400.**

- The City of Omaha has requested assistance in stabilizing a portion of Saddle Creek located near 54th & Center. The project involves both open channel and an enclosed storm sewer to handle the anticipated runoff. They are requesting assistance on the open channel portion only. The total cost of the channel improvements is estimated to cost $1,352,300. The city is requesting Level 2 funding, or 60% of this amount, or **$811,380**. Management concurs with Level 2 funding. Further, the City is requesting that this amount be paid over a three year period making the FY 12 portion **$270,460**. An interlocal agreement outlining this proposal will be presented to the Board at a later date.

- The City of Omaha has requested assistance in stabilizing a portion of Rockbrook Creek located near 115th & Frederick. This portion of the creek currently has a concrete lined channel that is being undercut and threatening public improvements and private residences in the area. They propose to remove the concrete liner and replace it with a natural channel configuration. They propose Level 2 funding, or 60%. Management concurs with this level of funding. The total estimated cost of the project is $1,188,800. The City is requesting 60% of this amount, or **$713,280**. Further, the City is requesting that this amount be paid over a three year period making the FY 12 portion **$237,760**. An interlocal agreement outlining this proposal will be presented to the Board at a later date.

- The City of Omaha has requested assistance for a channel restoration project in the Sterling Ridge Development (former Ironwood Golf Course Property located SE of 132nd & Pacific) on behalf of the developer, Bella Terra, LLC. Since the property is within the city limits, an SID cannot be formed. Therefore, the City is the sponsor and they plan to execute an agreement with the developer to satisfy the operation and maintenance requirements of the program. The total cost of the project is estimated to be $1,099,506. The City is requesting Level 1 funding on the project, or 75%. Management does not agree with this funding level and instead is recommending Level 2 funding, or 60% of the estimated cost, or **$659,704**.

- Huntington Park (Douglas SID #374) has requested assistance to rehabilitate a channel in the subdivision located northwest of 156th & Blondo. The existing channel is degrading and the project is intended to stabilize the channel grade and to correct streambank erosion problems throughout the reach. The total estimated cost of the project is $1,939,784. The SID has requested Level 2 funding, or 60%. Management does not agree with this, and is recommending Level 3, or 40% of the estimated cost, or **$775,914.**

- The City of Bellevue has requested assistance in solving a flooding problem near the VFW Post located near 25th Street and Gilmore Lake Road. The District shared the cost of the engineering study with Bellevue to evaluate alternative solutions to the problem. The proposed solution would install a larger box culvert under Gilmore Lake Road, clean out of the channel above the culvert, and construct a diversion for runoff eastward around the VFW Post. The estimated cost of the project is $185,394. They have requested Level 2 funding, or 60%. Management does not agree with this funding level and is recommending Level 3 funding, or 40% of the estimated cost, or **$74,158.**

The following table summarizes the applications for FY 2012. The FY 2011 Budget included $2,476,212 for this program.

Sponsor	Total Estimated Cost	Cost Share Requested by Sponsor	FY 12 Cost Share Recommended by Management
Millard Park (Sarpy SID #162)	$1,561,223	$936,734	$168,780[1]
LaVista (Applewood Creek)	$431,500	$258,900	$258,900
Douglas County (Hell Creek)	$1,477,300	$886,400	$886,400
Omaha (Saddle Creek)	$1,352,300	$811,380	$270,460[2]
Omaha (Rockbrook Creek)	$1,188,800	$713,280	$237,760[3]
Omaha (Sterling Ridge)	$1,099,506	$824,629	$659,704[4]
Huntington Park (Douglas SID #374)	$1,939,784	$1,163,875	$775,914[5]
Bellevue (Gilmore Lake Road)	$185,394	$111,236	$74,158[6]
Grand Total	**$9,235,807**	**$5,706,434**	**$3,332,076**

1 The SID has requested an increase in overall project funding; $168,780 for Phase 2 is the FY 12 portion.
2 The City has requested payment over three fiscal years; $270,260 is the FY 12 portion.
3 The City has requested payment over three fiscal years; $237,760 is the FY 12 portion.
4 Management recommends Level 2 funding, rather than Level 1 requested.
5 Management recommends Level 3 funding, rather than Level 2 requested.
6 Management recommends Level 3 funding, rather than Level 2 requested.

- **Management recommends that the subcommittee recommend to the Board that the applications from Millard Park (Sarpy SID #162) for $936,734, the City of LaVista for $258,900, Douglas County for $886,400, the City of Omaha (Saddle Creek) for $811,380, the City of Omaha (Rockbrook Creek) for $713,280, the City of Omaha (Sterling Ridge) for $659,704, Huntington Park (Douglas SID #374) for $775,714, and the City of Bellevue for $74,158, for a total of $5,706,434 be approved, subject to funding in the FY 2012 Budget.**

Urban Conservation Assistance Program

The Urban Conservation Assistance Program (UCAP) cost shares with units of government to solve relatively minor erosion, flooding, and stormwater management problems in their jurisdiction. Construction costs only are eligible. The Policy Manual calls for Management approval of all applications. Management intends to approve the following applications.

- The City of Omaha has requested assistance to stabilize two areas along the Big Papio Trail at 105th Street and Pacific Street, both involve preventing erosion and sedimentation under the bridges at these locations. The estimated cost of the Pacific Street project is $31,500, and the 105th Street project is $22,500. They are requesting 60% of these costs, or a total of **$32,400** for both projects ($18,900 at Pacific Street and $13,500 at 105th Street).

The FY 2011 Budget for this item was $128,600. The following table summarizes the FY 12 applications.

Sponsor	Total Estimated Cost	Cost Share Requested by Sponsor	FY 12 Cost Share Recommended by Management
Omaha (105th Street)	$22,500	$13,500	$13,500
Omaha (Pacific Street)	$31,500	$18,900	$18,900
Total	**$54,000**	**$32,400**	**$32,400**

- **It is recommended that the Subcommittee recommend to the Board that the applications from the City of Omaha for $32,400 be approved, subject to funding in the FY 2012 budget.**

17.27 RECREATION AREA DEVELOPMENT PROGRAM

The Recreation Area Development Program is an authorized program of the District to provide financial assistance to units of government (cities, counties, villages, or other municipalities) to establish, develop, and improve public recreation areas.

A. Criteria for Assistance

1. Each project must be sponsored by a city, village, county, or other municipality, with the statutory authority and capability to develop and manage public recreation areas.

2. The recreation area, or park, must be part of a comprehensive plan for the municipality.

3. To be eligible, a project must be associated with, or exhibit, some form of natural resources conservation.

4. Eligible project features:

   a. development of a recreation area plan.
   b. land acquisition (eligible only if recreation area is developed at the same time).
   c. grading, seeding, and landscaping.
   d. buildings and facilities (picnic shelters and restrooms).

5. Projects must conform with all local, state, and federal laws.

B. District Responsibilities

1. Administer the Recreation Area Development Program.

2. Management shall review, prioritize, and approve applications for assistance when the cost share amount is $20,000 or less. The approval of the Board is required on projects where the cost share is between $20,001 and $50,000, or when the amount requested in applications exceeds the amount budgeted for this program.

3. Reimburse Sponsors 50% of the local costs (I.e., excluding state and federal funds) of the project, not to exceed $50,000 in District funds, as determined in B.2 above, for each public recreation area.

C. Sponsor Responsibilities

1. The Sponsor shall submit an application on forms supplied by the District.

2. The Sponsor shall submit preliminary plans with the application. The following items should be included:

   a. option/purchase agreement (if applicable)

b. recreation area development plan (prepared by a consultant)
c. estimated total cost
d. implementation schedule
e. location map
f. appropriate section of the comprehensive plan.

3. The Sponsor shall obtain all necessary local, state, and federal permits.

4. The Sponsor shall manage the recreation area and provide all future operation and maintenance of the area at no cost to the District.

5. The Sponsor shall agree to manage the area as a public recreation area for a minimum of 50 years.

6. The Sponsor shall administer all contracts for design, construction, and construction observation for the project.

7. The Sponsor shall control all erosion on the site during construction and until permanent vegetation is firmly established.

8. The Sponsor shall hold and save the District free from damages and claims due to the construction, or operation and maintenance of the recreation area.

9. The Sponsor shall execute an agreement with the District which outlines these guidelines.

10. The Sponsor is encouraged to utilize recycled or recyclable products whenever practical or feasible.

C. Requesting Reimbursement

1. Upon completion of the project, the Sponsor may request reimbursement from the District by providing the following:

   a. certificate of completion
   b. copies of final pay estimates, invoices, or deeds.

(May 10, 1989; November 12, 1991; October 8, 1992)

17.17 URBAN DRAINAGEWAY PROGRAM

The Urban Drainageway Program is an authorized program of the District to provide technical and financial assistance to municipalities to control erosion and/or flooding along major urban drainageways.

A. Criteria for Assistance

(1) An eligible project involves improvements made on any major drainageway (open channel) in a developed, urban area where erosion or flooding threatens public or private property.
(2) Each project must be sponsored by a municipality or other unit of government (including S&IDs) with authority and capability to carry out the project.
(3) An enclosed storm sewer is not an eligible project.
(4) Eligible projects shall receive no more than $1.5 million in District funds.
(5) Approved projects may be implemented over a period of consecutive years.
(6) All measures must be technically feasible and environmentally acceptable.

B. Project Eligibility

Matching funds will be distributed according to the three Levels of Design, which consist of the following:

- Level 1 (Restoration) – Restoration of a continuous reach or reaches of the channel through enhancing meanders and stabilizing the bed (possibly elevating incised channels with grade control structures to reconnect to the historical floodplain) and banks, using predominantly bioengineering techniques with some structural techniques if necessary.
- Level 2 (Rehabilitation) – Rehabilitation of a continuous reach or reaches of the channel bed (possibly including grade control structures) and banks along the existing channel alignment, using a combination of bioengineering and structural techniques.
- Level 3 (Stabilization) – Stabilization of a limited, critical area of the channel banks and/or bed that does not have a significant impact on the entire reach with grade control structures along existing channel alignment using bioengineering and/or structural techniques.

Levels of Design

	Level 1 *Restoration*	Level 2 *Rehabilitation*	Level 3 *Stabilization*
Reach Length	Continuous or having a significant impact on the reach	Continuous or having a significant impact on the reach	Repairs in a critical area that does not have a significant impact on the reach
Stream Channel Modification	In a predominately unconfined or historical stream channel	Confined in modified channel pattern	Can be in an unconfined or historical stream or modified/confined channel
Stream Improvement Techniques	Majority are bioengineering techniques, habitat enhancement, flow redirection, and (if possible) flow retention	Bioengineering and/or structural techniques, habitat enhancement, flow redirection, and (if possible) flow retention	Bioengineering and/or structural techniques
Hydraulic Impact	Will restore hydraulic connection to floodplain	May restore hydraulic connection to floodplain	Will not affect hydraulic connection to floodplain

- Note: Both Level 1 and Level 2 will accelerate natural stream stabilization processes

C. District Responsibilities

(1) All projects will require approval by the Board of Directors
(2) Administer the Urban Drainageway Program.
(3) Review and prioritize all applications.
(4) Provide funding for a portion of the local eligible project costs (i.e. excluding state and federal funds) as follows:
  (a) Provide 75% cost share on all Level 1 projects
  (b) Provide 60% cost share on all Level 2 projects
  (c) Provide 40% cost share on all Level 3 projects
(5) Eligible project costs shall include all costs associated with design, construction, and construction observation. The following shall also apply:
  (a) Sponsor's "in-house" design and construction inspection costs are eligible for cost-sharing provided that the work is performed or supervised by a licensed professional engineer.
  (b) Construction must be performed by a qualified contractor. Reimbursement for use of Sponsor's equipment is not an eligible cost.
  (c) Preliminary study costs (if necessary) are eligible for cost-sharing only if the project is constructed.
(6) The District may require construction of component parts in consecutive years.

(7) The District reserves the right to approve or reject plans, specifications, and/or implementation schedules.

(8) The District shall budget funds for the component parts of all approved projects. Previously approved projects have priority for funding.

C. Sponsor Responsibilities

(1) The sponsor shall submit an application on forms provided by the District (Urban Drainageway Program Application, Form 17.17, Manual of Standard Forms, Appendix E).

(2) The sponsor shall submit preliminary plans with the application. The following items should be included:
   (a) total estimated cost
   (b) implementation schedule, including estimated costs for component parts.
   (c) environmental acceptability statement.
   (d) preliminary survey and design information.
   (e) location maps.

(3) The sponsor shall obtain all land rights for the project at no cost to the District.

(4) The sponsor shall provide all future operation and maintenance on the project at no cost to the District.

(5) The sponsor must comply with all local, state, and federal laws.

(6) The sponsor must obtain all local, state, and federal permits necessary for the project.

(7) The sponsor shall administer all contracts for design, construction and construction inspection.

(8) The sponsor shall hold and save the District free from damages or claims due to the design, construction, or operation and maintenance of the project.

(9) The sponsor shall execute an agreement with the District which will outline these guidelines.

(10) The sponsor shall apply for EPA 319 and Nebraska Environmental Trust funding in order to be eligible for Level 1 or Level 2 project cost share from the District.

D. Requesting Reimbursement

(1) Upon completion of construction of each component, reimbursement may be requested by the sponsor by providing the following:
   (a) Certificate of Completion, signed by a licensed, professional engineer.
   (b) Copies of final pay estimates which shows total units, unit costs, and total component costs.

(2) Progress payments on individual components will not be allowed.

(September 10, 1987; January 13, 2011)

17.0 URBAN CONSERVATION ASSISTANCE PROGRAM

The Urban Conservation Assistance Program is an authorized program of the District to provide technical and financial assistance to units of government (sponsors) and citizen groups to help prevent or control erosion, flooding, and related resource concerns in urbanized areas.

Criteria For Assistance

1. Potential projects need to be on lands under control of the Sponsor through deed, lease, or easement.
2. Acceptable Practices:
   a. permanent grade stabilization structures
   b. channel stabilization measures
   c. stormwater management facilities
   d. diversions and terraces
   e. permanent seeding, sodding, and mulching of critical areas
3. An enclosed storm sewer is not and eligible practice or project.

District Responsibilities

1. Administer the Urban Conservation Assistance Program.
2. Reimburse Sponsors 60% of the actual costs of the project, including engineering, up to a maximum District outlay of $30,000 per project.
3. All projects shall be approved by Management.
4. Provide technical assistance on all projects.

Sponsor Responsibilities

1. Complete District's UCAP Special Project Request, Form 17.0.B, Manual of Standard Forms (Appendix E)
2. Execute and fulfill the District's Special Project Operation and Maintenance Agreement, Form 17.0.C, Manual of Standard Forms (Appendix E)
3. Provide all necessary land rights.
4. Provide the local matching funds.
5. Contract for the construction of the approved project. Sponsor's personnel and equipment costs are not eligible for reimbursement.
6. Complete the project within one year of approval, unless prior written approval is obtained from the District.

(February 5, 1987; February 9, 1989; April 9, 2009)

17.40 TRAILS ASSISTANCE PROGRAM

The Trails Assistance Program is an authorized program of the District to provide financial assistance to units of government (cities, counties, villages, or other government entities) to build recreational trails that have also been approved for federal transportation enhancement funding.

D. Criteria for Assistance

6. Each project must be sponsored by a city, village, county, or other government entity, with the statutory authority and capability to develop and manage public recreation trails.

7. The trail must be part of a comprehensive trails plan for the municipality.

8. Eligible project features are those approved for federal funding and include:

   e. trail construction
   f. grading, seeding, and landscaping.
   g. bridges and drainage facilities
   h. signage

9. Projects must conform with all local, state, and federal laws.

E. District Responsibilities

4. Administer the Trails Assistance Program.

5. Management shall review and prioritize applications for assistance. The approval of the Board is required on projects

6. Reimburse Sponsors 50% of the local costs (I.e., excluding state and federal funds) of the project.

C. Sponsor Responsibilities

11. The Sponsor shall submit an application on forms supplied by the District.

12. The Sponsor shall submit the following items with the application:

   g. copy of the transportation enhancement application
   h. estimated total cost
   i. implementation schedule
   j. location map

13. The Sponsor shall obtain all necessary local, state, and federal permits.

14. The Sponsor shall manage the trail and provide all future operation and maintenance of the project at no cost to the District.

15. The Sponsor shall agree to operate, maintain, and repair the trail for minimum of 50 years.

16. The Sponsor shall administer all contracts for design, construction, and construction observation for the project.

17. The Sponsor shall control all erosion on the site during construction and until permanent vegetation is firmly established.

18. The Sponsor shall hold and save the District free from damages and claims due to the construction, or operation and maintenance of the recreation area.

19. The Sponsor shall execute an agreement with the District which outlines these guidelines.

20. The Sponsor is encouraged to utilize recycled or recyclable products whenever practical or feasible.

F. Requesting Reimbursement

2. Upon completion of the project, the Sponsor may request reimbursement from the District by providing the following:

   c. certificate of completion
   d. copies of final pay estimates, invoices, or deeds.

(April 14, 2005)

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT

www.papiomid.org

RECREATION AREA DEVELOPMENT

SPECIAL PROJECT REQUEST APPLICATION

1. **DATE:** 02/21/11
2. **PROJECT NAME:** Dakota City Recreation Trailhead
3. **PROJECT SPONSOR:** City of Dakota City
   PO Box 482
   Dakota City, NE 68731
4. **CONTACT PERSON:** Robert Peters
   TITLE: City Administrator/Clerk/Treasurer
5. **TELEPHONE:** 402-987-3448
6. **E-MAIL:** bobpeters@dakotacity.net

7. **PROJECT LOCATION:** 1715 Vine St. Dakota City, NE 68731

8. **DESCRIPTION OF PROJECT:** This is a request for a partnership in funding the cost of engineering and in renovation of the interior of the Dakota City Depot, a trailhead for our Dakota City trail and an essential component of our recreational area, located at 1715 Vine, in Dakota City.

The renovated trailhead will provide restroom facilities, shelter, and a tour opportunity for persons to see the prior depot furnishing, functioning, and its importance in the history of transportation. The area will include picnic tables, playground equipment, trees (planted last year) and, we anticipate, attract many visitors to this recreational area.

9. **TOTAL ESTIMATED COST:** $190,240.00

7. **COST SHARE REQUESTED:** ~~$38,048.00~~ 19,024 GB

8. **SIGNATURE/TITLE:** James Roberts

James Roberts, Mayor

This is a request for a partnership in funding the cost of engineering and in renovation of the interior of the Dakota City Depot, a trailhead for our Dakota City trail and an essential component of our recreational area, located at 1715 Vine, in Dakota City.

The renovated trailhead will provide restroom facilities, shelter, and a tour opportunity for persons to see the approximate of the depot furnishing, functioning, and its importance in the history of transportation. The area will include picnic tables, some playground equipment, trees (just planted last year) and, we anticipate, attract many visitors to this recreational area.

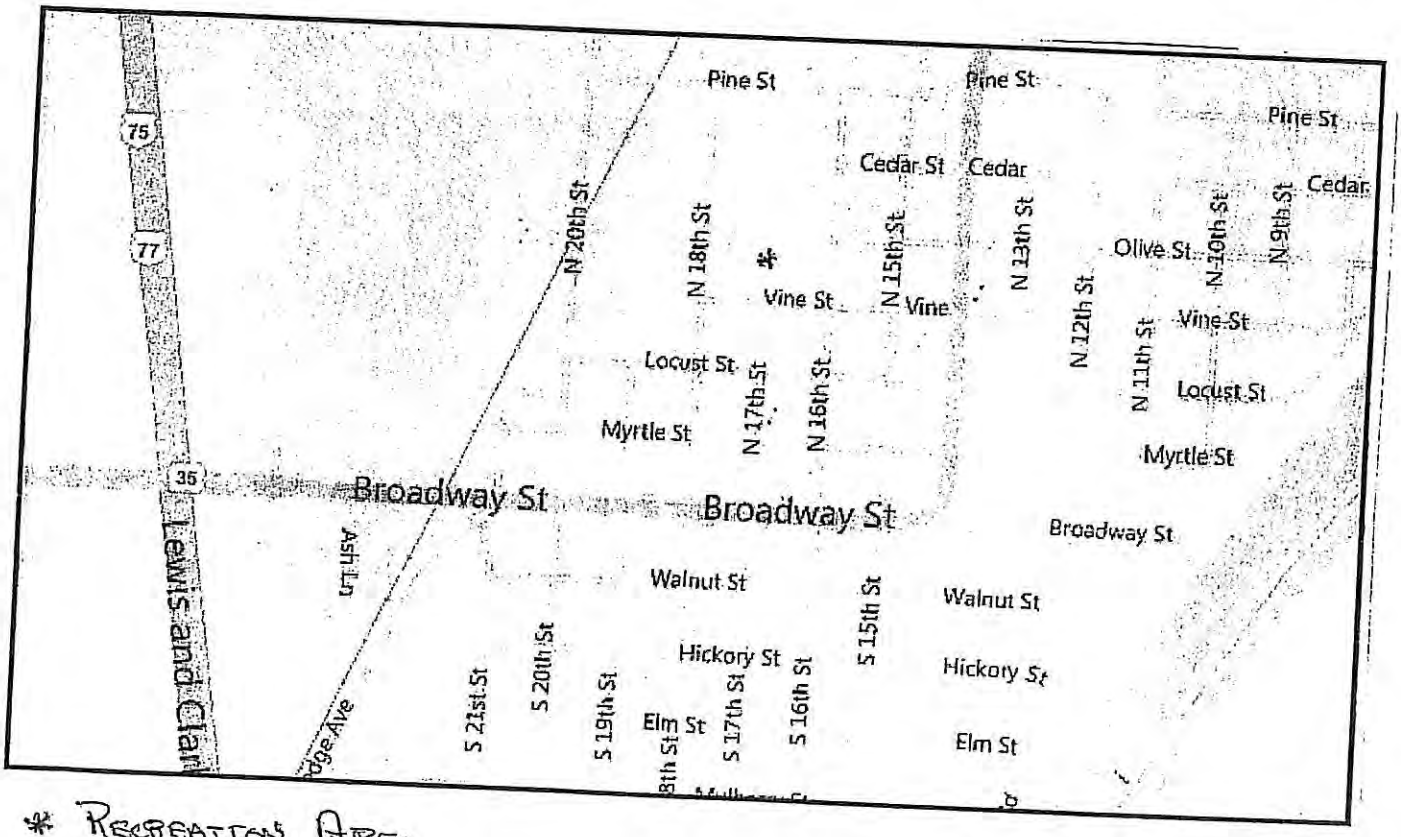
Assuming favorable weather the renovation of the interior should be completed by December 30, 2011.

Based off bids that have been submitted, we anticipate the following costs

Construction (renovation)	$ 171,337
Engineering	18,847
Total	$ 190,184

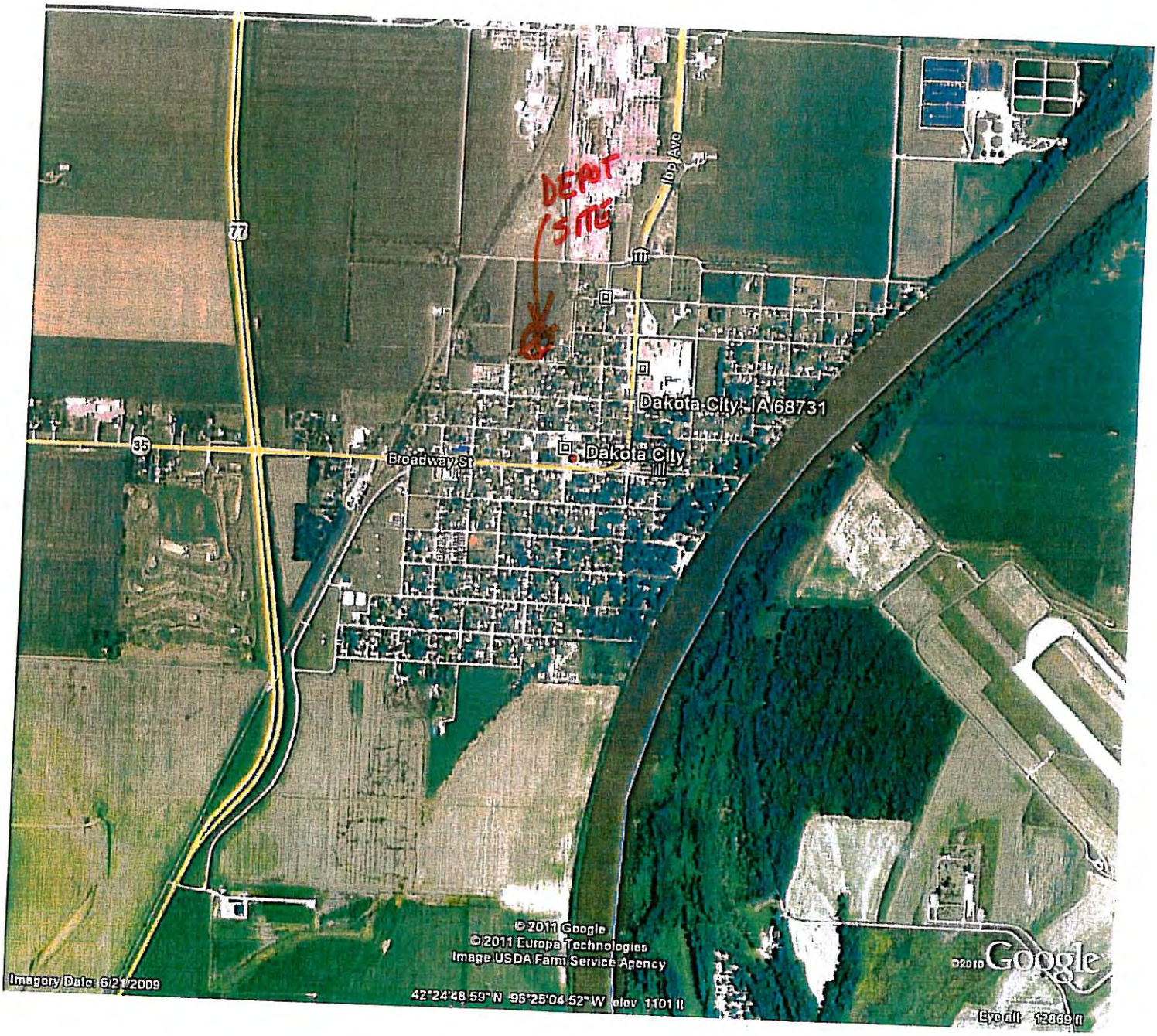
We anticipate renovation to begin in April, 2011 and to be completed in December, 2011.

Location



* Recreation Area

While not specifically referenced in our last comp plan of 2005, the plan does refer to the trail/bike path as an area of concentration.


DEPOT SITE
Dakota City, IA 68731
Dakota City
Broadway St
35
77
Ida Ave
© 2011 Google
© 2011 Europa Technologies
Image USDA Farm Service Agency
Imagery Date: 6/21/2009
42°24'48.59"N 96°25'04.52"W elev 1101 ft
Eye alt 12869 ft
©2010 Google

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
6901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
www.papionrd.org

RECREATION AREA DEVELOPMENT

SPECIAL PROJECT REQUEST APPLICATION

1. **DATE:** March 9, 2011

2. **PROJECT NAME** Winnebago Veterans Memorial Park Enhancement Project

3. **PROJECT SPONSOR:** Village of Winnebago

ADDRESS: P.O. Box 683

Winnebago, NE 68071

4. **CONTACT PERSON:** Frank Schersing

TITLE: Executive Director, Ho-Chunk Community Development Corporation

5. **TELEPHONE:** 402-878-2192

6. **E-MAIL** fschersing@hochunkcdc.org

7. PROJECT LOCATION:
The Winnebago Veterans Memorial Park Enhancement Project, also known as Winnebago Pow-Wow Grounds, is located along BIA Road 17, Winnebago, NE 68071, legally a part of the NW1/4 SW1/4 Sec. 17, T.27N., R9E, Thurston County, Nebraska.

8. DESCRIPTION OF PROJECT:
The Winnebago Tribe requests $15,059 as cost share from the Papio Missouri Natural Resources District to support grading, seeding, landscaping, and renovation of restrooms in conjunction with its Winnebago Veterans Memorial Park Enhancement Project. The Project will add new amenities to better accommodate the many visitors each year. New amenities shall include the installation of two fire hydrants to address safety issues, and the installation of 10 recreational vehicle pads including the necessary water and wastewater, and electrical lines to provide full-hook-up for the recreational vehicles. These new additions and paving of existing road/walkways will allow the park to address accessibility through the removal of barriers that have hindered access throughout the park for elderly and disabled visitors.

9. **TOTAL ESTIMATED COST:** $ 308,582

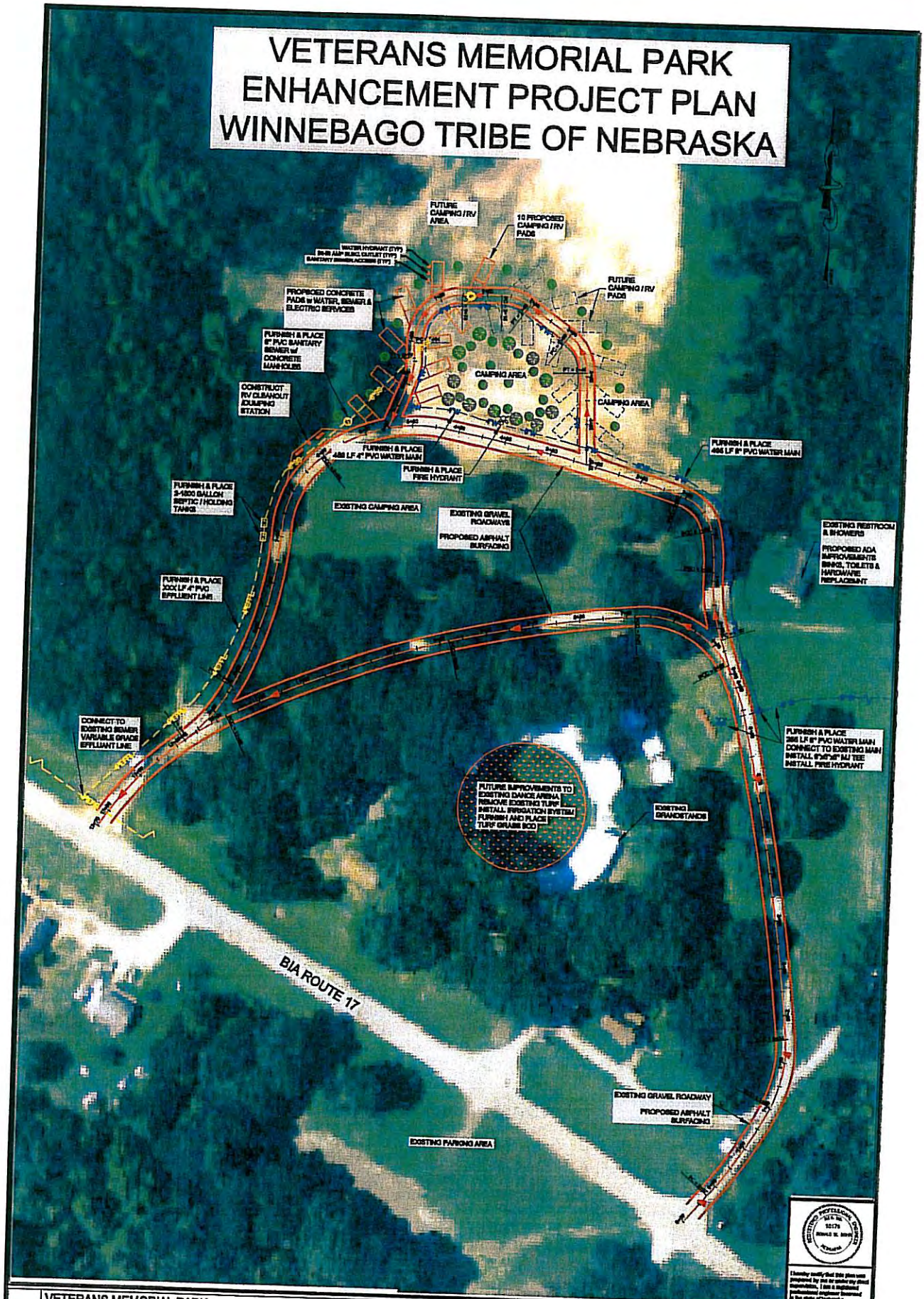
10. **COST SHARE REQUESTED:** $ 15,059

11. **SIGNATURE/TITLE:** Louis C. Houghton, Jr. - Tribal Council Secretary

FORM 17.27A


Winnebago
Winnebago, NE 68030
VETERANS PARK
75
77
©2011 Google
Image USDA Farm Service Agency
Imagery Date: 6/21/2009
42°13'37.87" N 96°27'07.10" W elev 1212 ft
©2010 Google
Eye alt 15014 ft

VETERANS MEMORIAL PARK ENHANCEMENT PROJECT PLAN WINNEBAGO TRIBE OF NEBRASKA



C-1	VETERANS MEMORIAL PARK ENHANCEMENT PROJECT PLAN WINNEBAGO TRIBE OF NEBRASKA	WINNEBAGO TRIBE OF NEBRASKA OFFICE OF CONSTRUCTION MANAGEMENT P.O. BOX 687, WINNEBAGO, NEBRASKA 68071	PLAN REVISIONS P.W.H. 5-17-10 REVISION

I hereby certify that this plan was prepared by me or under my direct supervision, I am a registered professional engineer licensed in the state of Nebraska.

Winnebago Veterans Memorial Park Enhancement Project

	Total Project Costs	Requested from NRD
Grading and Landscaping		
Clearing and grubbing RV/Camping Area	$2,500	$1,250
Earthwork RV/Camping area	$10,000	$5,000
Sub grade preparation roadway	$1,768	$884
Finish grading	$2,500	$1,250
Apply Topsoil	$1,750	$875
Seeding, Fertilizer Erosion Control	$2,100	$1,050
Trees and Landscaping	$5,000	$2,500
Water System		
Furnish & Place Gate Valve	$1,700	
Furnish and Place 4"	$6,426	
Furnish & Place 6"	$11,625	
Furnish and Place hydrant	$4,500	
Furnish and Place 4" saddle	$1,500	
Furnish and Place curb stop	$2,000	
Furnish and Place 3/4" PE water service	$4,275	
Furnish and Place yard hydrant	$2,650	
Sanitary Sewer System		
1500 Gallon concrete septic tank	$5,000	
4" PVC service w connections and fittings	$4,275	
6" PVC service w connections and fittings	$4,684	
48" concrete manhole w ring and cover	$2,700	
4" cleanout with threaded top	$350	
Dumping station sprayer w foundation	$950	
Locking Sewer Service access	$605	
Roadway Asphalt & Camping Pads		
5" Asphalt Surface north camp loop	$15,050	
5" Asphalt Surface top loop	$32,200	
5" Asphalt Surface bottom loop	$46,760	
Concrete curb	$27,000	
PC Concrete camping pads	$11,250	
Electrical System		
Rural Electric Company Upgrades	$12,000	
400 amp panels w breakers	$1,250	
30 amp service	$7,500	
50 amp service	$5,400	
lighting	$2,500	
Existing bathroom and showers, toilets, sinks, hard	$4,500	$2,250
Subtotal	$244,268	$15,059
A&E 12%	$29,312	
Subtotal	$273,580	$15,059
Contingency 7%	$19,150	
Subtotal	$292,730	$15,059
Admin 10%	$15,852	
Total	**$308,582**	**$15,059**

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
www.papionrd.org

RECREATION AREA DEVELOPMENT

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: March 9, 2011

2. PROJECT NAME: Lawrence Youngman Lake – Shade Structure

3. PROJECT SPONSOR: City of Omaha – Parks, Recreation & Public Property

ADDRESS: 1819 Farnam St., Suite 701

Omaha, NE 68183

4. CONTACT PERSON: Pat Slaven

TITLE: Park Planner II

5. TELEPHONE: 402-444-3977

6. E-MAIL pslaven@ci.omaha.ne.us

7. PROJECT LOCATION:

The project will be located at Lawrence Youngman Lake, northwest corner of 192nd and West Dodge Road at the high point of the grass amphitheatre (Exhibit A).

8. DESCRIPTION OF PROJECT:

The Papio-Missouri River NRD constructed Dam No. 13 which resulted in Lawrence Youngman Lake, now a City of Omaha lake and recreation area. The City has already constructed numerous improvements to the park, including fishing and boat docks, a paved road and parking, a grassed amphitheatre, a large playground and an entrance sign. The park is being developed in accordance with the Conceptual Site Plan (Exhibit B) and the "Omaha Suburban Park Master Plan" (Exhibit C).

The City now has the opportunity to relocate the large tensile shade structure which is currently located just southwest of Rosenblatt Stadium. Composed of two hexagonal fabric shades, the structure spans 120' x 60' (Exhibit D). The structure would provide the necessary scale for the large park and the growing use anticipated in the park once it formally opens in May 2011. It will also be an icon which will be visible from the busy 192nd and West Dodge Road. Since the park was formerly farmed, any trees in the area are recently planted and are too small to provide shade for several years.

The project proposes to remove the structure and place it at the location shown indicated on the Conceptual Site Plan. The structure will be available for picnicking, special events and rentals. Associated improvements will include walks to connect the structure to a new parking lot and to the playground. Site preparation will begin in mid-summer. The anticipated schedule for removal and relocation of the structure is Fall, 2011.

9. TOTAL ESTIMATED COST: $198,062

10. COST SHARE REQUESTED: $50,000

11. SIGNATURE/TITLE: Patrice Slaven, Park Planner II

FORM 17.27A

Lawrence Youngman Lake - Shade Structure

Preliminary Order of Magnitude Cost Estimate

10-Mar-11

Item	Quantity	Unit	Unit Cost	Item Cost
Grading	1	LS	$15,000	$15,000
Removal and relocation of shade structure	1	LS	$23,050	$23,050
New slab/patio around structures	1	LS	$8,000	$8,000
Concrete walk connecting to parking lot and playground	4,680	SF	$4	$18,720
Concrete parking lot to serve shelter	3,060	SY	$30	$91,800
Subtotal				$156,570
Contingency 15%				$23,486
Design Fees 10%				$18,006
TOTAL				**$198,062**

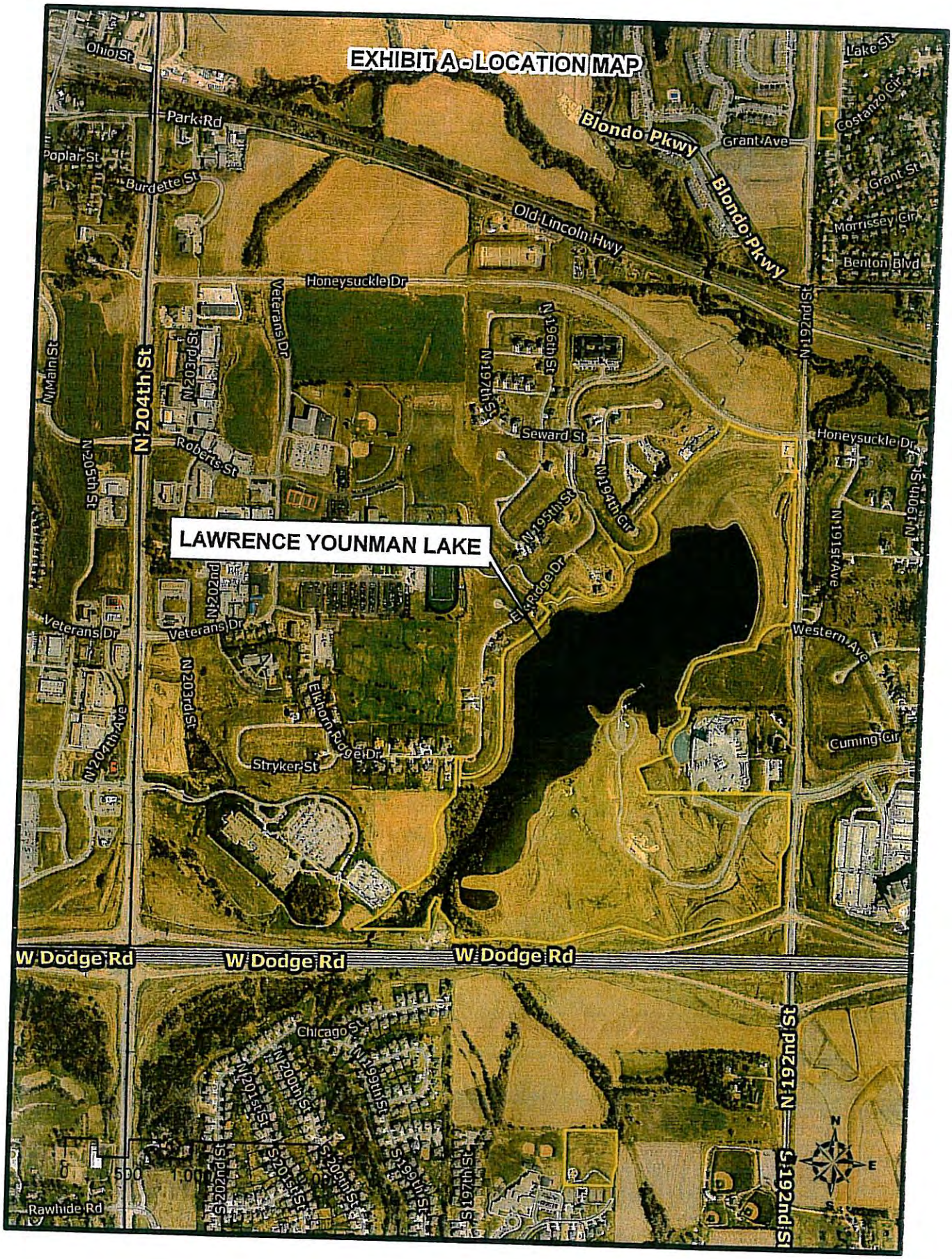


EXHIBIT A - LOCATION MAP
LAWRENCE YOUNMAN LAKE
Ohio St
Park Rd
Poplar St
Burdette St
Blondo Pkwy
Grant Ave
Lake St
Costanzo Cir
Grant St
Morrissey Cir
Benton Blvd
Old Lincoln Hwy
Honeysuckle Dr
Veterans Dr
N 203rd St
N 204th St
N Main St
N 205th St
Roberts St
N 196th St
N 197th St
N 192nd St
Seward St
N 194th Cir
N 195th St
Elkhorn Ridge Dr
N 202nd St
N 191st Ave
N 190th St
Western Ave
Cuming Cir
N 204th Ave
Stryker St
W Dodge Rd
Chicago St
N 199th St
N 200th St
N 201st St
S 202nd St
S 201st St
S 200th St
S 199th St
S 197th St
S 192nd St
Rawhide Rd
0
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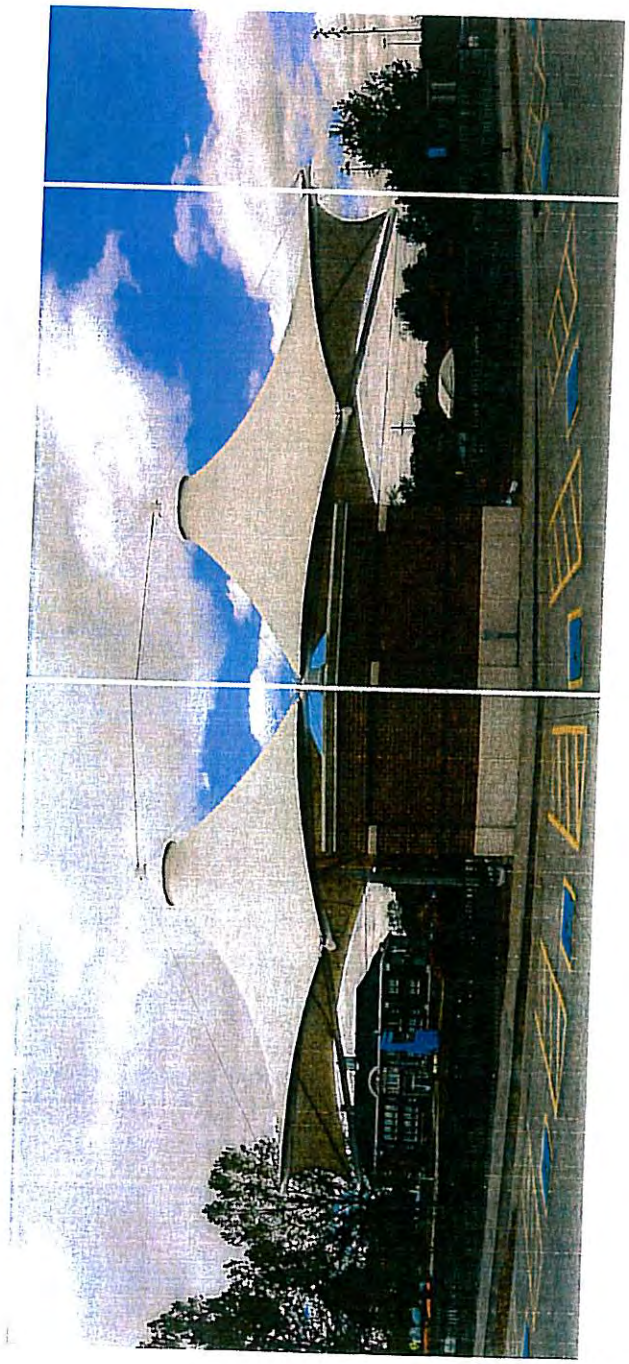
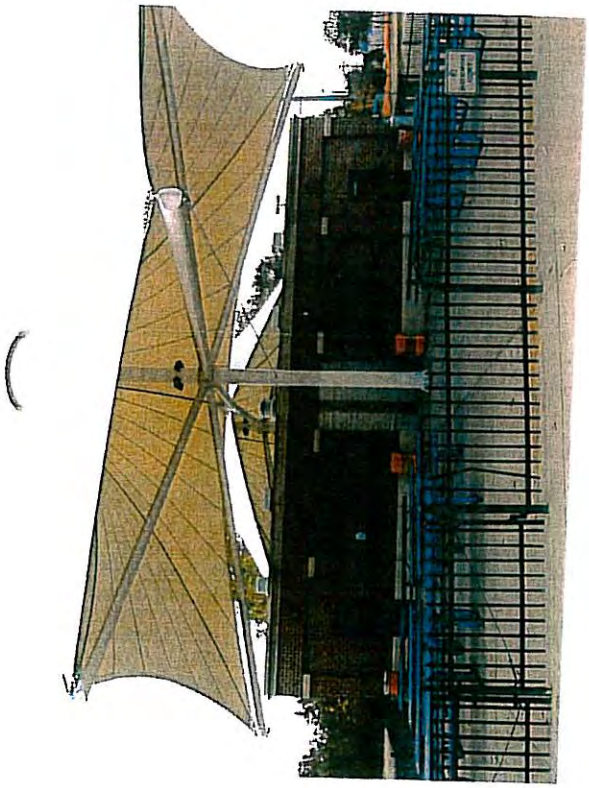
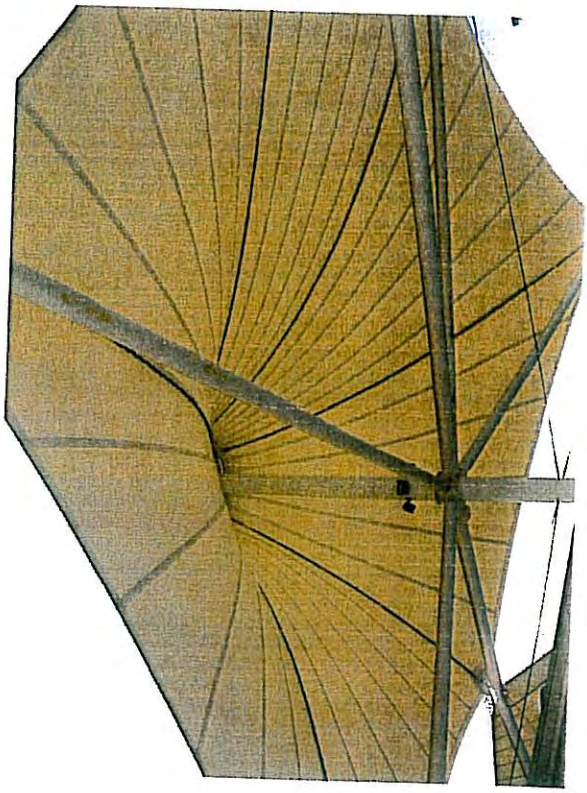
EXHIBIT D – PHOTOGRAPHS OF SHADE STRUCTURE AT ROSENBLATT







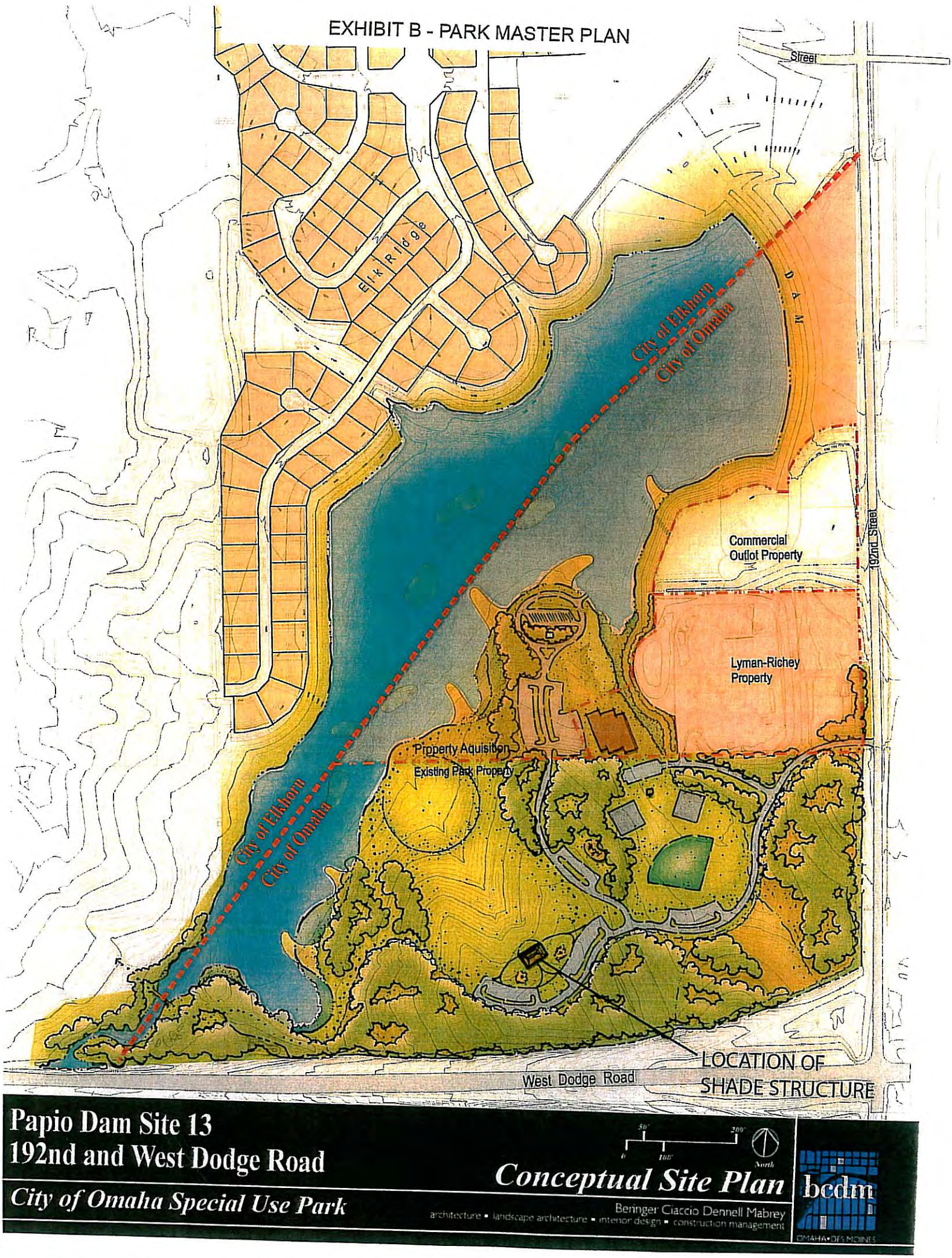


EXHIBIT B - PARK MASTER PLAN
Street
Elk Ridge
DAM
City of Elkhorn
City of Omaha
Commercial
Outlot Property
192nd Street
Lyman-Richey
Property
Property Aquisition
Existing Park Property
City of Elkhorn
City of Omaha
West Dodge Road
LOCATION OF
SHADE STRUCTURE
Papio Dam Site 13
192nd and West Dodge Road
City of Omaha Special Use Park
Conceptual Site Plan
Beringer Ciaccio Dennell Mabrey
architecture • landscape architecture • interior design • construction management
bcdm
OMAHA • DES MOINES

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
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www.papionrd.org

RECREATION AREA DEVELOPMENT

SPECIAL PROJECT REQUEST APPLICATION

1. **DATE:** 18 March 2011

2. **PROJECT NAME** Ta Ha Zouka Park Culvert Replacement

3. **PROJECT SPONSOR:** City of Omaha Parks, Recreation & Public Property Department

   ADDRESS: 1819 Farnam Street – Suite 701

   Omaha, Nebraska 68183-0701

4. **CONTACT PERSON:** Dennis E. Bryers, RLA, FASLA

   TITLE: Park & Recreation Planner II / Landscape Architect

5. **TELEPHONE:** 402-444-3798

6. **E-MAIL** dbryers@ci.omaha.ne.us

7. PROJECT LOCATION: Ta Ha Zouka Park, 20919 Elkhorn Drive, Elkhorn, NE 68022 - The existing culvert to be replaced is located on the north side of the park just to the east of the baseball field.

8. DESCRIPTION OF PROJECT: Project would involve the design and construction of the new culvert crossing to provide a safe route to and from the baseball field and other park facilities and reduce flooding upstream of the crossing. Preliminary design work was done back in 2008.
culvert crossing, bidding the work and constructing the new culvert crossing and related improvements.

The current culvert is undersized and becomes flooded during rain events, stranding people at the ball field and backing water upstream of the culvert.

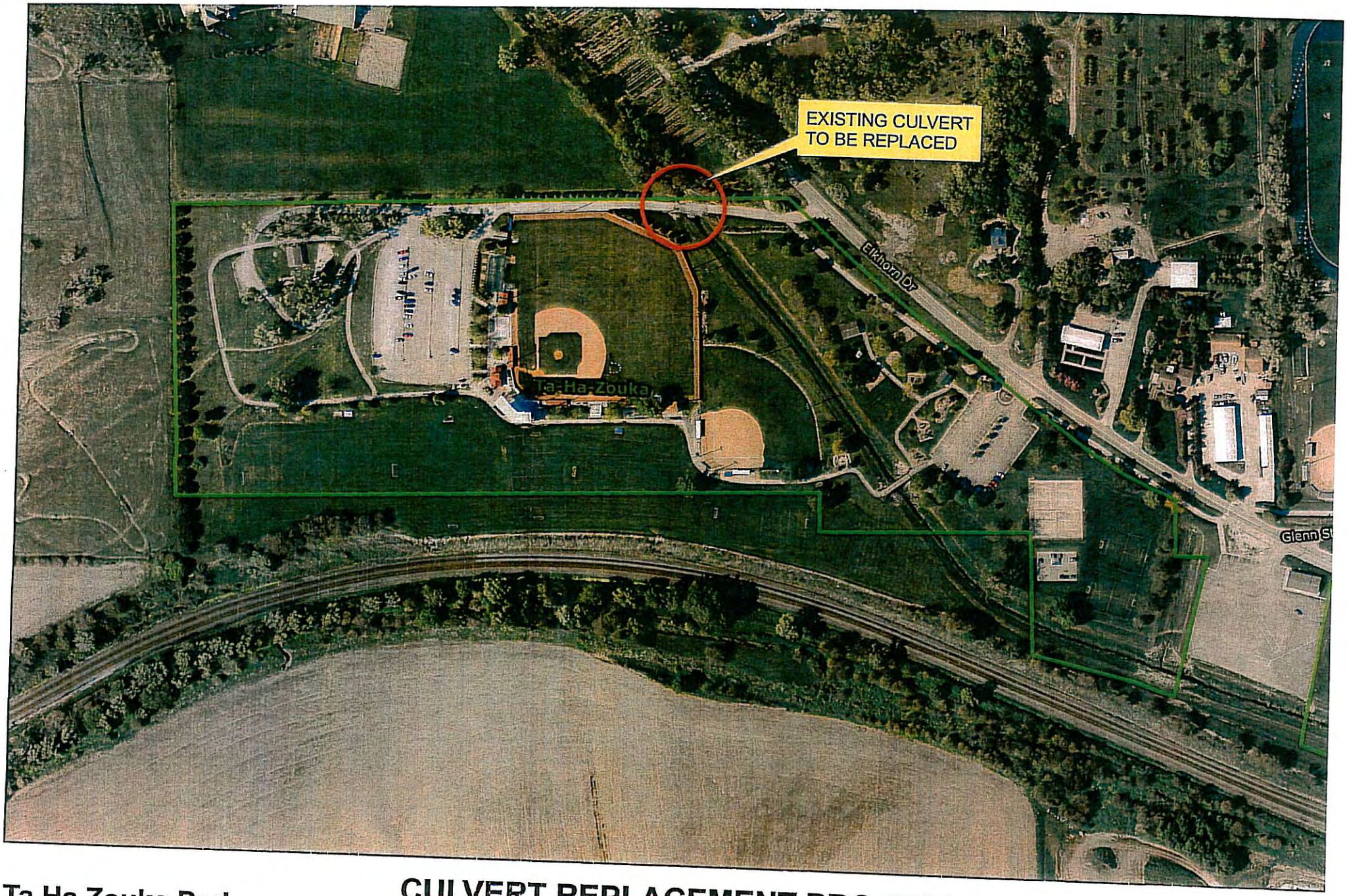
MAR 22 2011

9. **TOTAL ESTIMATED COST:** $ 252,585.40

10. **COST SHARE REQUESTED:** $ 50,000.00

11. **SIGNATURE/TITLE:** Dennis E. Bryers, FASLA.
Park & Recreation Planner II

FORM 17.27A



Ta Ha Zouka Park
20919 Elkhorn Drive
Elkhorn, NE 68022

CULVERT REPLACEMENT PROJECT

18 March 2011

0 120 240 480 720 960 Feet

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W
S

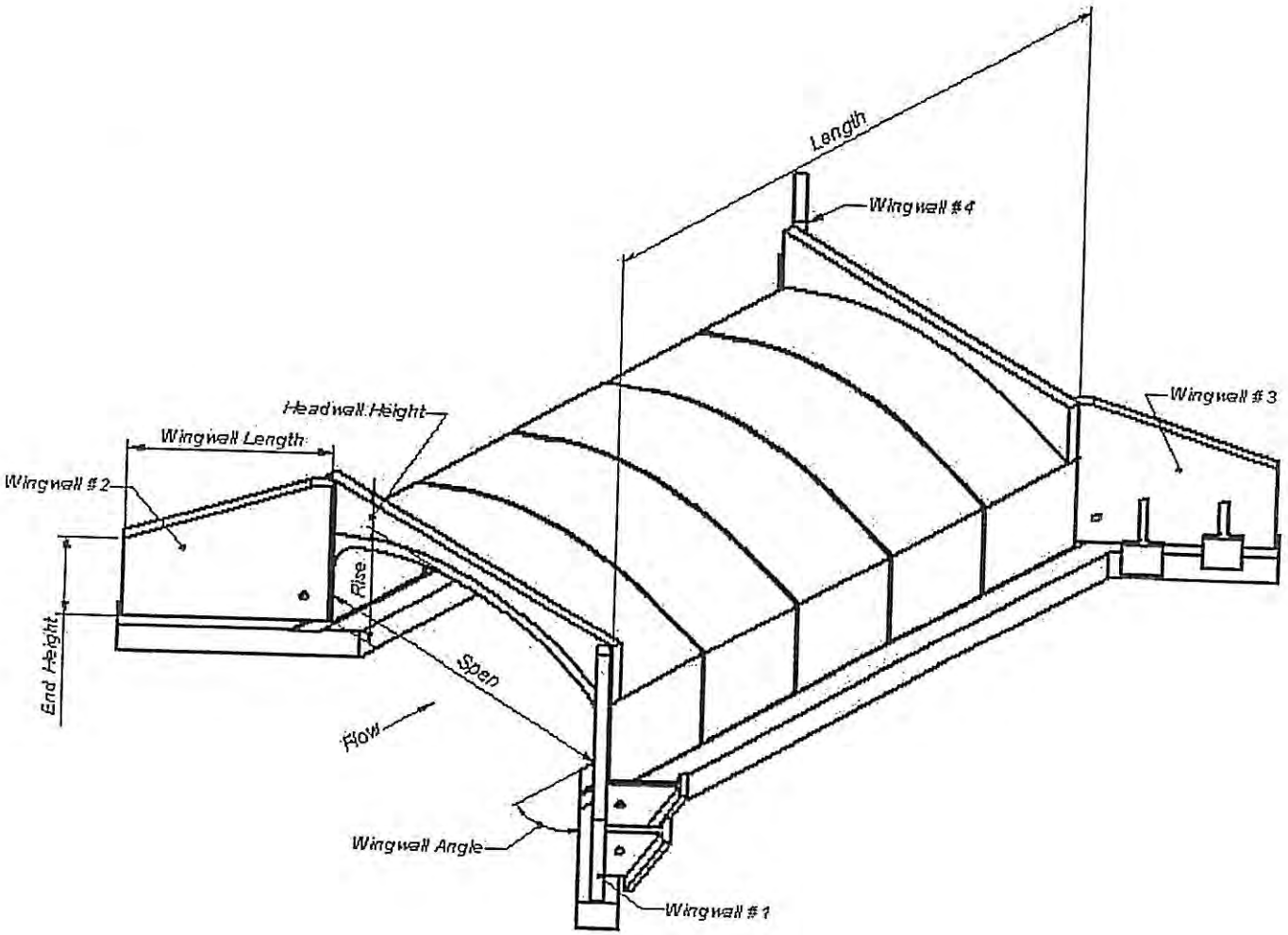
TA HA ZOUKA PARK CULVERT REPLACEMENT
PRELIMINARY CONSTRUCTION COST ESTIMATE

18 March 2011

item	unit	quantity	unit cost	amount
DESIGN				
Topographic Survey	AC	4	$1,000.00	$4,000.00
Preliminary Engineering	LS	1	$27,468.00	$27,468.00
Construction Engineering - Contingencies	LS	1	$1,373.40	$1,373.40
Construction Inspection & Testing	LS	1	$9,156.00	$9,156.00
Design Subtotal:				**$41,997.40**
CONSTRUCTION				
SITE PREP. & ENGINEERING				
Engineering/Layout	LS	1	$1,500.00	$1,500.00
			Subtotal:	**$1,500.00**
DEMOLITION				
Existing Asphalt	SY	800	$4.50	$3,600.00
Existing 36" Culvert	LF	90	$18.00	$1,620.00
			Subtotal:	**$5,220.00**
EARTHWORK				
Erosion & Sediment Control Measures	LS	1	$3,000.00	$3,000.00
Earthwork Embankment	CY	1,400	$10.00	$14,000.00
Channel Work	LS	1	$10,000.00	$10,000.00
			Subtotal:	**$27,000.00**
SITE IMPROVEMENTS				
Precast Bridge (Head & Wing Walls)	LS	1	$110,000.00	$110,000.00
Subgrgade Preparation	SY	800	$3.00	$2,400.00
Concrete Road Pavement - 7" Thick	SY	800	$31.00	$24,800.00
			Subtotal:	**$137,200.00**
LANDSCAPING				
Topsoil	SY	3,700	$2.00	$7,400.00
Seeding	SY	1,200	$1.00	$1,200.00
Erosion Control Blankets	SY	1,200	$3.00	$3,600.00
			Subtotal:	**$12,200.00**
Construction Subtotal:				**$183,120.00**
15% Construction Contingency:				**$27,468.00**
Construction Total:				**$210,588.00**
PROJECT GRAND TOTAL:				**$252,585.40**

Reference Sketch of CON/SPAN® Bridge

Exhibit A



PAPIO-MISSOURI RIVER
NATURAL
RESOURCES
DISTRICT
8901 S. 1 54th ST.
OMAHA, NE 68138-3621
(402) 444-6222
FAX (402) 895-6543

Form 17.17. A.

URBAN DRAINAGEWAY PROGRAM

APPLICATION

1. DATE: March 17, 2011

2. PROJECT NAME: Mission Creek Channel Rehabilitation Phase 2

3. PROJECT SPONSOR: Millard Park, SID 162
(Address) C/O Ron Hunter
11605 Arbor Street, Suite 104 Omaha, NE 68144

4. CONTACT PERSON: Rick Hansen TITLE: SID Chairman

5. TELEPHONE: 402-891-0607

6. PROJECT LOCATION **: Mission Creek Channel just east of 167th and Gertrude Streets

7. PROPOSED IMPROVEMENTS**: Construct Gabion Wall at toe of West Channel Bank and regrade Channel slope. (See attached preliminary drawing)

8. TOTAL ESTIMATED COST: $ 281,300.00

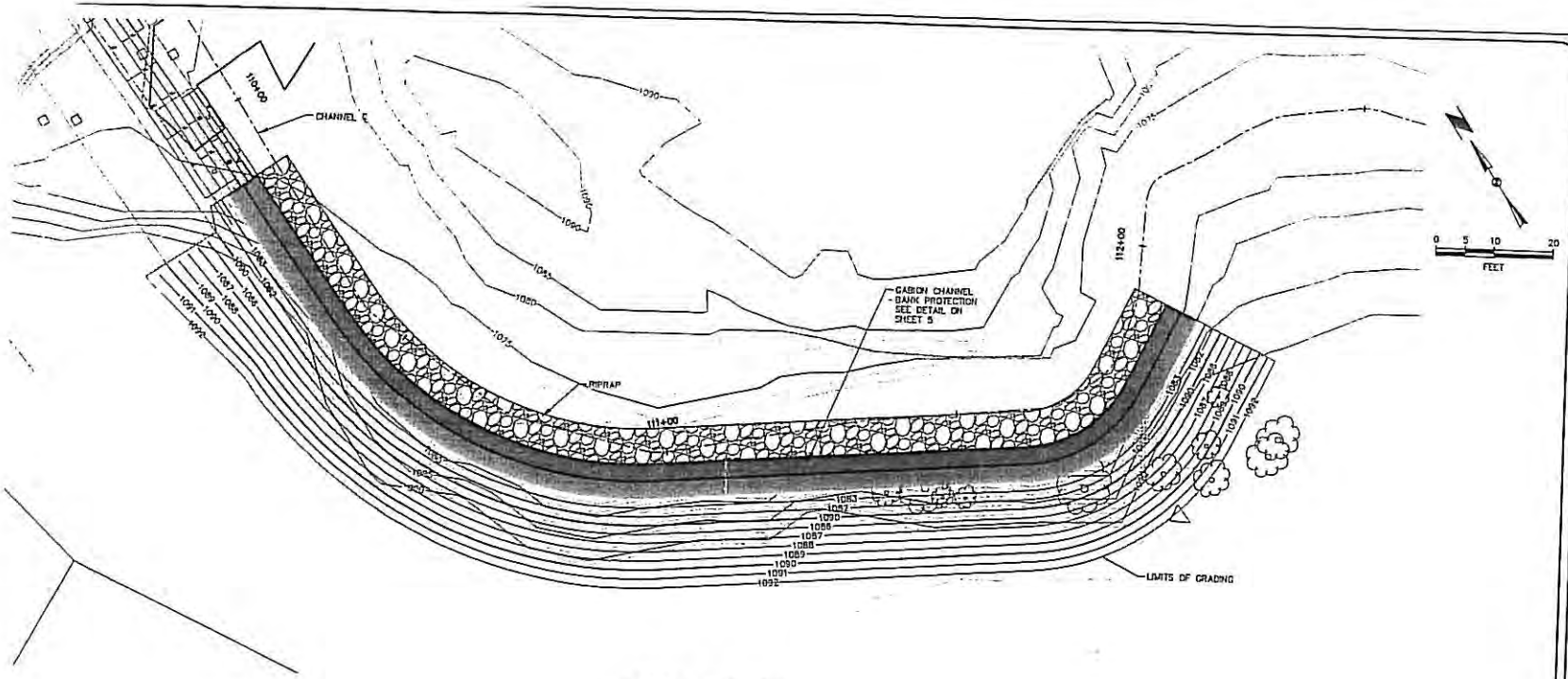
9. COST SHARE REQUEST: $ 168,780.00

10. IMPLEMENTATION SCHEDULE: Begin Construction July 2011 and complete Construction by October 2011

11. SIGNATURE/TITLE: Richard L. Hansen / SID 162 Chairman

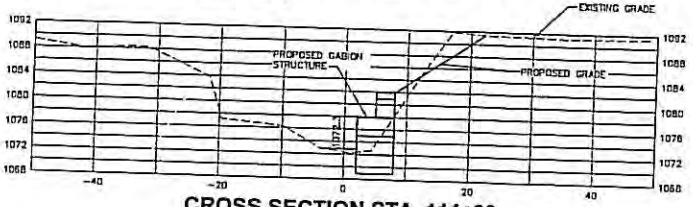
** Attach additional sheets as necessary.

Received 3-18-11
GS

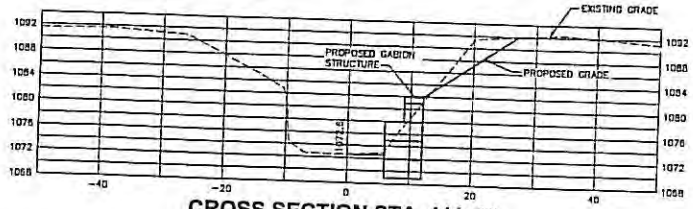


AREA C - PLAN
SCALE: 1" = 10'-0"

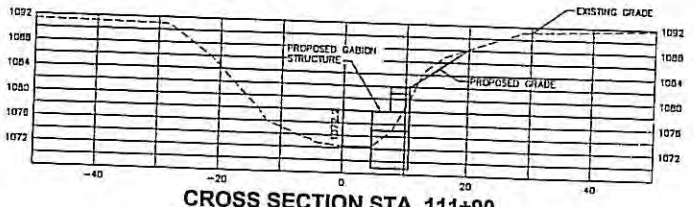
CROSS SECTION STA. 110+50
SCALE: 1" = 10'-0"



CROSS SECTION STA. 111+00
SCALE: 1" = 10'-0"



CROSS SECTION STA. 111+50
SCALE: 1" = 10'-0"



CROSS SECTION STA. 111+90
SCALE: 1" = 10'-0"

hgm ASSOCIATES INC.
ENGINEERING ARCHITECTURE SURVEYING
council bluffs omaha

project MISSION CREEK MASTER PLAN
MISSION CREEK CHANNEL STUDY
client SANITARY AND IMPROVEMENT DISTRICT 162
MILLARD PARK
sheet CHANNEL IMPROVEMENTS AREA "C"

project no. 703510-003
sheet D4

0
100
200
400
FEET
Emiline Street
Gertrude Street
Edna Street
162nd Street
162nd Avenue
162nd Avenue
Audrey Street
163rd Street
164th Street
Josephine Street
Audrey Street
164th Avenue
Harrison Street
MISSION CREEK
SOUTH PAPILLION CREEK
167th Circle
167th Street
Audrey Street
Gertrude Street
130+00
120+00
115+00
110+00
105+00
100+00
hgm
ASSOCIATES INC.
ENGINEERING ARCHITECTURE SURVEYING
Council Bluffs iowa
MISSION CREEK MASTER PLAN
MISSION CREEK CHANNEL STUDY
SANITARY AND IMPROVEMENT DISTRICT 162
MILLARD PARK
AERIAL MAP
project no. 703510-003
sheet A1

MISSION CREEK MASTER PLAN
SANITARY AND IMPROVEMENT DISTRICT 162
OVERALL PLAN
D1
hgm
ASSOCIATES INC.
AREA "A"
AREA "B"
AREA "C"
AREA "D"
AREA "E"
Harrison St.
167th Street
Josephine Street
MISSION CREEK
167th Circle
Gertrude Street
Audrey Street
OVERALL PLAN

MISSION CREEK CHANNEL RESTORATION PROJECT
MILLARD PARK - SID 162
HGM PROJECT No. 703510-003

PRELIMINARY OPINION OF PROBABLE PROJECT COSTS
March 16, 2011

AREA C

ITEM No.	DESCRIPTION	ESTIMATED QUANTITIES		UNIT PRICE	TOTAL AMOUNT
1	Mobilization	1	LS	$6,500.00	$6,500.00
2	Clearing and Grubbing General	1	LS	$8,000.00	$8,000.00
3	Earthwork (Embankment)	315	CY	$35.00	$11,025.00
4	Haul and Place Topsoil	180	CY	$35.00	$6,300.00
5	Remove Sidewalk	80	SF	$7.00	$560.00
6	Construct 4" Concrete Sidewalk	80	SF	$11.00	$880.00
7	Geotextile Fabric	494	SY	$11.00	$5,434.00
8	Gabion Basket	494	CY	$300.00	$148,200.00
9	Rolled Erosion Control Blanket - S150	2890	SY	$2.00	$5,780.00
10	Rolled Erosion Control Blanket - C350	365	SY	$9.00	$3,285.00
11	Seeding - Type A	2890	SY	$1.50	$4,335.00
12	Seeding - Channel	365	SY	$4.00	$1,460.00
13	Sodding	20	SY	$34.00	$680.00
14	Silt Fence	300	LF	$4.25	$1,275.00

Subtotal	**$203,714**
Contingencies (20%)	$40,800
Total Construction Cost	**$244,600**
Engineering & Construction Mgmt. (15%)	$36,700
Total Project Cost	**$281,300**

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
www.papionrd.org

URBAN DRAINAGEWAY PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: February 22, 2011

2. PROJECT NAME Applewood Creek Stabilization

3. PROJECT SPONSOR: City of La Vista

ADDRESS: 9900 Portal Road

La Vista, NE 68128

4. CONTACT PERSON: Joe Soucie

TITLE: Public Works Director

5. TELEPHONE: (402)331-8927

6. E-MAIL jsoucie@cityoflavista.org

7. PROJECT LOCATION (attach location map):
The project begins where Applewood Creek crosses under the BNSF Railroad tracks at approximately the northwest corner of 101st Street and Brentwood Drives in La Vista, Nebraska. The project continues downstream and terminates where Applewood Creek crosses under Giles Road at approximately 102nd Street.

8. DESCRIPTION OF PROBLEM (attach additional sheets as needed):
The creek channel is clogged with debris in numerous locations, consisting mainly of downed trees and branches. Many locations along this segment are experiencing severe bank erosion including sloughing and cutting. Left unchecked the creek channel will encroach upon abutting residential property and continue to scour trees along the creek bank. The channel needs to be stablized prior to constructing a hiking/biking trail.

9.PROPOSED SOLUTION (attach additional sheets as needed):
The proposed solution includes removing debris from the channel;clearing and grubbing at stabilized locations and installing several grade control drop structures. The project will also include bank stabilization using bioengineering techinques such as root wads & blankets, cellular confinement, vegetated gabions or geotextile layers & plantings.

10. PROJECT FUNDING LEVEL: LEVEL 1:____ LEVEL 2: X LEVEL 3:____
(Attach justification for funding level selected – see program guidelines)

11. TOTAL ESTIMATED COST: $ 431,500

12. COST SHARE REQUESTED: $ 258,900

13. SIGNATURE/TITLE: Joe Soucie - Public Works Director

FORM 17.17

APPLEWOOD CREEK STABILIZATION
CITY OF LA VISTA
COST ESTIMATE FOR URBAN DRAINAGEWAY GRANT APPLICATION
UPDATED FEB. 22, 2011

ITEM	DESCRIPTION	QTY.	UNIT PRICE/ UNIT	TOTAL
1.	Remove Debris from Channel	1 LS	20000 /LS	20000
2	Clear & Grub Stabilization Locations	1 LS	50000 /LS	50000
3	Grade Control Drop Structures	3 EA	20000 /EA	60000
4	Bank Stabilization, Bioengineering Methods	300 LF	200 /LF	60000
5	Bank Stabilization, Bioengr. & Struc. Methods	450 LF	200 /LF	90000
6	Topsoiling & Fine Grading	2000 SY	2.5 /SY	5000
7	Native Grass Seeding	0.5 AC	4500 /AC	2250
8	Turf Grass Seeding Disturbed Areas	2 AC	2000 /AC	4000
9	Straw Wattle, Erosion Control	1000 LF	2 /LF	2000
10	Erosion Control Blanket, Short Term	4000 LF	2 /LF	8000
	Construction Costs			301250
	Construction Contingency, 15%			45187.5
	Total Construction Costs			346437.5
	Rounded, Use			$346,500
	Planning Phase			$5,000
	Design Engineering			$47,000
	Construction Engineering			$33,000
	Total Engineering			$85,000
	Total Project			$431,500
	FUNDING SOURCES			
	PMRNRD, Level 2 Urban Drainageway Grant	60%		$258,900.0
	La Vista Share, City Funds	40%		$172,600.0

APPLEWOOD CREEK DRAINAGEWAY

IMPLEMENTATION SCHEDULE

PROJECT REQUEST APPLICATION

CITY OF LA VISTA

FEB. 22, 2011

• Topographic Survey	30 days	Dec. 1, 2010 to Dec. 31, 2010
• Conceptual Design	60 days	Feb. 1, 2011 to April 1, 2011
• Wetlands Delineation	30 days	April 1, 2011 to May 1, 2011
• Corps Permit Application		May 1, 2011
• Permit Approval	60 days	May 1, 2011 to July 1, 2011
• Bidding & Award	45 days	July 1, 2011 to August 15, 2011
• Construction*	90 days	Sept. 1, 2011 to Dec. 1, 2011

*Dependent upon weather and other factors, final completion may occur May of 2012.

APPLEWOOD CREEK DRAINAGEWAY

ENVIRONMENTAL ACCEPTABILITY STATEMENT

PROJECT REQUEST APPLICATION

CITY OF LA VISTA

FEB. 22, 2011

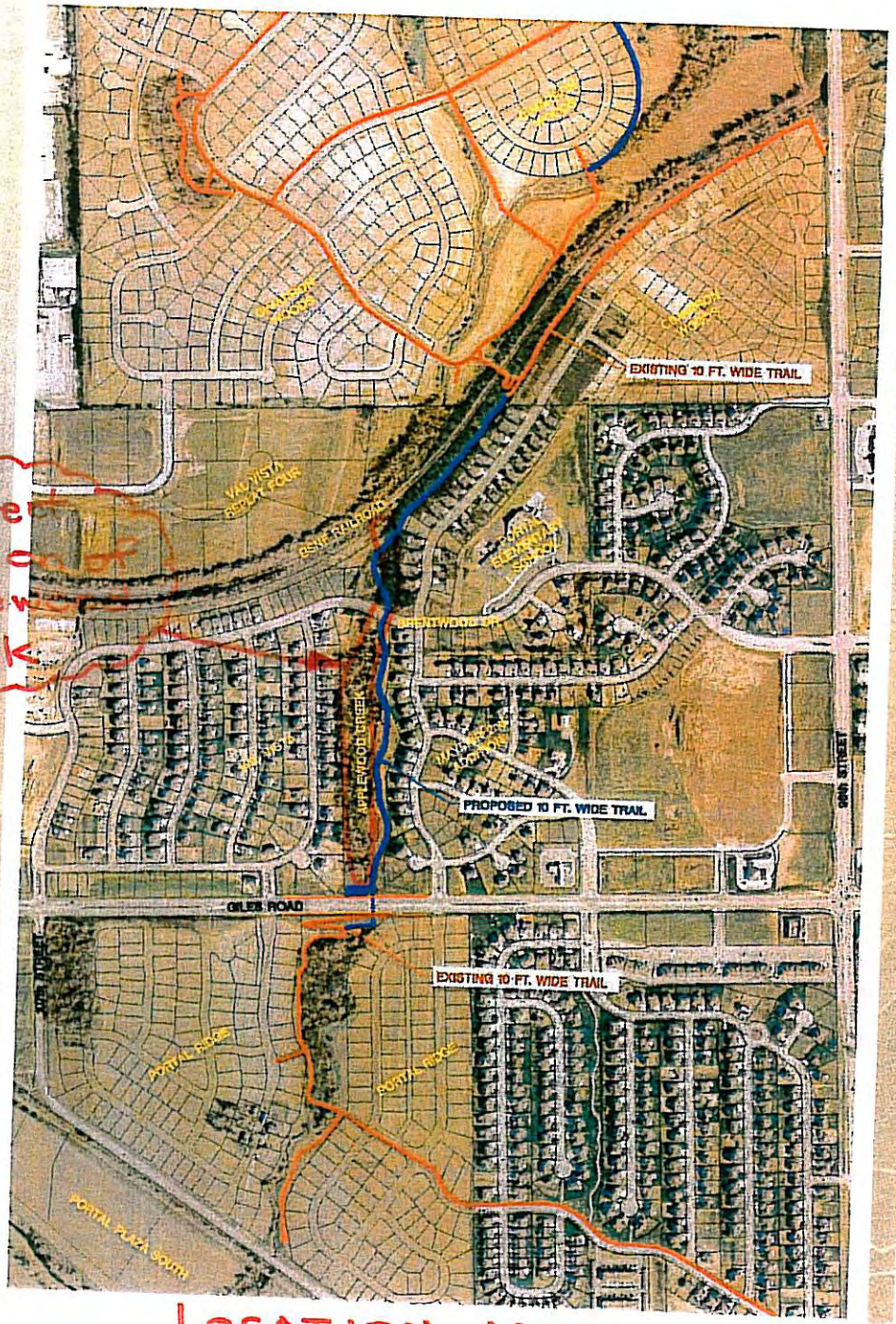
A meeting was held with the Corps of Engineers personnel at the Nebraska Regulatory Field Office in June of 2010. This meeting included John Kottmann from the City of La Vista, Matt Wray, Kathy Iske, and John Moeschun from the Corps. A schematic plan was reviewed which included the scope of work set forth in the cost estimate attached to this application. The Corps personnel indicated that this project could be processed as in individual permit as long as the City committed to using bioengineering practices as opposed to full rip-rap or other hard methods. Some toe armoring was discussed and seemed acceptable. Nationwide Permit No. 13 would be the likely permit selection. This permit allows up to 500 feet of bank involvement unless waived by the Corps District Engineer for longer. Our conceptual plan includes up to 750 feet, but they would go along with the increased footage based on using environmental friendly techniques. They also advised they would require an impacted tree count and would likely require some tree mitigation as part of the permit. Further they specified having a wetlands delineation done prior to submitting for a permit.

Prepared by:

John M. Kottmann, P.E.

City Engineer for the City of La Vista

Portal Greenway Trail System

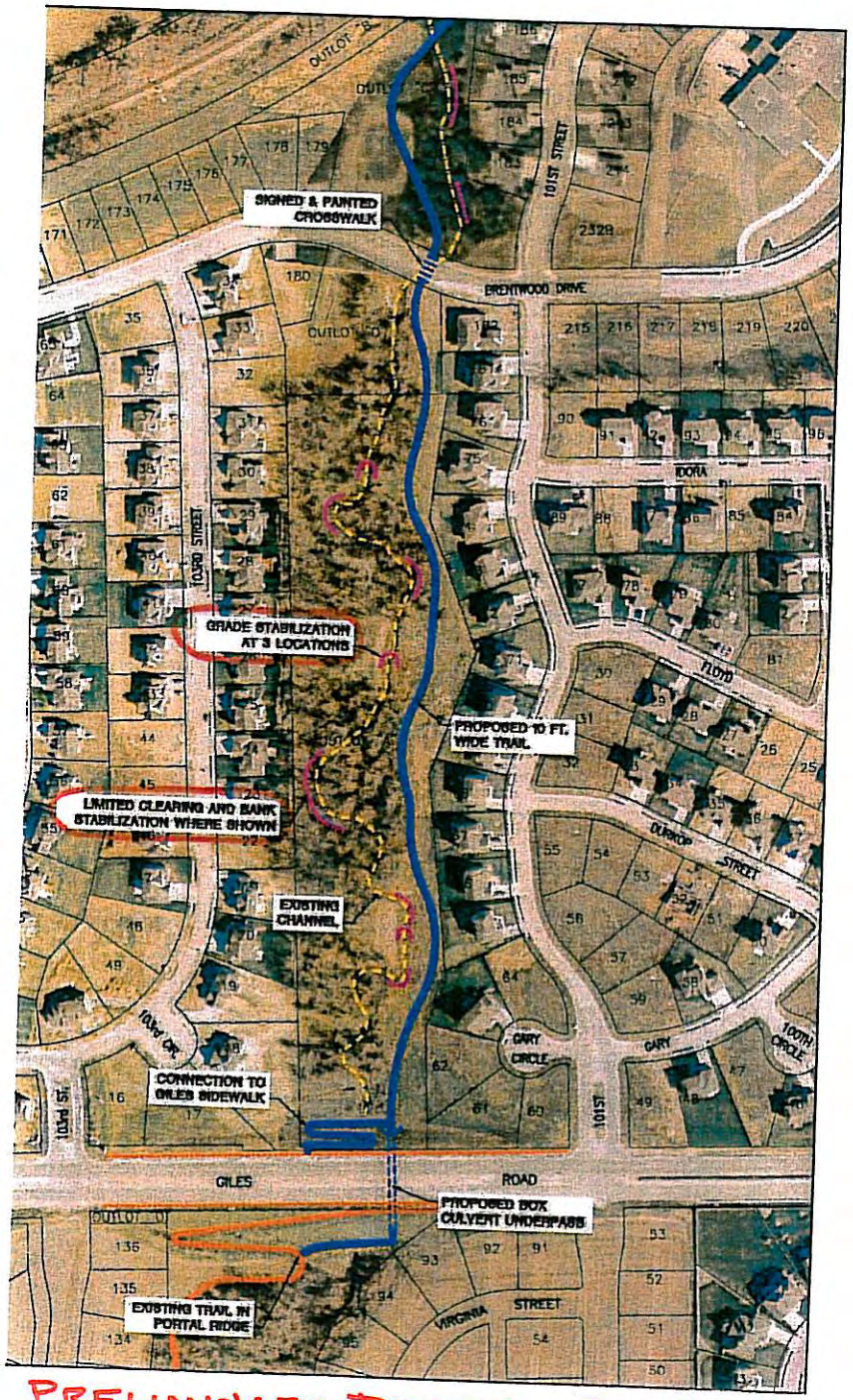


Subject Portion of Applewood Creek

LOCATION MAP

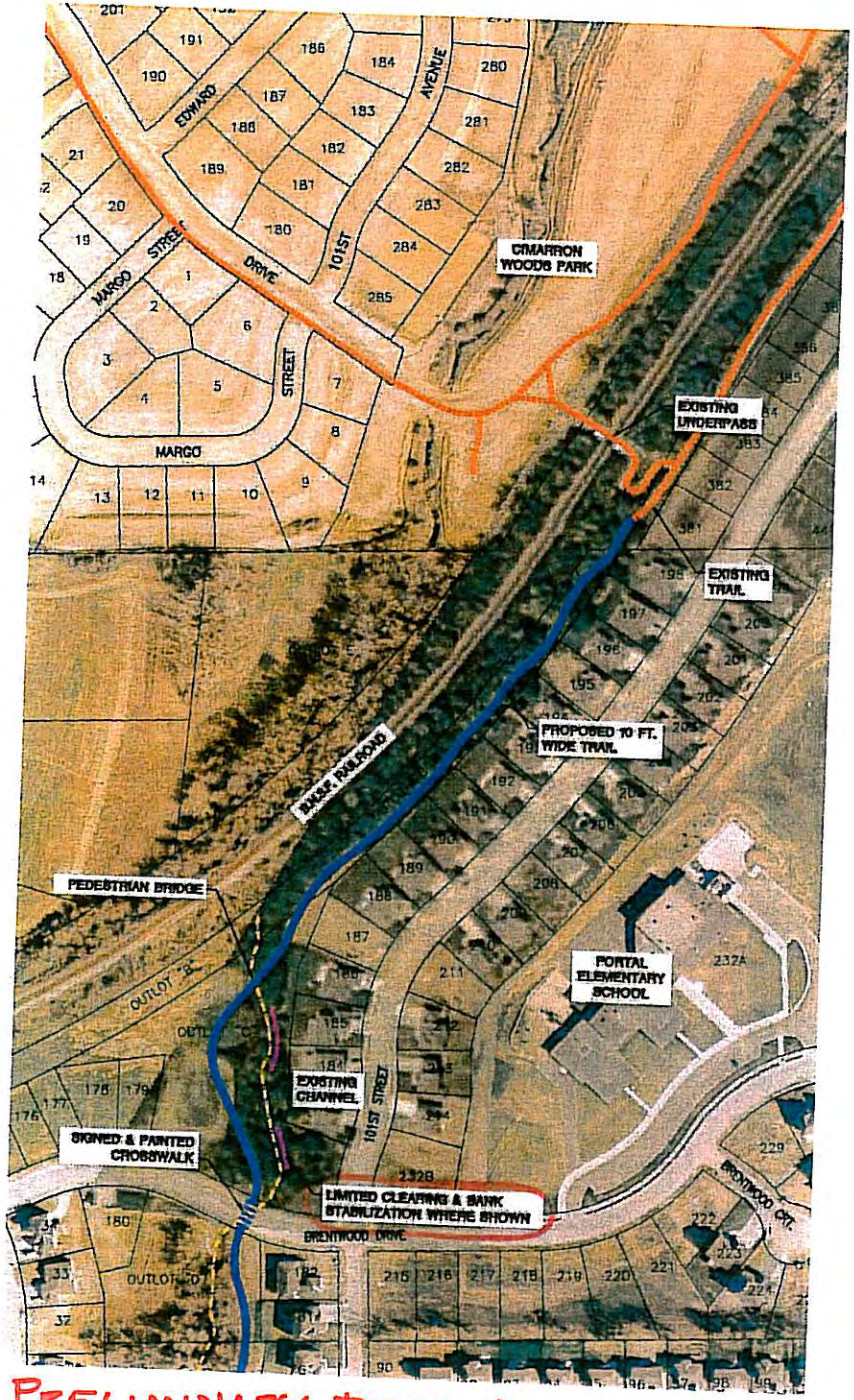
Trail
Giles Rd. to Brentwood Dr.

Proposed Channel Stabilization Activities



PRELIMINARY DESIGN Pg. 1 of 2

Trail Brentwood Dr. to B.N.S.F Underpass



PRELIMINARY DESIGN PG. 2 OF 2

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
www.papionrd.org

URBAN DRAINAGEWAY PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: March 7, 2011

2. PROJECT NAME: Hell Creek Stream Stabilization – Phase 1

3. PROJECT SPONSOR: Douglas County (Engineer's Office)

ADDRESS: 15505 West Maple Road

Omaha, NE 68116

4. CONTACT PERSON: Mr. Daniel Kutilek

TITLE: Engineering Manager

5. TELEPHONE: 402-444-6460

6. E-MAIL: Dan.Kutilek@douglascounty-ne.gov

7. PROJECT LOCATION (attach location map):

Approximately 1050 LF of Hell Creek at the Harrison Street Bridge (near 114th Street) – location map on plans

8. DESCRIPTION OF PROBLEM (attach additional sheets as needed):

See attached narrative

9.PROPOSED SOLUTION (attach additional sheets as needed):

See attached narrative and plans

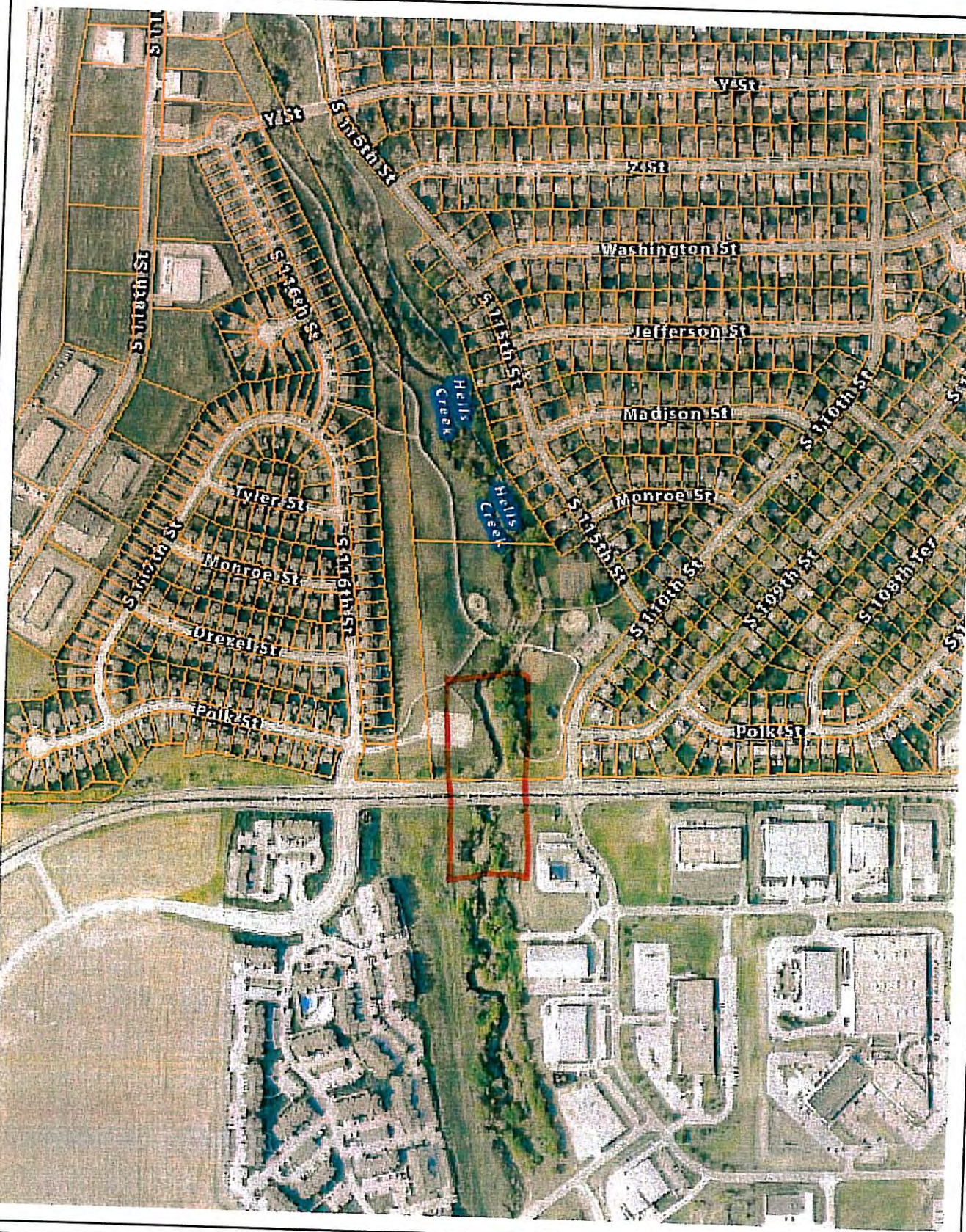
10. PROJECT FUNDING LEVEL: LEVEL 1:_____ LEVEL 2:__X__ LEVEL 3:_____
(Attach justification for funding level selected – see program guidelines)

11. TOTAL ESTIMATED COST: $ 1,477,300.00 (see attached cost estimate)

12. COST SHARE REQUESTED: $ 886,400.00 (60% of total)

13. SIGNATURE/TITLE: Dan Kutilek - Engineering Manager

FORM 17.17



N

Hell Creek Project

Printed: Mar 31, 2011

www.dcgis.org/dogis

Hell Creek Stream Stabilization – Phase I

The Hell Creek Stream Stabilization Project is a stream stabilization project with restorative components on a section of Hell Creek with downstream limits approximately 350 feet south of the Harrison Street roadway bridge centerline (near 114th Street) and upstream limits approximately 700 feet north of the Harrison Street roadway bridge (or 100 feet north of the pedestrian bridge in Brookhaven Park) for a total stream length of approximately 1050 feet.

In 2009, the condition of Hell Creek from its confluence with the West Papillion Creek to Interstate I-80 was studied to assess areas of concern and evaluate stream improvement alternatives and costs. This project addresses Phase I of that study. Lamp, Rynearson and Associates reviewed the data and assessment conducted by WLA and looked at stream geomorphology in more detail as part of the preliminary design. Two other phases were identified; however, these phases are not currently being addressed.

The lead agency is Douglas County with partners that include the City of LaVista and Sarpy County. Additional funding is being sought from the Papio-Missouri River NRD, as part of this Level 2 Urban Drainageway Fund application, as well as from Sanitary and Improvement Districts 294 (Brookhaven) and 435 (Brookhaven West), both of Douglas County, and SID 59 of Sarpy County (Brook Valley Business Park).

Problems associated with the Phase I area of the study include channel flow that has split and is scouring adjacent banks as a result of rip-rap debris that has deposited downstream from the Harrison Street Bridge; evidence of past down cutting of the streambed and instability of channel banks and rip-rap under the Harrison Street bridge; actively sloughing vertical banks over 20' in height on the west side of the stream, upstream from the Harrison Street Bridge, that are within 8 feet of a sanitary sewer siphon structure and within 20 feet of a public parking lot for Brookhaven Park; unstable, 15' high, vertical banks downstream from the pedestrian bridge in Brookhaven Park on the east side of the channel that have undermined a sidewalk adjacent to a baseball field; bank erosion on the upstream side of a recently installed sheet pile abutment for the pedestrian bridge in Brookhaven Park; and high velocity storm sewer discharge from Brookhaven's 77" x 121" horizontal elliptical pipe upstream from the pedestrian bridge in Brookhaven Park. On this particular reach, streambank vegetation is limited along significant stretches due to eroded banks and the buffer to the stream is primarily turf grass that is mowed to the edge of the banks, all of which contribute to a low value riparian corridor ecosystem.

The primary goal of the project is to stabilize the bed and bank in the vicinity of the Harrison Street bridge which includes stabilization immediately upstream and downstream of the bridge. Secondary goals include energy dissipation improvements to the 77" x 121" elliptical storm sewer outlet for Brookhaven, protection of the baseball field and pedestrian bridge, protection of the Brookhaven Park parking lot, reconstruction of a sanitary sewer siphon structure and pipe, and improvements to the riparian corridor ecosystem.

The boundaries of the reach chosen for stabilization are based primarily on the fact that sheet pile drop structures have been constructed at each end of the study area effectively fixing the bed grade. Consideration was given to up and downstream impacts, however, given the goal of protecting the bridge by the lead agency, this length appeared to be the most practical in terms of cost and effectiveness to meet the goals. The stabilization and restorative components will include "softer" bioengineering techniques with consideration for natural channel design.

Because of the physical constraints on this reach, including sheet pile drop structures at both ends of the study reach, a pedestrian bridge in Brookhaven Park and the Harrison Street bridge, and costs associated with altering these features, no changes were made to the meander and the existing channel geometry remains. Similarly, there are constraints that limit the width of the stream and proposed floodplain bench including the ball field on the east side of the creek and the parking lot on the west side of the creek. Protecting the aforementioned infrastructure requires in-stream measures that help stabilize the bed and prevent lateral migration of the stream.

The channel was ultimately designed with a low-flow channel section, floodplain bench where practical, and channel regrading that includes stable side slopes at a 3:1. The bankfull or low-flow channel section is designed with an 18 foot wide channel bottom width which compares favorably to existing conditions and a maximum depth of 5 feet. If a 3:1 slope could not be graded, other stabilization measures were considered in the design including a segmental block retaining wall along the parking lot, a Presto Geoweb or other soil reinforced earth section along the ball field (south of the pedestrian bridge) that will be vegetated for a "softer" look, and a more natural, reinforced earth soil lift section with live staking along the east bank on the north side of the Harrison Street bridge.

Around the outside edge of bends toe rock will be placed along with single rock vanes to prevent toe scour and redirect water towards the center of the channel. Bioengineering features such as live

stakes (willow stakes) and fascines will also be placed along the outside edge of bends to provide protection along the lower to mid height portion of the channel slope. Shrubs will likely be used on the upper portions of the slope and trees will be placed in a native grass buffer at the top of the slope along portions of the creek. Biodegradable erosion control blanket, biodegradable stakes, and biodegradable straw wattles will be used to help provide erosion control until vegetation is established.

The proposed design encourages a riffle-pool structure along the streambed with the construction of drop j-hook structures, single vane structures, and a rock vortex weir at the desired pool-pool ratios that work well with existing channel geometry. At the existing downstream weir structure a low flow channel will be cut into the sheet pile and the upstream weir structure will be modified to direct the water into a defined plunge pool area in the center of the channel. Rock sills are included in the design as a stop-gap measure to help prevent head cutting. These stream features help with stabilization but also create a more natural stream and with increased aquatic habitat function.

The proposed project includes the reconstruction of the sanitary sewer siphon structure that serves Brookhaven West, the replacement or reconstruction of several smaller diameter storm sewer discharge pipes that will be lowered and re-oriented towards the direction of flow, and the reconstruction of the large diameter storm sewer discharge pipe for Brookhaven to help improve energy dissipation.

Construction is expected to begin in August, 2011 with grading, sanitary and storm sewer improvements, reinforced earth sections, and in-stream structures to be completed by November 2011. Bioengineering, including seeding and permanent stabilization and project closeout are expected to be completed by June, 2012.

ORDER OF MAGNITUDE COST ESTIMATE

Proposed Improvement	Construction Cost	Total Cost
HELL CREEK STABILIZATION - PHASE 1		
Harrison Street Bridge Stream Stabilization	$443,200.00	$562,900.00
Storm Outlet/Pedestrian Bridge Stream Stabilization	$377,100.00	$478,900.00
Parking Lot Stream Stabilization	$197,000.00	$250,100.00
Siphon Reconstruction	$118,800.00	$150,800.00
WLA Stream Study	$0.00	$34,600.00
Total	$1,136,100.00	$1,477,300.00
Total Estimated Reimbursable Thru P-MRNRD Urban Drainageway Fund (60%)		$886,380.00
Total Estimated Cost to Remaining Contributors (40%)		$590,920.00

Note: Esimate Assumes the Project is Eligible For 60% Reimbursement from the P-MRNRD

Harrison Street Bridge Stream Stabilization

Assumptions/Comments:

	Bid Item Description	Approximate Quantity	Unit	Unit Price	Total
1.	CLEARING AND GRUBBING GENERAL	1	LS	$35,000.00	$35,000.00
2.	STRIP, STOCKPILE, AND RESPREAD TOPSOIL (1330 CY x 2)	2,660	CY	$1.50	$3,990.00
3.	EARTHWORK (EXCAVATION)	2,230	CY	$5.00	$11,150.00
4.	EARTHWORK (HAUL-OFF)	1,520	CY	$10.00	$15,200.00
5.	REMOVE 21" TO 24" SEWER PIPE	60	LF	$10.00	$600.00
6.	REMOVE TYPE II AREA INLET	1	EA	$600.00	$600.00
7.	REMOVE OLD TIMBER PILES (UPPER 5 FEET)	13	EA	$400.00	$5,200.00
8.	REMOVE ROCK RIP RAP	240	TN	$12.00	$2,880.00
9.	LOWER 4" MUD GAS LINE	1	LS	$35,000.00	$35,000.00
10.	CUT EXISTING SHEET PILE (WEIR - SOUTH OF HARRISON)	1	LS	$1,500.00	$1,500.00
11.	BRIDGE DRAIN CONNECTIONS	1	LS	$5,000.00	$5,000.00
12.	CONSTRUCT 18" R.C.P., CLASS III AND PIPE BEDDING	145	LF	$40.00	$5,800.00
13.	CONSTRUCT 24" R.C.P., CLASS III AND PIPE BEDDING	60	LF	$45.00	$2,700.00
14.	CONSTRUCT 54" I.D. FLATTOP MANHOLE	6	VF	$400.00	$2,400.00
15.	CONSTRUCT 54" I.D. TYPE II AREA INLET	6	VF	$400.00	$2,400.00
16.	CONSTRUCT TIMBER PIPE SUPPORT (15" - 48")	3	EA	$3,500.00	$10,500.00
17.	STABILIZATION TRENCH W/ CRUSHED LIMESTONE	30	TN	$30.00	$900.00
18.	CONSTRUCT ROCK RIP-RAP - TYPE "A"	500	TN	$35.00	$17,500.00
19.	CONSTRUCT ROCK RIP-RAP - TYPE "C"	1,875	TN	$35.00	$65,625.00
20.	CONSTRUCT ROCK SINGLE VANE	3	EA	$3,500.00	$10,500.00
21.	CONSTRUCT ROCK VORTEX WEIR	1	EA	$10,000.00	$10,000.00
22.	CONSTRUCT ROCK SILL	40	LF	$40.00	$1,600.00
23.	CONSTRUCT SOIL LIFT STABILIZATION	1,300	SF	$30.00	$39,000.00
24.	EROSION CONTROL MATTING	2,250	SY	$2.75	$6,187.50
25.	COIR MATTING	1,175	SY	$6.00	$7,050.00
26.	HAY OR STRAW MULCH	4	AC	$400.00	$1,600.00
27.	CONSTRUCT ROCK ACCESS ROAD	200	TN	$20.00	$4,000.00
28.	SEEDING - TYPE "NATIVE GRASS MIXTURE"	0.7	AC	$2,500.00	$1,750.00
29.	SEEDING - TYPE "DRAINAGEWAYS"	1.6	AC	$2,500.00	$4,000.00
30.	SEEDING - TYPE "NON -IRRIGATED LAWN AND TURF SEED"	2.3	AC	$1,500.00	$3,450.00
31.	CONSTRUCT ROLLED WATTLE	1,710	LF	$2.50	$4,275.00
32.	CONSTRUCT SILT FENCE	850	LF	$2.50	$2,125.00
33.	CLEANOUT SILT FENCE	850	LF	$1.00	$850.00
34.	REMOVE ROLLED WATTLES	1	LS	$850.00	$850.00
35.	BAREROOT TREES AND SHRUBS	1	LS	$25,000.00	$25,000.00
36.	LIVE STAKES	400	EA	$50.00	$20,000.00
37.	LIVE FASCINES	105	LF	$30.00	$3,150.00
	CONTINGENCY	20	%		$73,866.50

Estimated Construction Costs: $443,199.00

Estimated Soft Costs

Engineering Design and Geotechnical and Testing:	$110,799.75
	$8,863.98
Total Estimated Soft Costs:	$119,663.73
Total Estimated Costs:	$562,862.73

Storm Outlet/Pedestrian Bridge Stream Stabilization

Assumptions/Comments:

Assumes 77" x 121" Elliptical Pipe Cannot Reused and a 96" Equivalent Round Section Will Be Used With a New Headwall

	Bid Item Description	Approximate Quantity	Unit	Unit Price	Total
1 .	CLEARING AND GRUBBING GENERAL	1	LS	$15,000.00	$15,000.00
2 .	STRIP, STOCKPILE, AND RESPREAD TOPSOIL (125 CY x 2)	250	CY	$1.50	$375.00
3 .	EARTHWORK (EXCAVATION)	460	CY	$5.00	$2,300.00
4 .	EARTHWORK (HAUL-OFF)	100	CY	$10.00	$1,000.00
5 .	REMOVE SIDEWALK	2,450	SF	$3.00	$7,350.00
6 .	REMOVE FENCE	260	LF	$3.00	$780.00
7 .	REMOVE 15" TO 18" SEWER PIPE	60	LF	$8.00	$480.00
8 .	REMOVE ROCK RIP RAP	130	TN	$12.00	$1,560.00
9 .	CUT EXISTING SHEET PILE (WEIR - NORTH OF HARRISON)	1	LS	$1,000.00	$1,000.00
10 .	CONSTRUCT 15" R.C.P., CLASS III AND PIPE BEDDING	40	LF	$35.00	$1,400.00
11 .	CONSTRUCT TIMBER PIPE SUPPORT (12" - 48")	1	EA	$3,500.00	$3,500.00
12 .	CONSTRUCT SHEET PILE WALL	1,900	SF	$25.00	$47,500.00
13 .	REMOVE 77" X 121" ELIPTICAL PIPE	65	LF	$100.00	$6,500.00
14 .	REMOVE HEADWALL STRUCTURE	1	LS	$8,000.00	$8,000.00
15 .	CONSTRUCT 8' X 12' JUNCTION BOX	1	LS	$20,000.00	$20,000.00
16 .	CONSTRUCT 96" R.C.P., D(0.01) = 1,350 WITH PIPE COUPLERS	65	LF	$1,000.00	$65,000.00
17 .	CONSTRUCT HEADWALL STRUCTURE	1	LS	$20,000.00	$20,000.00
18 .	STABILIZATION TRENCH W/ CRUSHED LIMESTONE	100	TN	$30.00	$3,000.00
19 .	CONSTRUCT 6" CONCRETE SIDEWALK	2,500	SF	$4.00	$10,000.00
20 .	SUBGRADE PREPARATION	2,500	SF	$1.00	$2,500.00
21 .	CONSTRUCT GEOWEB EARTH RETAINING SYSTEM	600	SF	$36.00	$21,600.00
22 .	CONSTRUCT ROCK RIP-RAP - TYPE "C"	900	TN	$35.00	$31,500.00
23 .	CONSTRUCT ROCK J-HOOK VANE	1	EA	$4,500.00	$4,500.00
24 .	CONSTRUCT ROCK SILL	90	LF	$40.00	$3,600.00
25 .	EROSION CONTROL MATTING	1,200	SY	$2.75	$3,300.00
26 .	COIR MATTING	700	SY	$6.00	$4,200.00
27 .	HAY OR STRAW MULCH	0.4	AC	$400.00	$160.00
28 .	SEEDING - TYPE "NATIVE GRASS MIXTURE"	0.3	AC	$2,500.00	$750.00
29 .	SEEDING - TYPE "DRAINAGEWAYS"	0.2	AC	$2,500.00	$500.00
30 .	SEEDING - TYPE "NON -IRRIGATED LAWN AND TURF SEED"	0.1	AC	$1,500.00	$150.00
31 .	CONSTRUCT ROLLED WATTLE	600	LF	$2.50	$1,500.00
32 .	CONSTRUCT SILT FENCE	300	LF	$2.50	$750.00
33 .	CLEANOUT SILT FENCE	300	LF	$1.00	$300.00
34 .	REMOVE ROLLED WATTLES AND SILT FENCE	1	LS	$800.00	$800.00
35 .	CONSTRUCT WOODEN RAIL FENCE	210	LF	$20.00	$4,200.00
36 .	BAREROOT TREES AND SHRUBS	1	LS	$10,000.00	$10,000.00
37 .	LIVE STAKES	145	EA	$50.00	$7,250.00
38 .	LIVE FASCINES	65	LF	$30.00	$1,950.00
	CONTINGENCY	20	%		$62,851.00

Estimated Construction Costs: $377,106.00

Estimated Soft Costs

Engineering Design and	$94,276.50
Geotechnical and Testing:	$7,542.12
Total Estimated Soft Costs:	$101,818.62
Total Estimated Costs:	$478,924.62

Parking Lot Stream Stabilization

Assumptions/Comments:

Includes replacement of 12" storm sewer and outlet adjacent to the siphon structure

	Bid Item Description	Approximate Quantity	Unit	Unit Price	Total
1.	STRIP, STOCKPILE, AND RESPREAD TOPSOIL (100 CY x 2)	200	CY	$1.50	$300.00
2.	EARTHWORK (EXCAVATION)	310	CY	$5.00	$1,550.00
3.	EARTHWORK (HAUL-OFF)	2,780	CY	$10.00	$27,800.00
4.	REMOVE SIDEWALK	560	SF	$3.00	$1,680.00
5.	REMOVE 12" OR SMALLER SEWER PIPE	120	LF	$6.00	$720.00
6.	REMOVE ROCK RIP RAP	130	TN	$12.00	$1,560.00
7.	CONSTRUCT 12" R.C.P., CLASS III AND PIPE BEDDING	150	LF	$30.00	$4,500.00
8.	CONSTRUCT TIMBER PIPE SUPPORT (12" - 48")	1	EA	$3,500.00	$3,500.00
9.	STABILIZATION TRENCH W/ CRUSHED LIMESTONE	10	TN	$30.00	$300.00
10.	CONSTRUCT 6" CONCRETE SIDEWALK	560	SF	$4.00	$2,240.00
11.	SUBGRADE PREPARATION	560	SF	$1.00	$560.00
12.	CONSTRUCT RETAINING WALL	2,000	SF	$32.00	$64,000.00
13.	STAIN AND SEAL RETAINING WALL FACE	1,800	SF	$6.00	$10,800.00
14.	CONSTRUCT ROCK RIP-RAP - TYPE "C"	225	TN	$35.00	$7,875.00
15.	CONSTRUCT ROCK J-HOOK VANE	1	EA	$4,500.00	$4,500.00
16.	CONSTRUCT ROCK SILL	70	LF	$40.00	$2,800.00
17.	EROSION CONTROL MATTING	850	SY	$2.75	$2,337.50
18.	COIR MATTING	425	SY	$6.00	$2,550.00
19.	HAY OR STRAW MULCH	0.4	AC	$400.00	$160.00
20.	SEEDING - TYPE "NATIVE GRASS MIXTURE"	0.5	AC	$2,500.00	$1,250.00
21.	SEEDING - TYPE "DRAINAGEWAYS"	0.1	AC	$2,500.00	$250.00
22.	SEEDING - TYPE "NON -IRRIGATED LAWN AND TURF SEED"	0.4	AC	$1,500.00	$600.00
23.	CURB INLET PROTECTION	1	EA	$400.00	$400.00
24.	CONSTRUCT ROLLED WATTLE	500	LF	$2.50	$1,250.00
25.	CONSTRUCT SILT FENCE	300	LF	$2.50	$750.00
26.	CLEANOUT SILT FENCE	300	LF	$1.00	$300.00
27.	REMOVE ROLLED WATTLES AND SILT FENCE	1	LS	$450.00	$450.00
28.	CONSTRUCT WOODEN RAIL FENCE	240	LF	$20.00	$4,800.00
29.	LIVE STAKES	245	EA	$50.00	$12,250.00
30.	LIVE FASCINES	70	LF	$30.00	$2,100.00
	CONTINGENCY	20	%		$32,826.50

Estimated Construction Costs: $196,959.00

Estimated Soft Costs

Engineering Design and Geotechnical and Testing:	$49,239.75
	$3,939.18
Total Estimated Soft Costs:	$53,178.93
Total Estimated Costs:	$250,137.93

Siphon Reconstruction

Assumptions/Comments:

	Bid Item Description	Approximate Quantity	Unit	Unit Price	Total
1.	STRIP, STOCKPILE, AND RESPREAD TOPSOIL (45 CY x 2)	90	CY	$1.50	$135.00
2.	REMOVE 12" OR SMALLER SEWER PIPE	400	LF	$20.00	$8,000.00
3.	REMOVE SIPHON INLET STRUCTURE	1	EA	$10,000.00	$10,000.00
4.	CONSTRUCT 6" D.I.P.	200	LF	$70.00	$14,000.00
5.	CONSTRUCT 8" D.I.P.	200	LF	$80.00	$16,000.00
6.	CONSTRUCT SIPHON INLET STRUCTURE	1	EA	$30,000.00	$30,000.00
7.	CONNECT TO SIPHON OUTLET STRUCTURE	1	LS	$18,000.00	$18,000.00
8.	EROSION CONTROL MATTING	200	SY	$2.75	$550.00
9.	COIR MATTING	100	SY	$6.00	$600.00
10.	HAY OR STRAW MULCH	0.2	AC	$400.00	$80.00
11.	SEEDING - TYPE "NATIVE GRASS MIXTURE"	0.1	AC	$2,500.00	$250.00
12.	SEEDING - TYPE "DRAINAGEWAYS"	0.1	AC	$2,500.00	$250.00
13.	SEEDING - TYPE "NON -IRRIGATED LAWN AND TURF SEED"	0.2	AC	$1,500.00	$300.00
14.	CONSTRUCT ROLLED WATTLE	90	LF	$2.50	$225.00
15.	CONSTRUCT SILT FENCE	50	LF	$2.50	$125.00
16.	CLEANOUT SILT FENCE	50	LF	$1.00	$50.00
17.	REMOVE ROLLED WATTLES AND SILT FENCE	1	LS	$400.00	$400.00
	CONTINGENCY	20	%		$19,793.00

Estimated Construction Costs: $118,758.00

Estimated Soft Costs

Engineering Design and	$29,689.50
Geotechnical and Testing:	$2,375.16
Total Estimated Soft Costs:	$32,064.66
Total Estimated Costs:	$150,822.66

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
www.papionrd.org

URBAN DRAINAGEWAY PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: March 18, 2011

2. PROJECT NAME: Saddle Creek (55th to 64th St) Green Solutions

3. PROJECT SPONSOR: City of Omaha, Public Works Department

ADDRESS: 1819 Farnam Street, Suite 600

Omaha, NE 68183

4. CONTACT PERSON: Jim Theiler

TITLE: Civil Engineer III

5. TELEPHONE: 402.444.4923

6. E-MAIL: jtheiler@ci.omaha.ne.us

7. PROJECT LOCATION (attach location map):
Generally running east to west, starting at a location south of 54th and Center Streets and terminating at the Little Papillion Creek west of 64th Avenue. [see Attachment 1]

8. DESCRIPTION OF PROBLEM (attach additional sheets as needed): Overview: Historically, run-off from rain events and snow melt in the form of a once naturally functioning creek was physically directed into the combined sewers that collects both sanitary wastes from residential and commercial locations and stormwater runoff in the sub-watershed, impacting the water quality of the downstream creeks and contributing to the non-attainment status on the NDEQ's 303(d) list of impaired water bodies. That stormwater continues to flow into the combined system today with deleterious effects. During significant rain events, the amount of combined flow in the lines exceeds the downstream capacity of the wastewater treatment system and the system discharges untreated wastes into the Little Papillion Creek. Under extreme conditions, the combined flows exceed the capacity of the collection system and flood waters travel above ground inundating the streets and surrounding properties. The most significant flooding occurs upstream of this project, but the stormwater contribution at the project site decreases the available capacity to manage the upstream contributions. [see Attachment 2]

9. PROPOSED SOLUTION (attach additional sheets as needed): Overview: A holistic approach utilizing bioengineering methods, as possible, is proposed to reduce the combined sewage overflows, improve water quality, and reduce flooding. The proposed solution involves disconnecting the historic/perennial stream flowing through the West Lawn Cemetery property from the combined trunk sewer running down Center Street and creating a combination of offline stormwater detention wetlands and new open channel for the flows to be conveyed directly to the Little Papillion Creek. The open channel will be constructed with a stable gradient and will not promote stream bed and bank erosion. The banks and high flow channel will be vegetated to assist in maintaining the geomorphic characteristics designed to manage the flows in a natural manner. To prevent erosion in the Little Papillion Creek, a structural connection is proposed to help dissipate the energy possible from a major storm. The open channel will be supplemented and protected by two offline wetland detention cells that provide attenuation of large surges in flow typical of summer rain storms. The cells will be vegetated with native wetland species to assisting in sediment and nutrient removal prior to discharge to the open channel. All wetlands created in the project, in excess of City needs, could be added to the NRD's Wetlands Bank. [see Attachment 3]

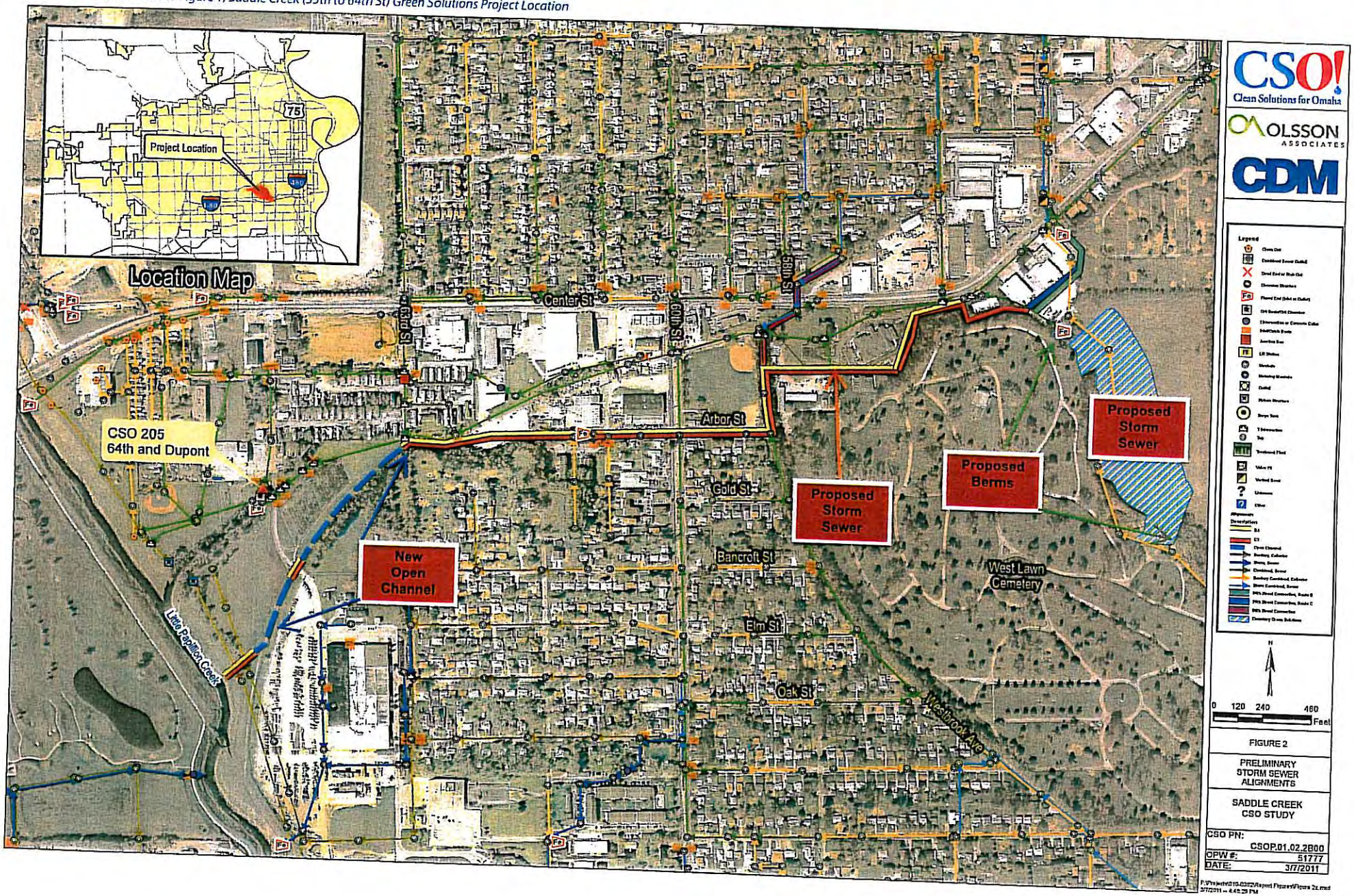
10. PROJECT FUNDING LEVEL: LEVEL 1:_____ LEVEL 2:___X___ LEVEL 3:_____
(Attach justification for funding level selected – see program guidelines)

11. TOTAL ESTIMATED COST: $ 1,352,300 open channel construction

12. COST SHARE REQUESTED: $ 811,380 over 3 years
[60% of open channel construction]

13. SIGNATURE/TITLE:
FORM 17.17

Attachment 1: Figure 1, Saddle Creek (55th to 64th St) Green Solutions Project Location



Attachment 2: Description of Problem

As development occurred in the Saddle Creek watershed, the stormwater run-off originally conveyed by creeks was diverted into sewers in an effort to control the flow and protect property from flooding and channel erosion. The unnamed tributary of Saddle Creek that originates in e section of the West Lawn Cemetery (5701 Center Street) was diverted into the combined trunk sewer aligned with Center Street. Peak flow rates as high as 140 cubic feet per second were recorded in the year 2007 by a flow meter in the 7'x7' box culvert that currently conveys the unnamed tributary flow into the combined trunk sewer. The run-off from rains as small as one-inch, amounts to 680,000 gallons of water, which contributes to the potential for overflows at the combined sewer overflow (CSO) 205 diversion located at 64th Avenue and Dupont Streets (Figure 4) of untreated wastewater and to flooding within the confines of the watershed. Although the most frequent location (Figure 5) for overland flooding is upstream of the creek connection, the unnamed tributary's contribution at the downstream section of the trunk sewer does limit the capacity of the line to handle larger storms.

Figure 2: Unnamed Tributary to Saddle Creek on West Lawn Cemetery Property

Figure 3: Unnamed Tributary Entering 7'x7' Box Culvert to Saddle Creek Trunk Sewer.

The Project will remove this tributary flow from the Saddle Creek trunk sewer and create a new stormwater only detention cell (upstream and to the left of this location), pipe (downstream of this location), and open channel system (near Little Papillion Creek).

Figure 4: 64th and Dupont (CSO 205) Diversion Overflow

Looking upstream into Saddle Creek trunk sewer: Low flows go to the left into the Little Papio Interceptor. High flows crest the weirs shown and flow directly to the Little Papillion Creek. The Project will reduce the amount of combined sewage and storm flow reaching this diversion. Instead, the storm flow will be conveyed to the Little Papillion Creek directly via a new stormwater only detention cell, pipe, and open channel system.

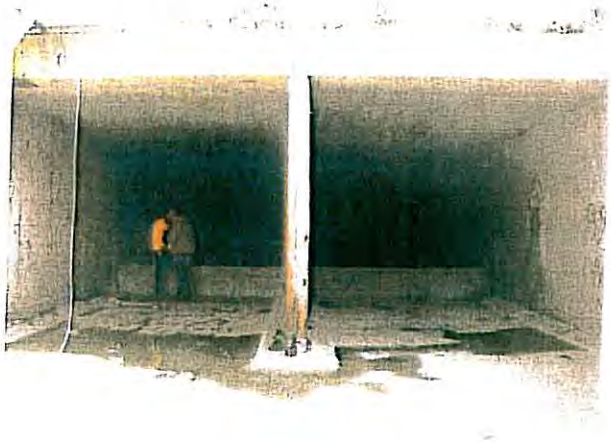


Figure 5: Historic Flooding on Saddle Creek Road (Upstream of the Project Location)

L to R: Saddle Creek (SC) Road at Dodge Street, Looking south from Dodge Street at SC Road, 50th and SC Road.

The SC Green Solutions Project will remove stormwater from the SC trunk sewer, creating additional pipe capacity. This project is part of a larger, long term process that the City is working on to help reduce flooding upstream at the locations shown below.

Photo credits: Left two: omahatornadochaser.blogspot.com (June 27, 2008). Right: Omaha World Herald (June 2, 2010)

Natural Solution

The solution proposed includes creating an open channel to convey the water from the creek and any additional storm flow directly to the Little Papillion Creek, reducing contributions to the combined sewer and therefore increasing capacity within the existing combined sewer. The solution consists of two major components: detention basins to moderate the intensity of the flows and to provide water quality improvement and an open channel to convey the flows to the Little Papillion Creek. The details are as follows:

West Lawn Cemetery Detention Basins

The proposed detention along the unnamed tributary through West Lawn Cemetery would provide dry detention with shallow wetlands to enhance stormwater quality. The cemetery property just east of the creek, which is not actively being used by the cemetery, would be used to create the open area for dry detention while also creating a shallow water feature and improving water quality. The project team has coordinated with the cemetery staff throughout the project development, and the cemetery staff support the project. Two berms across the channel are proposed to maximize the volume of water that could be detained.

To provide increased water quality improvements, the recommended concept in the cemetery will include off-channel, shallow wetlands within the dry detention area (Figure 6). These wetlands will be excavated lower than the dry detention and planted with appropriate native hydrophilic plants. While water might not stay in these wetlands continuously, the intent is for the wetlands to retain water as long as possible and treat frequent stormwater runoff events (net runoff of ½ inch or less) as they pass through the dry detention basins.

Each berm will be designed to allow the tributary's dry weather flow to travel through the berm via a pipe, as well as storm flows up to a 10-yr event. A standpipe outlet structure is proposed at each berm to manage storm events up to the 100-year, 24-hour storm without overtopping of the berm in accordance with the requirements outlined in the Omaha Regional Stormwater Design Manual. Flows to the tributary were modeled as part of the hydrologic analysis work completed for the preliminary design using HEC-HMS. Permitting by the United States Army Corps of Engineers (USACE) is anticipated to be required for this green solution. The berm design is also being reviewed with respect to Dam Safety guidelines. Therefore, additional flood risks or damages downstream or the detention basins are not anticipated.

Open Channel Conveyance

The newly constructed open channel, as proposed in the preliminary design, begins at approximately 63rd Street (extended from the Arbor Street right of way) 1,180 feet downstream to just east of the Little Papillion Creek. This channel is designed to convey the flows from the unnamed tributary originating in the West Lawn Cemetery along with additional storm flows collected along the way. The open channel was modeled as part of the hydraulic analysis work completed for the preliminary design using HEC-RAS in conjunction with the XP-SWMM model for the proposed storm sewer pipe. The open channel design will provide opportunities for native vegetative cover on the stream banks and the high water channel which will allow for percolation of some of the flows and at the same time provide sediment removal. The vegetation will also provide habitat for various indigenous animal species.

LEVEL OF DESIGN JUSTIFICATION

The preliminary design of this project is environmentally sustainable because of the tremendous improvement in habitat quantity, quality, and diversity that will be accomplished through the use of bio-engineering techniques. The project has no potential to cause harm to the environment and will result in a substantial gain for the environment because it will create approximately 1,180 LF of new benthic and riparian habitat and approximately 1.2 acres of proposed wetland habitat in the form of wet retention cells. The project will:

- Habitat: Restore native habitats by reducing the amount of buried pipe with an open channel conveyance lined with native grasses, thereby enhancing habitat in the community by providing food and shelter for wildlife.
- Surface and Ground Water: The open channel design, detention cells, and offline wetlands will provide for increased infiltration to ground water and sediment and nutrient removal not available with the current hard piped conveyance.
- Soil Management: The detention cells and the vegetative open channel design will decrease the amount of water-borne sediment reaching the Little Papillion Creek.

Based on the revised 17.17 guidelines, we believe the project would achieve at least Level 2 Rehabilitation and would approach Level 1 Restoration on the open channel construction, limited only by confined width in some portions of the reach and without knowing where the original channel existed.

PROPOSED SCHEDULE: The following schedule is based on available funding:

District FY2011	Detailed Design (starting April 2011)
District FY2012-3	Construction and initial permit monitoring (may be accelerated to FY2011-12 pending availability of City funding)
District FY2013 and beyond	USACE 404 Permit monitoring

OTHER FUNDING: Contributors to the project include the City of Omaha Public Works Department.

COST ESTIMATE: The following cost estimate was based on a 30 percent design by Olsson and Associates for the open channel portion of the project.

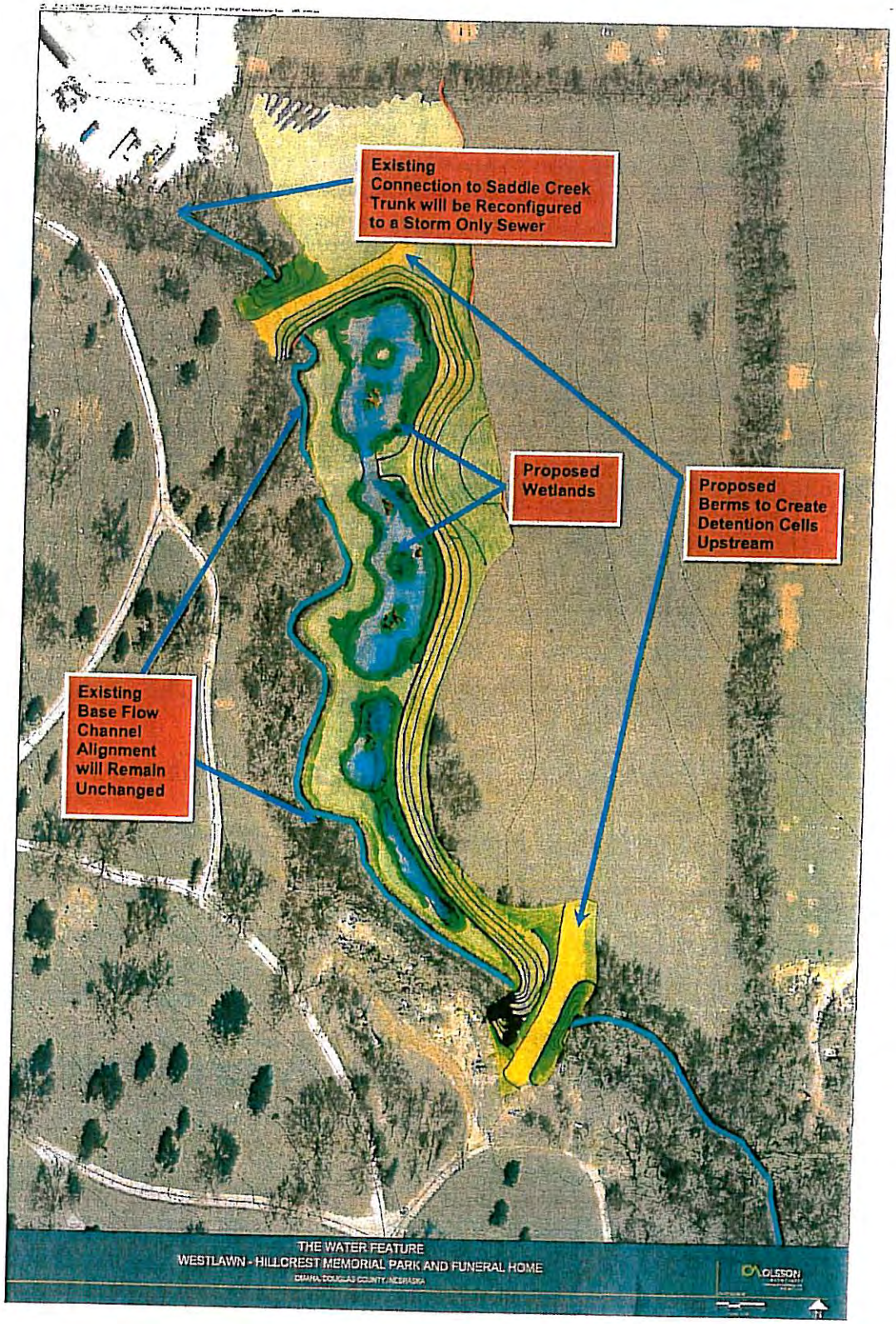
Downstream Open Channel

Description	Unit	QTY	Unit Price	Total
Mobilization	LS	1	$0.00	$0.00
Clearing & Grubbing	LS	1	$10,000.00	$10,000.00
Excavation/Haul Off	CY	66,500	$7.00	$465,500.00
Excavation/Compact of 8'x10' culvert	LF	105	$247.00	$25,935.00
Concrete Box Culvert (8'x10')	LF	105	$770.00	$80,850.00
Excavation/Compact of Double 4'x10' culvert	LF	175	$500.00	$87,500.00
Concrete Box Culvert (Double 4'x10')	LF	350	$700.00	$245,000.00
Bypass Pumping	LS	1	$50,000.00	$50,000.00
Concrete Outlet Headwall	CY	90	$400.00	$36,000.00
Concrete Box Culvert Headwall	CY	30	$400.00	$12,000.00
Concrete Drop Structure	LS	1	$75,000.00	$75,000.00
MUD Drive Replacement (8" Conc)	SY	270	$45.00	$12,150.00
Bank Stabilization (RipRap)	TON	3,000	$35.00	$105,000.00
Energy Dissipation	EA	2	$12,000.00	$24,000.00
Tree Mitigation (50% of Mit. Total)	EA	66	$350.00	$23,100.00
Understory (25% of Mit. Total)	EA	33	$250.00	$8,167.50
Shrubs (25% of Mit. Total) x 3	EA	99	$50.00	$4,950.00
Seeding w/ Mat-pinned	AC	0.3	$7,550.00	$2,265.00
Seeding	AC	4.6	$1,500.00	$6,900.00
Toe Stabilization	LF	2,600	$30.00	$78,000.00
			TOTAL	$1,352,317.50

AVAILABLE SUPPORTING DOCUMENTATION: Additional documentation related to this project is available electronically upon request.

- *Saddle Creek Basin Green Solutions TM*, 85 pages (December 19, 2008)
- *Saddle Creek Sewer Separation Project* 30 percent design (January 11, 2011)
  - Basis of Design Report (2-inch binder for overall sewer separation project including 2 page section addressing this project as a "Green Solution"),
  - Drawings (27 sheets total, including plans and profiles of the proposed stormwater pipe, open channel, and wetlands), and
  - Opinion of Probable Cost

Figure 6: Conceptual Design of West Lawn Cemetery Detention Cells and Wetlands



PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
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URBAN DRAINAGEWAY PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. **DATE:** March 18, 2011

2. **PROJECT NAME** Rockbrook Tributary Rehabilitation

3. **PROJECT SPONSOR:** City of Omaha, Public Works Department

   ADDRESS: 1819 Farnam Street

   Suite 600

   Omaha, NE 68183

4. **CONTACT PERSON:** Kirk Pfeffer

   TITLE: Design Engineer

5. **TELEPHONE:** 402.444.4911

6. **E-MAIL** kpfeffer@ci.omaha.ne.us

7. PROJECT LOCATION (attach location map):
The project is located in the City of Omaha, Douglas County on an unnamed tributary of Rockbrook Creek. The specific reach starts 280 feet (ft) upstream of Frederick Street between Westwood Lane and 115th Avenue and extends approximately 1,100 linear feet (LF) downstream (northeast) to the upstream side of a box culvert near the extension of Elm Street. [see Attachment 1]

8. DESCRIPTION OF PROBLEM (attach additional sheets as needed):
Overview: The existing conditions of the channel are severely degraded from both an environmental and stability standpoint. The channel is currently covered by a 5-inch thick concrete liner with wire mesh reinforcement. The concrete liner is cracked and broken throughout the project reach with significant voids formed under the liner caused by erosion. The erosion is also threatening the structural stability of the culvert crossing at Frederick Street and may encroach upon abutting private property. [see Attachment 2]

9.PROPOSED SOLUTION (attach additional sheets as needed):
Overview: The major focus of the solution is removal of the existing concrete liner to provide more natural stream bed and bank conditions. The project conceptual design completed by the City followed nationally recognized methodology and as developed after thorough analysis of existing information, as well as data collected in the field, and engineering, hydrologic, and hydraulic analyses. While the channel's condition will be greatly improved simply by removing the existing concrete liner, this project will also provide significant and sustainable lift in aquatic habitat quantity, quality, and diversity through design features that enhance the benthic and riparian environments. Small, offline wetlands may be included within Prairie Lane Park, upstream of Frederick Street. All wetlands created in excess of the City's needs by the project could be added to the NRD's Wetlands Bank. [see Attachment 3]

10. **PROJECT FUNDING LEVEL:** LEVEL 1:____ LEVEL 2: X LEVEL 3:____
(Attach justification for funding level selected – see program guidelines)

11. **TOTAL ESTIMATED COST:** $ 1,188,800 Design and Construction

12. **COST SHARE REQUESTED:** $ 713,280 over 3 years (60% of construction cost)

13. **SIGNATURE/TITLE:** ESM

FORM 17.17

N

Rockbrook Creek Project

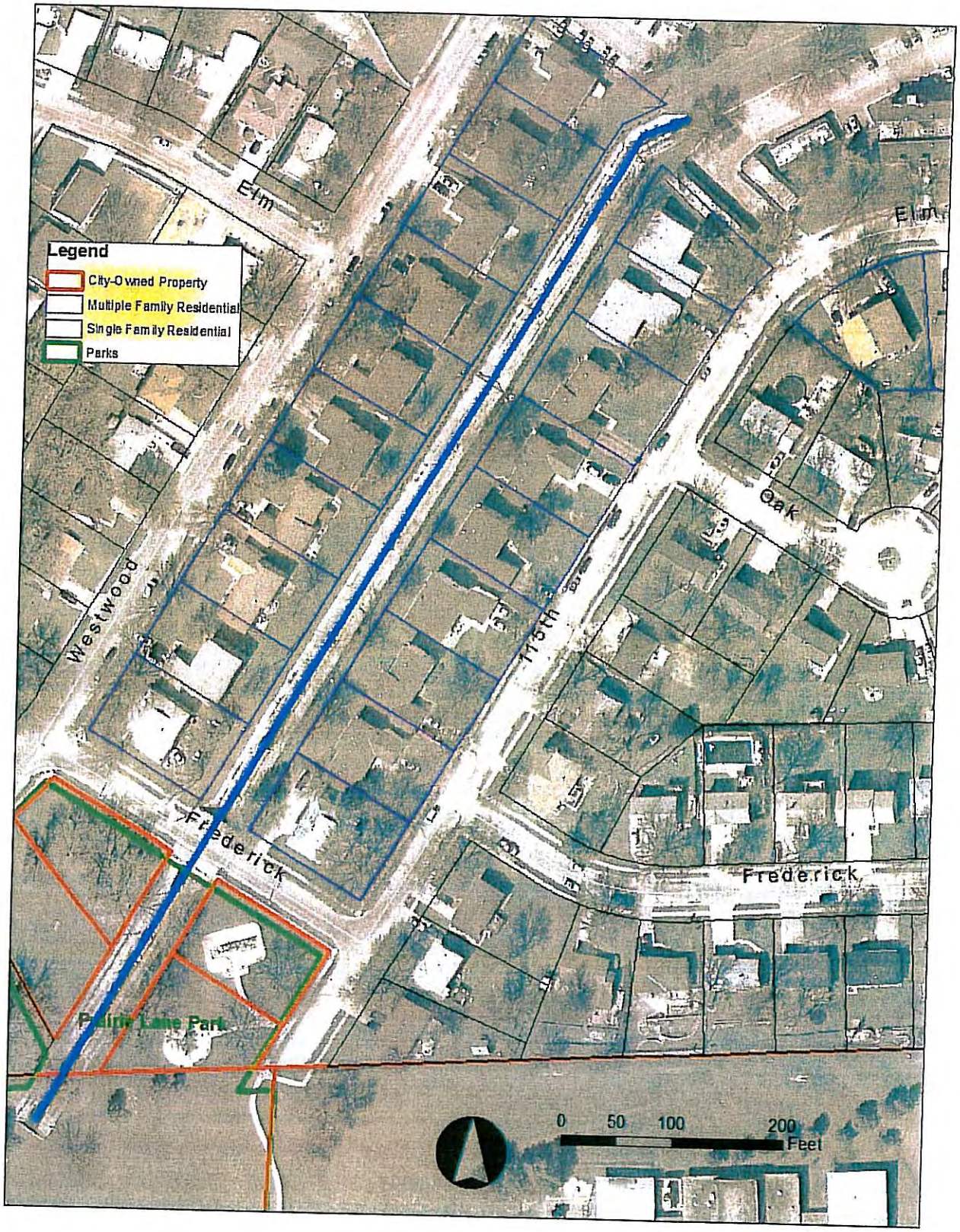
Printed: Mar 31, 2011

GIS

www.dcgis.org/dogis

Attachment 1: Project Location

FIGURE 1



Attachment 2: Description of Problem

Existing Conditions

DEGRADED CHANNEL: The existing conditions of the channel are severely degraded from both an environmental and stability standpoint. The channel is currently covered by a 5-inch thick concrete liner with wire mesh reinforcement that was installed in approximately 1967 as part of culvert improvements for Sanitary and Improvement District (SID) No. 70. The "typical ditch section" is 10 ft wide at the toe (on granular fill bed), 30 ft wide at the top of bank, and 5 ft from bed to top of the liner (2:1 H:V slope on banks) (Figure 2). The concrete liner is cracked and broken throughout the project reach. Pieces of the liner are carried downstream with storm flows, and significant voids caused by erosion have formed under the liner.

LACK OF HABITAT: The presence of the concrete liner prohibits the growth of most vegetation on the banks and forms a uniform channel bottom, creating conditions that are essentially devoid of aquatic habitat. The channel currently has only one function (as a drainage ditch) and thus cannot be used for its other potential benefits. For example, it could serve as a water quality filter system with a well vegetated riparian buffer and could offer diverse habitat (both benthic and riparian zone). In addition, it could represent an aesthetic attribute to the park and neighborhood, as well as providing educational opportunities for the public (both neighborhood residents and school children). The City of Omaha would also like to stabilize the degraded channel while enabling these other potential stream features through implementation of this project.

CONSTRAINED SITE: The channel is confined on both banks downstream of Frederick Street by residential development, with property lines and fences at the top of the existing channel banks (Figure 3). The proximity of the private property to the banks of the stream presents several challenges to typical natural solutions, limiting the degree of channel modifications possible within the confines of the publicly owned property.

Figure 2 – Existing Rockbrook Tributary Channel Liner Deterioration

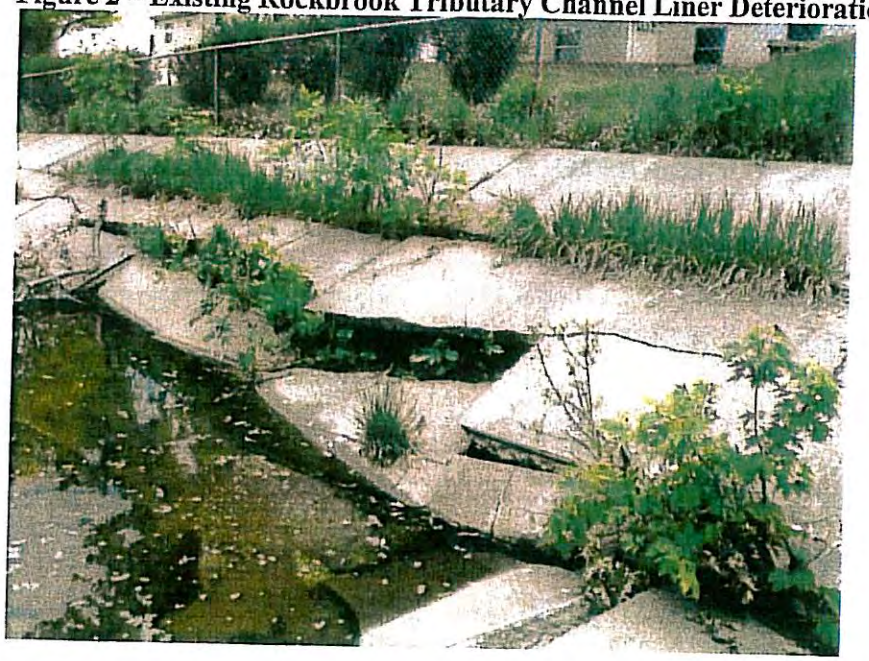
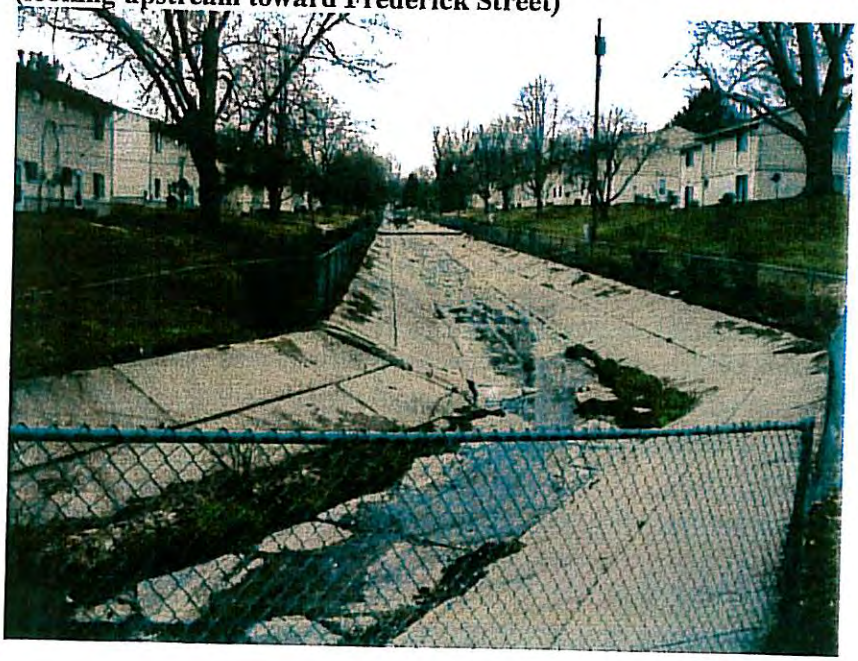


Figure 3 – Existing Rockbrook Tributary Channel Confined by Residential Development (looking upstream toward Frederick Street)



Attachment 3: Description of Solution

Conceptual Design

An innovative feature of the project is the enhancement of the restricted channel corridor to the maximum extent practical. While the channel's condition will be greatly improved simply by removing the existing concrete liner, this project will also provide significant and sustainable lift in aquatic habitat quantity, quality, and diversity through design features that enhance the benthic and riparian environments. Although the channel will not meander from its current alignment, diverse benthic habitat will be created through the proposed riffle and pool series. The project conceptual design completed by the City followed nationally recognized methodology and was developed after thorough analysis of existing information, as well as data collected in the field, and engineering, hydrologic, and hydraulic analyses. The channel rehabilitation conceptual design includes the following design features:

- Cross section adjustments (channel reshaping)
- Bank stabilization (vegetation, soil/rock mixtures, and geotextiles)
- Longitudinal profile grade control (rock structures)

Available park space will be utilized to extend the riparian buffer beyond its current limits, while maintaining access to existing park facilities. Similar to the "back-to-the-river" concept, the restored stream will become the focal point of the park, providing educational opportunities in addition to aesthetic improvements. An offline wetland may be included in the park, if amenable to the City of Omaha Parks, Recreation, and Public Property Department.

Cross section adjustments: The conceptual design includes using an open area of the park to reshape the channel dimensions, modifying the channel invert elevations with a series of grade control rock structures (cross vanes), and detaining stormwater for water quality treatment (Figure 5). Existing fences along the culvert headwalls will be replaced for public safety and existing mature trees will be preserved. Cross section adjustments to create stable bank side slopes will generally be 3:1 to 2:1 (H:V) or flatter. Due to the project's site constraints, namely the adjacent residential properties and overhead and underground utilities, the channel will be stabilized along its existing alignment (Figure 6).The existing concrete liner will be removed from the channel and replaced with a mix of natural materials, such as native grasses, underlain with a soil and rock mixture (necessary to withstand estimated shear stresses and velocities in the channel) and stabilized with biodegradable geotextiles. Typical natural channel cross-section adjustments are not possible; therefore, soil bio-engineering techniques will be limited to the use of geotextiles and vegetation.

Bank stabilization: Deep-rooted native grasses are proposed based on their ability to provide suitable stability to the channel banks and to minimize the impact to the channel hydraulics in terms of roughness. A solid foundation at the toe of slope is necessary to maintain the bank slopes, and this may be accomplished with a solid base consisting of a compacted soil and rock mixture. The banks will be covered with topsoil and densely woven coir geotextiles, which can withstand high velocities and shear stresses and until stands of native grass species are established. There are multiple areas with stormwater pipe outfalls along the banks throughout the project reach that will be stabilized with vegetated soil and rock aprons and/or with a wet meadow-type area designed for storm flow energy dissipation.

Longitudinal profile: Longitudinal profile grade control is a major component of channel rehabilitation and is used to mitigate the erosive properties of the stream flow. If grade control is not present, storm flows can erode the channel bed and banks, creating an incised channel with unstable banks that continue to erode. A series of step-pool cross vanes is proposed to gradually transition the bed elevation of the channel through the project reach to maintain the grade of the channel and dissipate energy as water cascades over the rocks (Figure 6). Cross vanes are generally configured so that the "V"

shaped structure points upstream and the sills tie into the sub-grade of the banks. Base flow stays within the center of the channel and elevated stormwater flows rise over the arms of the cross vane and are directed into the plunge pool in the center of the channel (Figure 7). This type of structure is designed to be low profile, essentially buried into the channel bed and banks and establishes the grade of the stream. The cross vane arms will be designed to protect the channel bank upstream and downstream of the vane itself.

LEVEL OF DESIGN JUSTIFICATION: The conceptual design of this project is environmentally sustainable because of the tremendous improvement in habitat quantity, quality, and diversity that will be accomplished through the use of bio-engineering techniques. The project has no potential to cause harm to the environment and **will result in a substantial gain for the environment** because it will create approximately 1,100 LF of new benthic and riparian habitat and 0.2 acre of potential wetland habitat. The project will:

- Habitat: Restore native habitats by replacing the concrete liner with native grasses; enhancing habitat in the community by demonstrating the use of native and ecologically appropriate plantings that provide food and shelter for wildlife; and provide community outreach (stream cleanup events) and education activities (interpretive signage) to promote public appreciation of the value of natural resources.
- Surface and Ground Water: Restore waterways and ground water to overcome past degradation and depletion caused by the concrete liner; implement and foster the use of best management practices (BMPs) through the channel design and offline storage pond; and include community outreach and education activities described above, including information on protecting surface water resources.
- Soil Management: Restore soil health by re-establishing a natural channel and riparian buffer; implement and foster the use of soil BMPs with native vegetation on the channel and storage area; and include community outreach and education activities, including information on the benefits of healthy soils to plants and aquatic environments.

An estimate of the habitat score expected after the proposed project was completed is 145 points, which is a "Sub-Optimal" ranking (using the Environmental Protection Agency's Rapid Bioassessment Protocol). This is a substantial lift in the habitat value in the channel. Certain physical aspects of the channel (such as the historical straightening) will likely make it unrealistic to expect that the "Optimal" (> 166 points out of 200) rating is achievable for the project reach. The project conceptual design completed by the City followed nationally recognized methodology and was developed after thorough analysis of existing information, as well as data collected in the field, and engineering, hydrologic, and hydraulic analyses.

PROPOSED SCHEDULE: The following schedule is based on available funding:

FY2012	Detailed Design
FY2012-13	Construction and Initial Permit Monitoring
FY2013-14	Permit Monitoring

OTHER FUNDING: Contributors to the project include the City of Omaha Public Works Department and the Parks, Recreation, and Public Property Department. A grant application has been submitted to the Nebraska Environmental Trust (which was unsuccessful) and to the NDEQ Section 319 of the Clean Water Act grant program (have not heard if awarded yet) for 2010.

AVAILABLE SUPPORTING DOCUMENTATION: Additional documentation related to this project is available electronically upon request.

- *Rockbrook Tributary at Frederick Street – Alternatives Development and Conceptual Design* Technical Memorandum, September 30, 2010, 32 pages.

Figure 5 – Conceptual Design for Channel Rehabilitation (looking downstream toward Frederick Street)

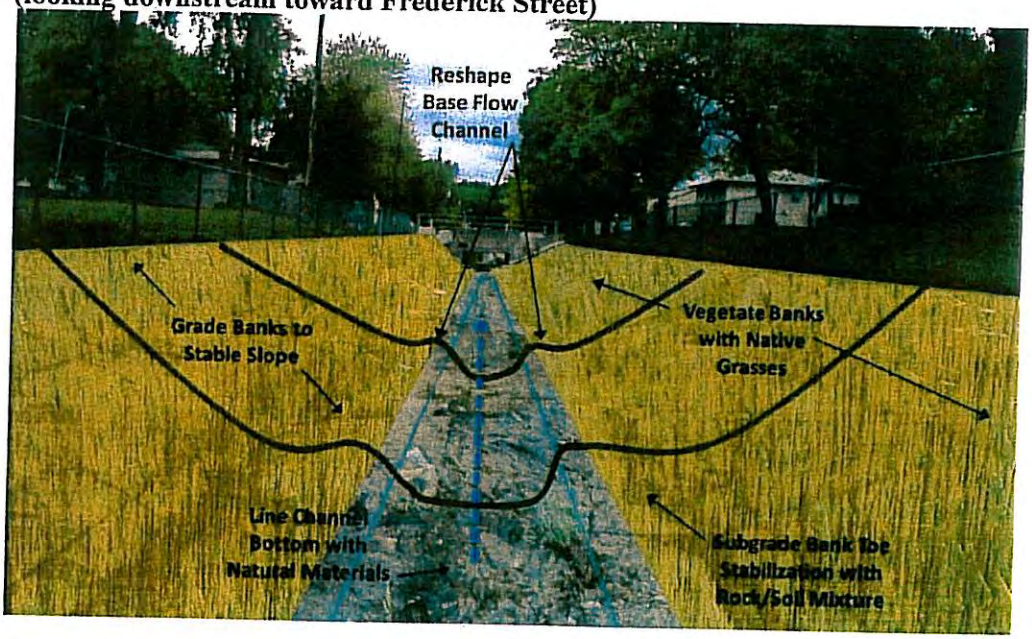
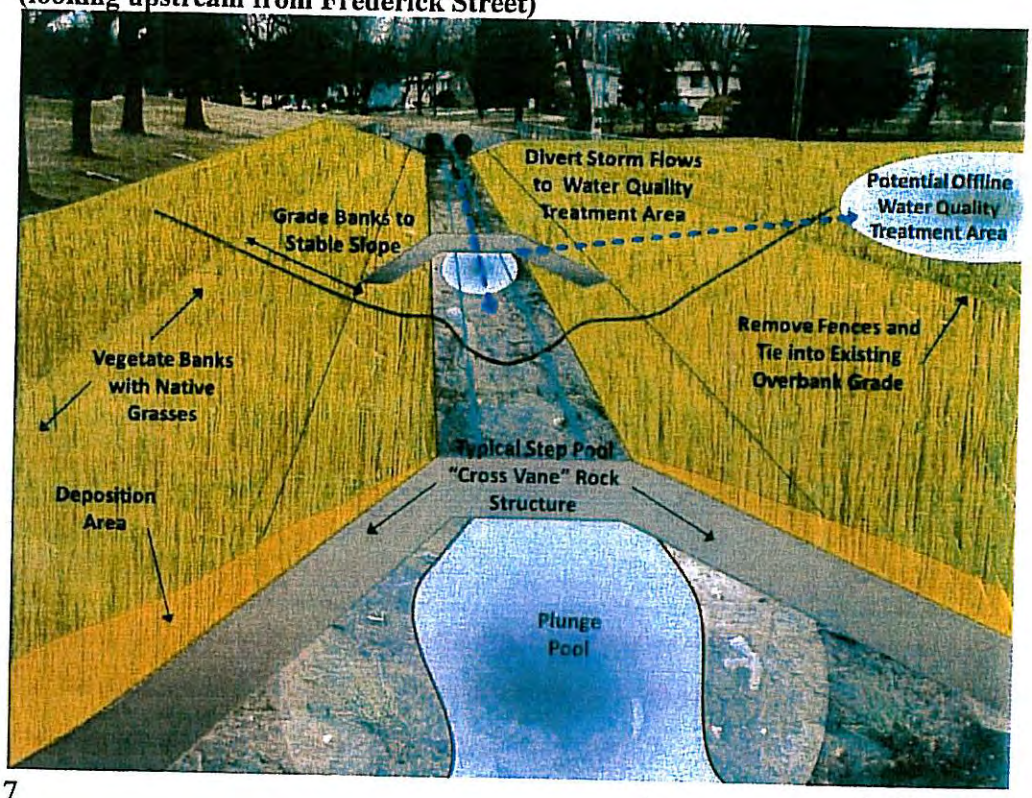


Figure 6 Conceptual Design for Channel Rehabilitation (looking upstream from Frederick Street)



Rockbrook Tributary Rehabilitation Project
City of Omaha

Alternative	Alternative 5 - Remove concrete lining, replace with grassed channel and modify channel slope into steps upstream of Frederick Street, add offline storage at Prairie Lane Park										
Design	$110,782			1,100	LF						
Survey	$20,000										
Permitting	$10,000										
H&H	$15,000										
Geotech	$10,000	minimal for channel									
Structural Eval		not include structural eval of existing road crossings and associated goetech investigation									
Services During Const (SDC)	$30,000	half time field services, submittal review, RFIs, 1 bid package									
Total Design and SDC	**$195,782**										
Facility	Description	Quantity	Unit	Unit Price		Total Amount					
W0003	Remove Channel Liner & Replace with Grass	1,100.00	LF	$ 159.95		$ 175,940.82					
W0004	Remove & Replace 4 ft tall Chain Link Fence	2,200.00	LF	$ 10.24		$ 22,528.00					
W0005											
W0006	Cross Vane Grade Control Structures	8	EA	$ 15,000.00		$ 120,000.00					
W0007	Rip-rap for Lower Bank Stabilization	244.45	SY	$ 106.92		$ 26,136.06					
W0008	Coir Geotextile Fabric on Banks	977.78	SY	$ 21.56		$ 21,080.94					
W0009	Remove and Replace Shrubs	1.00	LS	$ 26,378.00		$ 26,378.00					
W0010	Stream Bypass Pumping	1.00	LS	$ 20,000.00		$ 20,000.00					
W0011	Stormwater Outfall Pipe Rock Aprons (3)	3.00	LS	$ 5,939.36		$ 17,818.08					
W0012	Work Around Existing Overhead Utility Poles	1.00	LS	$ 3,500.00		$ 3,500.00					
W0014	Phone & Cable Utility Relocation	1.00	LS	$ 10,000.00		$ 10,000.00					
W0017	Traffic Control (1 residential road)	100.00	LF	$ 20.00		$ 2,000.00					
W0018	Alternative 1 Prairie Lane Park Detention Pond	2,222.22	CY	$ 5.09		$ 11,311.10					
W0024											
						$ 456,693	Unmarked up Construction total				
	Markups			Amount		Totals					
	General Conditions	3%		$ 13,701		$ 470,394					
	Sales Tax	7%		$ 144,941		$ 615,335	materials only (est.)				
	Overhead	10%		$ 61,533		$ 676,868					
	Profit	5%		$ 30,767		$ 707,635					
	Mob/Demob	4%		$ 24,613		$ 732,248					
	Bond	1.00%		$ 6,153		$ 738,402					
	Contingency	25%		$ 184,600		$ 923,002					
		55%				**$ 923,002**	**Marked up Total**				
ROW	Purchase ROW land (10 ft wide)		SF	$ 3.00		$ -	No ROW purchase				
						$ 923,002	Marked up Total with ROW				
						$ 195,782	Total Design and SDC				
						$ 1,118,784	Total Marked up Construction, ROW, and Total Design				

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
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URBAN DRAINAGEWAY PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: March 16, 2011

2. PROJECT NAME Sterling Ridge – Hell Creek Stream Restoration

3. PROJECT SPONSOR: City of Omaha

ADDRESS: 1819 Farnam Street, Suite 600

Omaha, NE 68138

4. CONTACT PERSON: Marty Grate

TITLE: Environmental Services Manager

5. TELEPHONE: 402-444-5225

6. E-MAIL mgrate@ci.omaha.ne.us

7. PROJECT LOCATION (attach location map):
See Attached.

8. DESCRIPTION OF PROBLEM (attach additional sheets as needed):
See Attached.

9.PROPOSED SOLUTION (attach additional sheets as needed):
See Attached.

10. PROJECT FUNDING LEVEL: LEVEL 1: X LEVEL 2: _____ LEVEL 3: _____
(Attach justification for funding level selected – see program guidelines)

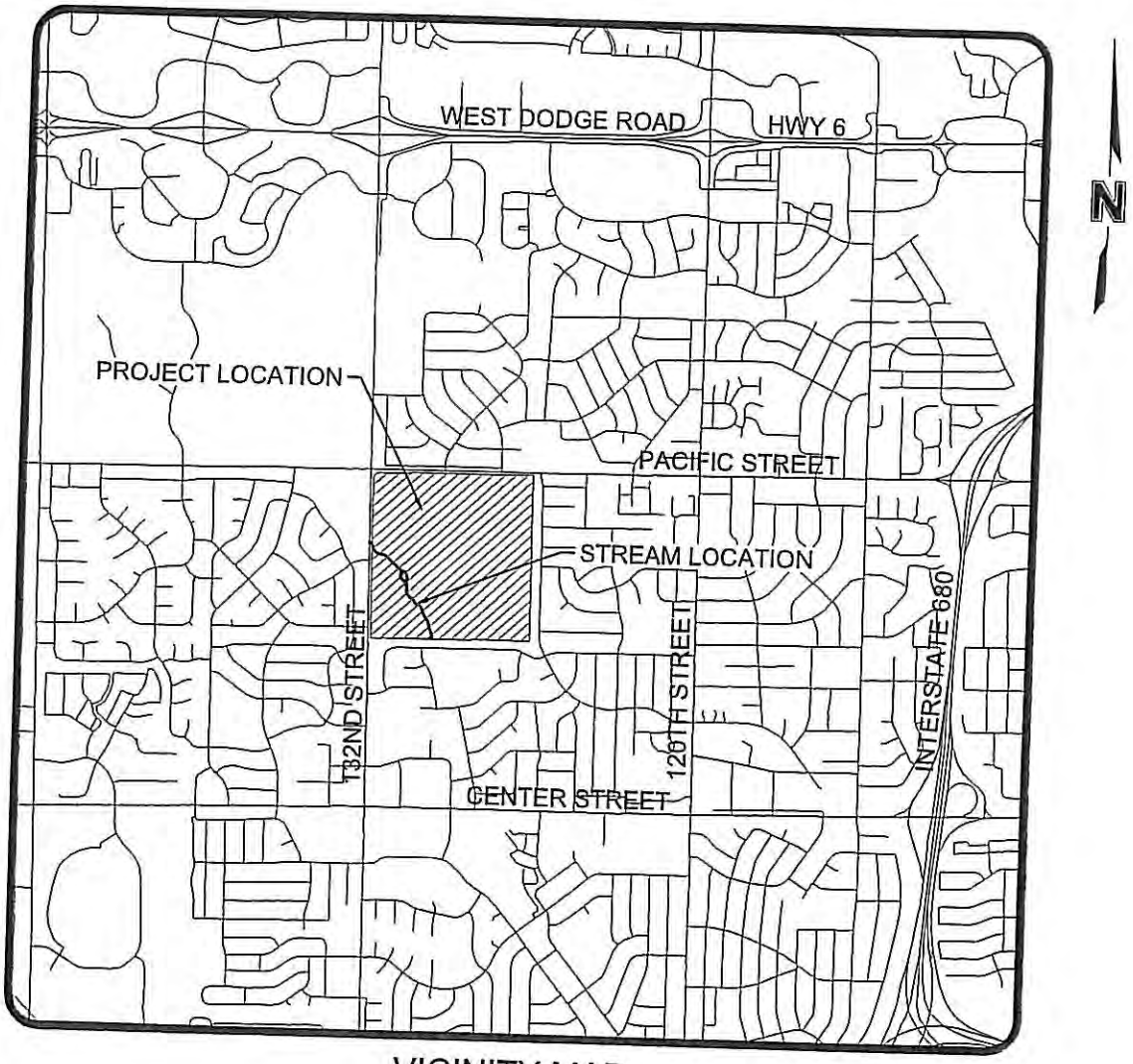
11. TOTAL ESTIMATED COST: $ $1,099,506.25

12. COST SHARE REQUESTED: $ $824,629.69

13. SIGNATURE/TITLE: Marty Grate

FORM 17.17

7. Project Location

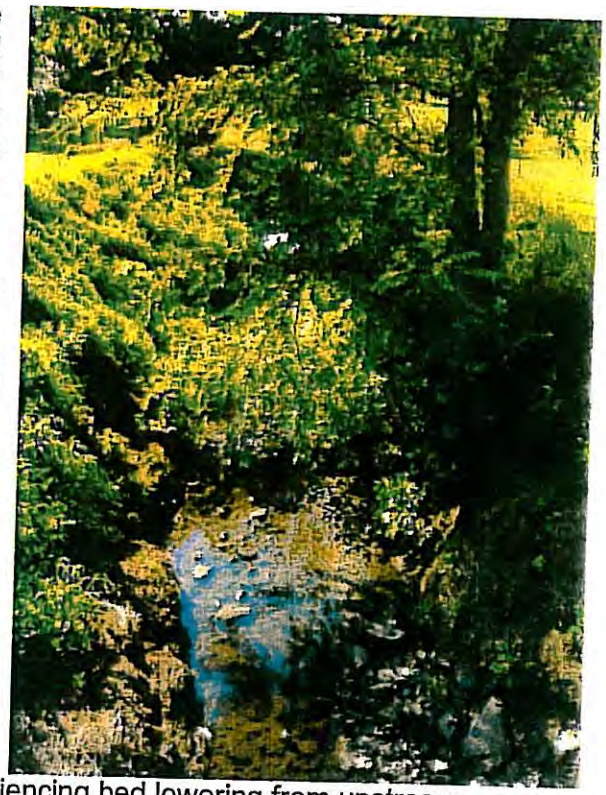


VICINITY MAP

NOT TO SCALE

8. Description of Problem

The existing watershed of Hell Creek begins within the Boys Town Campus in Omaha, NE near 144th and West Dodge Road. From there, the watershed forms a narrow corridor which stretches from 132nd and Pacific Street south to approximately 108th and Giles Road where it confluences with the West Papillion Creek. As part of this long narrow watershed, Hell Creek flows southeast under 132nd Street into the existing Ironwood Golf Course. In the north half of the golf course, the creek has been filled and transformed into a series of ponds connected through enclosed pipes. These pipes outlet back into an open stream channel toward the southern end of the course. Redevelopment of this golf course site is currently being planned and a tremendous opportunity exists to reinstate and enhance the natural stream conditions of Hell Creek.



The existing open channel within the study reach is a fairly deep trapezoidal channel with approximately a 5' to 6' bottom width and 10' to 12' tall stream banks. Vegetation near the bottom of the channel is nonexistent and begins to fill in along the higher portions of the bank.

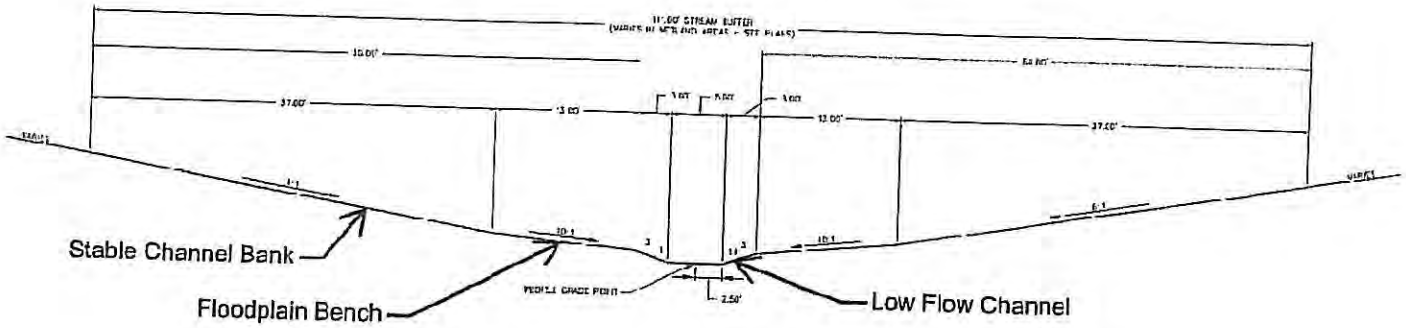
Given visual observations of this reach, it is believed that the stream is currently experiencing degradation, an imbalance where sediment from the bed and banks of the stream is eroded and transported along with the base sediment load entering the reach. There are several likely reasons for this occurrence: 1) inflow is currently routed through the small ponds in the golf course, reducing sediment being carried, 2) the upstream dam in Boys Town removes incoming sediment load, 3) the high silt/clay loess material is highly erosive. For these reasons, it is assessed that the existing open channel within the study area is experiencing bed lowering from upstream to downstream (Stage 2 of the Channel Evolution Model).

9. Proposed Solution

The intent of this project is to recreate an open stream in place of the existing ponds installed as part of the golf course. In addition, the existing stream in the golf course will be restored as the lower stage of a two-stage open channel. In order to join the new and existing streams, the new stream channel will have to slope from the existing outlet under 132nd Street to the commencement of the existing open channel. The projected length of new channel is approximately 1094 feet, making the total length of restored channel through the site approximately 1,932 feet.

This two-stage open channel design was selected because it provides numerous benefits to both the physical, as well as ecological performance of the stream. The low flow channel is the main conduit for sediment transport, while the enlarged upper channel reconnects the stream with its floodplain more often with less opportunity for erosive damage. The purpose of this low-flow channel and bench system is also aimed at increasing and maintaining effective aquatic habitat in and directly adjacent to the stream by restricting sediment deposition during frequent storm events and by reducing erosive forces during large storm events.

Based on visual inspections of Hell Creek just upstream of 132nd Street, a bottom width of 5 feet was selected. Based on Corps recommendations, the low-flow channel depth was set at 1 foot. From there, a 10:1, 13 foot-wide floodplain bench is proposed. Existing and new stream banks will be layed back at a slope of 6 to 1. Refer to the figure below.



HELL CREEK STREAM CHANNEL RESTORATION - TYPICAL SECTION

Bioengineering techniques aimed at providing bank protection, as well as creating additional floodplain storage were utilized throughout the entire length of stream channel restoration. The floodplain bench and 6:1 side slopes will be planted with native vegetation. Flow redirection is accomplished by utilizing meanders within the channel. There are two areas within the restored channel that have been designed specifically to create wetland habitat. These areas will not continuously contain water, but will receive enough to create and maintain wetland hydrology.

Structural bank protection elements include coir logs placed at the toe of the slope along outside curves. Stream elements such as bendway weirs, rock drop structures and Newbury grade controls will also be utilized. These elements provide scour protection, aquatic habitat, and streambed stabilization.

10. Level 1 Justification

The purpose of this Hell Creek Stream Restoration project is to restore over 1,900 linear feet of channel to mimic a stable and natural stream configuration, as well as to address the degradation occurring in the existing Hell Creek stream channel. Some structural techniques will be used for habitat creation, grade control and scour protection, however bioengineering techniques are used for the majority of the stream for bank protection, flow protection, retention and redirection.

Sterling Ridge - Hell Creek Stream Restoration
Preliminary Opinion of Probable Construction Cost

3/16/2011

Item	Quantity	Unit	Unit Cost	Total Cost
Mobilization / Clearing Grubbing / Removals	1	LS	$157,185.00	$157,185.00
Grading / Excavation	1	LS	$315,200.00	$315,200.00
Stream Elements	1	LS	$153,000.00	$153,000.00
Erosion Control and Stabilization	1	LS	$254,220.00	$254,220.00
Sub-Total				$879,605.00
Design (10%)				$87,960.50
Construction Staking / Testing & Inspection (5%)				$43,980.25
Contingency (10%)				$87,960.50
Total				**$1,099,506.25**
75% of Total (Level 1 Funding Level)				**$824,629.69**

NOTE:
The cost opinions outlined above are for estimating purposes only. The unit prices are based on bids received on recent projects with similar site conditions. Unit prices may vary due to contractor availability or atypical site conditions. This estimate is approximate and based on a preliminary concept. This estimates does not include the payment of City fees, taxes, bonds or acquisition of easements.

N

1" = 200'

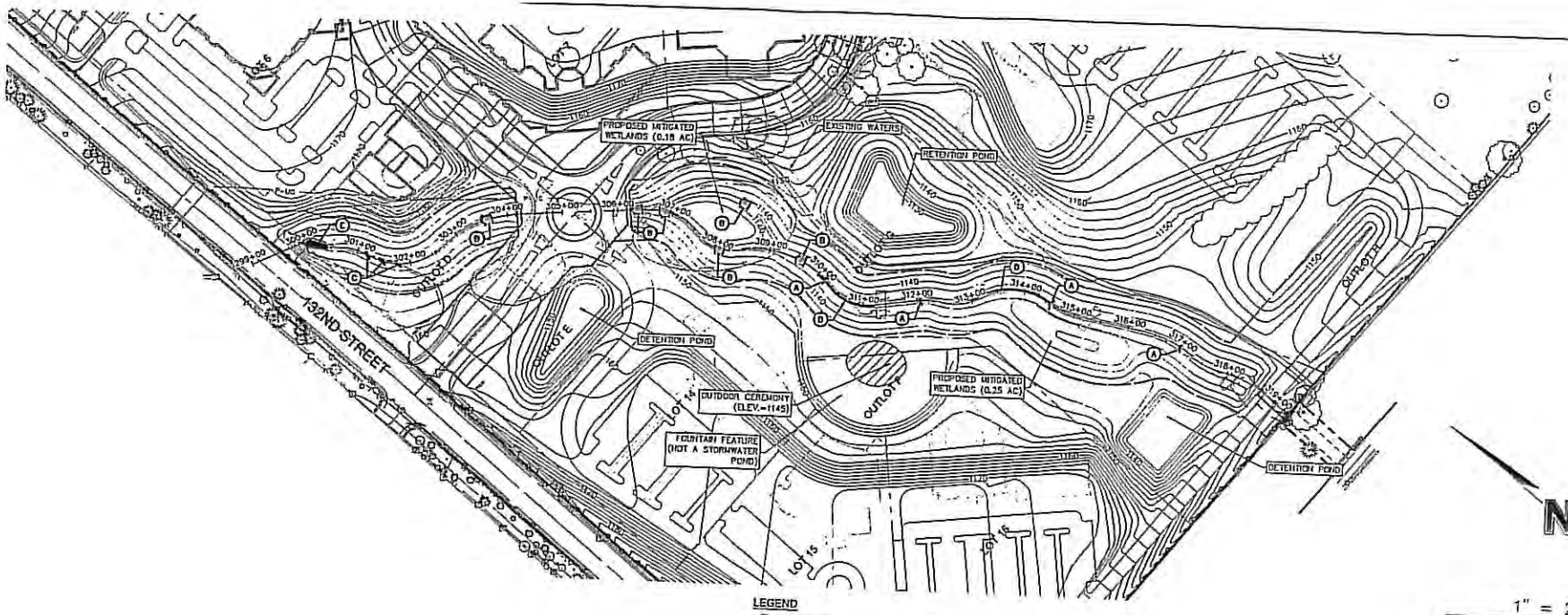
0' 100' 200' 400'

SCALE IN FEET

HELL CREEK
STREAM RESTORATION

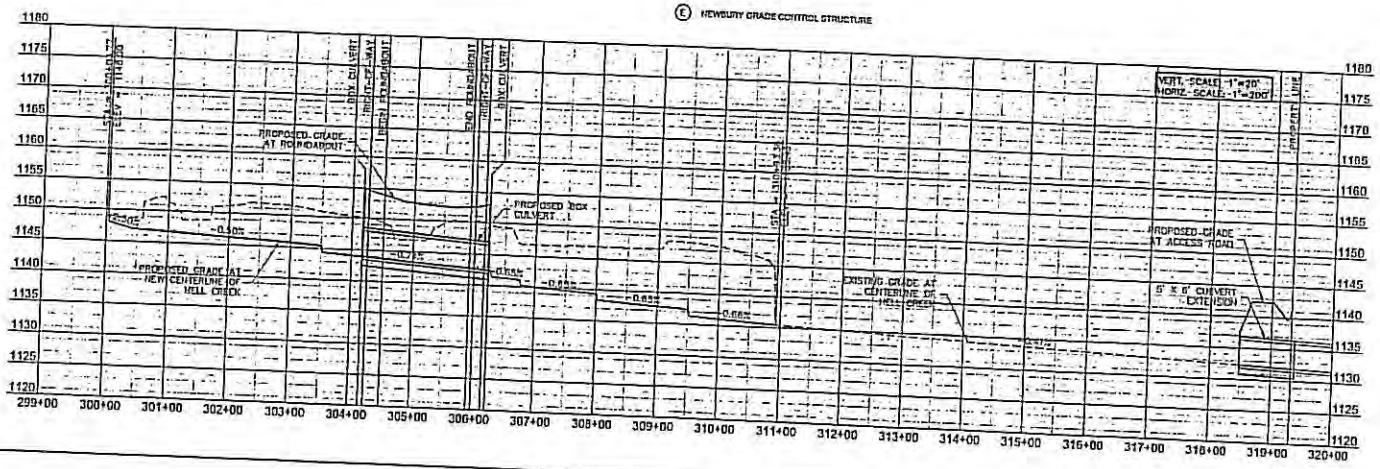
OLSSON ASSOCIATES

EXHIBIT 1



LEGEND

- (A) CROSS VANE
- (B) ROCK DROP STRUCTURE
- (C) BENCHWAY WEIRS
- (D) TOE STABILIZATION
- (E) NEWSURY GRADE CONTROL STRUCTURE



HELL CREEK
STREAM RESTORATION

OLSSON ASSOCIATES
2111 South 67th Street
Omaha, NE 68106
TEL 402.341.1116
FAX 402.341.5895

EXHIBIT 2

PAPIO-MISSOURI RIVER
NATURAL
RESOURCES
DISTRICT
8901 S. 154th ST.
OMAHA, NE 68138-3621
(402) 444-6222
FAX (402) 895-6543

Form 17.17. A.

URBAN DRAINAGEWAY PROGRAM

APPLICATION

1. DATE: March 18, 2011

2. PROJECT NAME: Huntington Park Channel Rehabiliation

3. PROJECT SPONSOR: Sanitary and Improvement District 374
(Address) 10050 Regency Circle
Omaha, NE 68114

4. CONTACT PERSON: Dennis P. Hogan TITLE: Attorney

5. TELEPHONE: (402) 397-5500

6. PROJECT LOCATION **: Huntington Park, at the northwest corner of 156th and Blondo Street (see attachments).

7. PROPOSED IMPROVEMENTS**: Rehabilitate the existing channel by lengthing the channel, constructing grade control structures, and using bioengineering techniques (see attachments)

8. TOTAL ESTIMATED COST: $ 1,939,784 (see attachments)

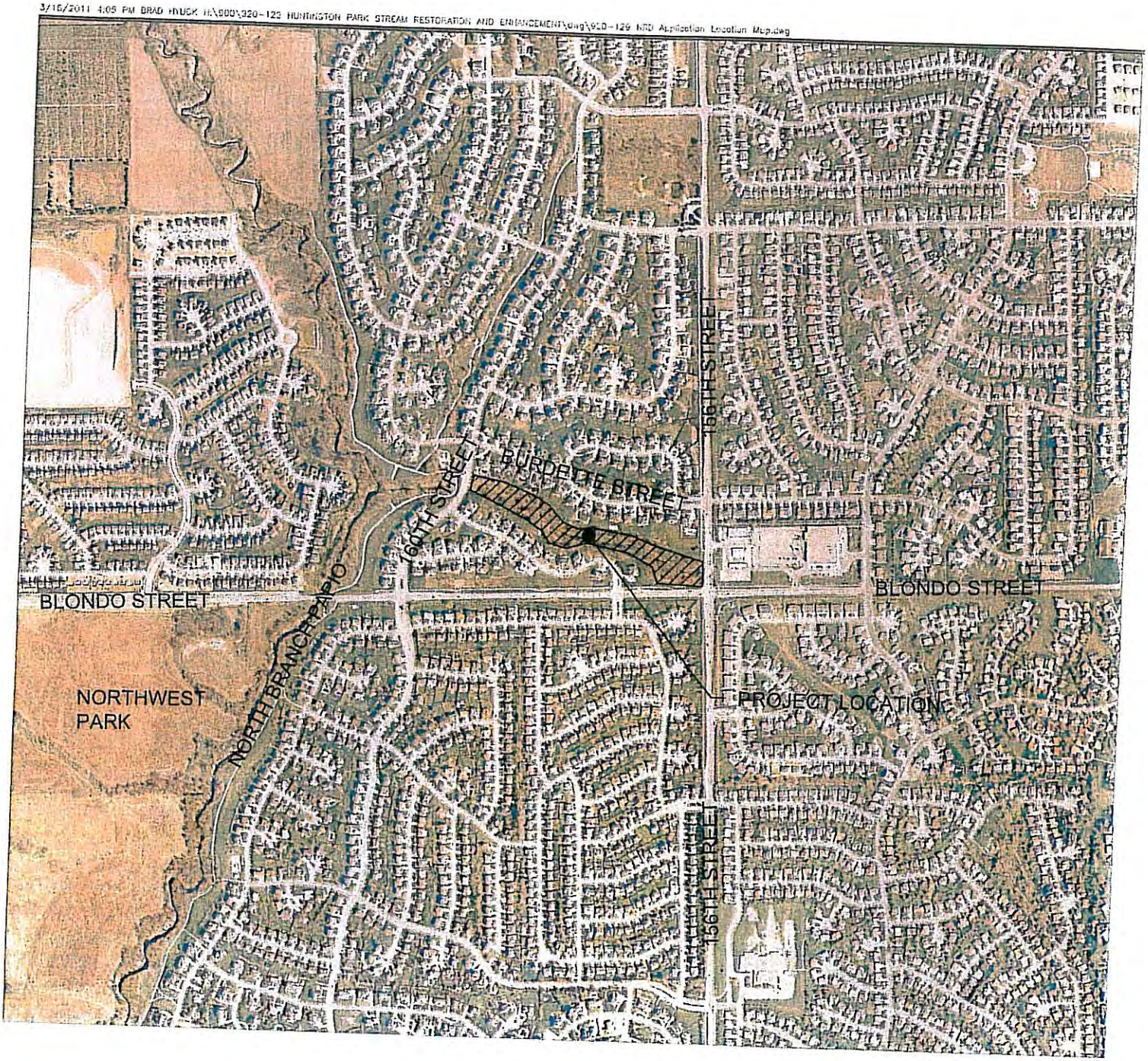
9. COST SHARE REQUEST: $ 1,163,874.40 (see attachments)

10. IMPLEMENTATION SCHEDULE: See attachements

11. SIGNATURE/TITLE: Adam Kahla P.E. Design Engineer

** Attach additional sheets as necessary.

3/16/2011 4:05 PM BRAD KNUCK H:\800\920-129 HUNTINGTON PARK STREAM RESTORATION AND ENHANCEMENT\dwg\920-129 NRD Application Location Map.dwg



TD2 engineering & surveying

Job Number: 920-129

thompson, dreessen & dorner, inc.
10836 Old Mill Rd
Omaha, NE 68154
p.402.330.8860 www.td2co.com

Date:	03-18-11
Drawn By:	BPH
Reviewed By:	DAK
Revision Date:	..

Huntington Park Channel Rehbilitation

Location Map

Existing Conditions

The existing condition of the unnamed tributary to North Branch Papio which runs through Huntington Park shows severe erosion and degradation within the channel. Existing grade control structures throughout the length of the channel have failed and caused large washouts along the sides of the channel (see photo: P11). Much of the side slopes along the channel are nearly vertical and continue to be washed away, which causes the channel to continually grow wider and wash sediment down stream (see photo: P12).

At the upstream end of the channel, an 8'x 10' box culvert and an 84" RCP culvert discharge into the channel. The outlet area of these two structures continue to washout and erode despite previous efforts to repair the area with rip rap ((see photo: P13). Approximately 100 feet downstream of the culverts a 52" CMP discharges into the south side of the channel and has caused severe erosion problems in the channel.

Further downstream an 18" CMP with a pile bent structure sits approximately 10 feet from the channel bank, out in the middle of the channel (see photo: P14). This example shows how far back the channel side slopes have eroded over time.

Mature trees exist through the proposed project area and possess significant value in keeping. However, some of the existing mature trees are in poor condition and may potentially fall into the over time. There are also numerous "junk" trees that have populated the project area.

Photos P1 thru P10 can be seen on Exhibit C1.0. These photos show further existing conditions, and the locations of the photos relative to the channel can be seen on Exhibit C1.0 as well.

Photo: P12. This photo shows the nearly vertical side slopes the are present along the banks of the channel. The way the channel undercuts the side slopes and washes sediment downstream can also be seen in this picture.

Proposed Improvements

The proposed improvements for this project are designed to repair existing erosion to the channel and side slopes, while also creating a more sustainable channel grade to prevent future degradation to the channel and its side slopes. The following methods, products and materials will be utilized to complete this:

- Lengthening of channel
- Restoring natural channel bends
- Open cell articulated concrete blocks
- Grade control structures
- Energy dissipators
- High strength turf reinforcement mats
- Organic fiber turf reinforcement mats
- Coir logs
- Fascine bundles
- Vegetated retaining wall
- Flood control bench

The open cell articulated concrete blocks will be used to armor the channel in areas where severe erosion has occurred and is anticipated to occur in the future. The open cell nature of the blocks allows for them to be filled with soil and become vegetated, while the concrete helps armor the channel from eroding and washing sediment downstream by providing a stable zone for root growth.

Grade control structures will be constructed throughout the length of the channel. The grade control structures to be built for the project will be constructed with earth fill and will have open cell articulated concrete blocks placed over them. The earth fill will be placed to create a small check dam in the channel, which will cause ponding behind the grade control structure. This ponded area will enhance habitat, allow for additional infiltration and restore connection to the original floodplain. The ponding in the channel will also reduce velocity in the channel, allow sediment deposition and create more stability.

Energy dissipators will be placed at the outlet of the 8' x 10' box culvert and the 84" RCP culvert at the upstream end of the channel located at 156th Street. At this outlet, open cell articulated concrete blocks will be placed to armor this portion of the channel because this area will experiences high velocities discharging from the culverts. Energy dissipating structures will be constructed within the open cell articulated concrete blocks to help reduce the energy of the water as it comes out of the culverts.

High strength turf reinforcement mat will be placed along the channel to help stabilize vegetation on channel side slopes. The matting will protect the seed as it is placed and will help permanently reinforce the vegetation.

Organic fiber turf reinforcement mat will be placed in the upper area of the new channel side slopes to help establish vegetation in the area. This area is above the expected high water mark and will not experience flowing water except in severe flooding conditions.

Coir logs will be placed on both sides of the channel to add is securing channel alignment, along the entire length of the channel. The logs will provide a defined barrier between the newly graded channel and the upper portion of the project area not expected to experience flows. They will be placed above the open cell articulated concrete blocks and the high strength turf reinforcement mat. The logs will also collect and hold mineral and organic particles which will promote root growth and slowly degrade leaving nutrients for the vegetation.

Fascine bundles will be placed on both sides of the channel, along the entire length of the channel as well. They will be placed above the coir logs. The bundles will be constructed from dormant willow, alder or shrub dogwood trees. The bundles will be incorporated into the organic fiber turf reinforcement mat and will provide a natural barrier between the disturbed area for the project and the existing areas that will not be disturbed. The installed fascines will act at mini-dam structures that hold soil fill on the face of the stream bank.

At the west end of the project (downstream end) both vegetated retaining walls and a flood control bench will be constructed. Both items will be constructed between the most downstream grade control structure and the existing twin 8' x 10' box culvert. The flood control bench will help provide a stable area and provide storage to the channel in extreme flood conditions when the box culvert does not have enough capacity to convey the stormwater. The vegetated retaining wall will be constructed to limit the amount of disturbed area within the project.

See exhibit C2.0 for proposed site plan.

This project meets the Urban Drainageway Program Level 2 Rehabilitation being the restoration to the drainageway has a significant impact on the entire reach of the drainageway from 160th Street to 156th Street. The restoration work adds length to the existing channel but is generally confined to the existing channel pattern. Bioengineering and structural techniques will be employed to enhance habitat, improve water quality and to provide flow retention. A limited hydraulic connection to flood plain will be restored and pools for groundwater recharge created.

Huntington Park Channel Rehabilitation
TD2 Project Number: 920-129

Estimated Construction Cost

Item	Description	Approx. Quantity	Unit	Unit Price	Amount
1	Clearing and Grubbing	1	L.S.	$ 100,000.00	$ 100,000.00
2	Erosion Control	1	L.S.	$ 20,000.00	$ 20,000.00
3	Channel Grading, In Place	15,000	C.Y.	$ 15.00	$ 225,000.00
4	Articulated Concrete Block, in place	44,000	S.F.	$ 15.00	$ 660,000.00
5	Existing Storm Sewer Rehabilitation	1	L.S.	$ 10,000.00	$ 10,000.00
6	N.A.G. C125BN Organic Erosion Control Mat	5,000	S.Y.	$ 12.00	$ 60,000.00
7	N.A.G. SC250 Erosion Control Mat	3,300	S.Y.	$ 10.00	$ 33,000.00
8	Native Grass Seed	3	AC.	$ 1,500.00	$ 4,500.00
9	Vegetated Retaining Wall	4,400	S.F.	$ 30.00	$ 132,000.00
10	Coir Logs	4,000	L.F.	$ 30.00	$ 120,000.00
11	Fascine Bundles	4,000	L.F.	$ 25.00	$ 100,000.00
12	2" Caliper Trees	300	EA.	$ 300.00	$ 90,000.00
13	Site / Landscaping Restoration	1	L.S.	$ 20,000.00	$ 20,000.00
	SUBTOTAL				$ 1,574,500.00
	10% CONTINGENCY				$ 157,450.00
	TOTAL ESTIMATED CONSTRUCTION COST				**$ 1,731,950.00**
	ESTIMATED ENGINEERING, SURVEY AND CONSTRUCTION OBSERVATION COSTS (12%)				$ 207,834.00
	TOTAL ESTIMATED COST				**$ 1,939,784.00**
	60% NRD COST SHARE				**$ 1,163,870.40**

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
www.papionrd.org

URBAN DRAINAGEWAY PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: 03/14/11

2. PROJECT NAME: Gilmore Lake Road Drainage

3. PROJECT SPONSOR: City of Bellevue

MAR 14 2011

ADDRESS: 210 West Mission Ave
Bellevue, NE 68005

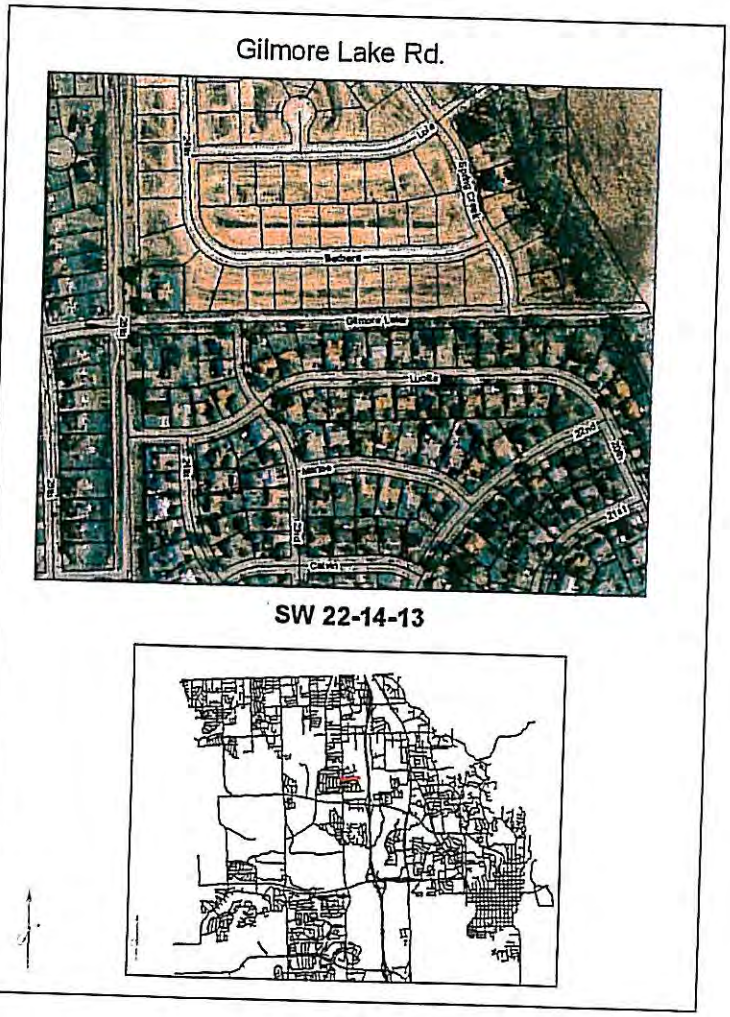
4. CONTACT PERSON: Jeff Roberts

TITLE: City Engineer

5. TELEPHONE: (402) 293-3030

6. E-MAIL: jeff.roberts@bellevue.net

7. PROJECT LOCATION (attach location map):



SW 22-14-13

8. DESCRIPTION OF PROBLEM (attach additional sheets as needed):

See attached report

9.PROPOSED SOLUTION (attach additional sheets as needed):

See attached report "Option A"

10. PROJECT FUNDING LEVEL: **LEVEL 1:_____ LEVEL 2: X LEVEL 3:_____**
(Attach justification for funding level selected – see program guidelines)

11. TOTAL ESTIMATED COST: **$ 185,394**

12. COST SHARE REQUESTED: **$ 111,236**

13. SIGNATURE/TITLE:

Bellevue City Engineer

FORM 17.17

Gilmore Lake Road: Wolf Creek Drainage Crossing Study
City of Bellevue, Nebraska

Schemmer Project Number: 05857.001
November 1, 2010

EXECUTIVE SUMMARY

The City of Bellevue entered into a contract with the Schemmer Associates, Inc. to study and evaluate the hydrologic and hydraulic drainage patterns, in the vicinity where Wolf Creek crosses Gilmore Lake Road. The existing open drainage channel and culvert crossing is inadequate for conveying storm runoff from north to south across Gilmore Lake Road. The VFW Post 10727 property and structures experience frequent flooding events.

This study's conclusions and recommendations should be considered conceptual as the accuracy of the available data used to generate the models is not within a tolerance normally used for preliminary and final design. This study addresses the hydrology (quantities of runoff) and hydraulics (conveyance characteristics) of this drainage channel, the contributing watershed, stormwater collection and conveyance in the watershed north of Gilmore Lake Road and conceptual designs and construction costs for improvements to the open channel section that will prevent further erosion of the channel banks. The primary goal of this study is to identify probable locations for drainage issues – collection and conveyance capacities, erosion potential and provide conceptual costs for repair or prevention of further drainage issues.

Existing Site Conditions

The existing watershed within the scope of this study site is approximately 366 acres in size. The watershed is bounded by Cedar Island Road to the west. It is bounded by US Highway 75 to the east. The watershed stretches northward to 25th Street and Sautter Avenue at the south edge of the Kennedy Town Center development. Wolf Creek channel is constricted by culverts at numerous road crossings within the watershed.

In general, the topography of the area slopes from the north to the south over varying grades. The land use of the watershed can largely be characterized as residential. The contributing watershed for this drainage channel extends north of Gilmore Lake Road into the following subdivisions:

Highview Estates	Cedar Island Acres	Childs Estate Acres
Viking Park	Gilmore Heights	Harold Square
Citta's 1st Addition	Spring Creek	Sunrise Addition

Site soils belong to a mixture of Type B, C, and D Hydrologic Soil Groups (HSG) as defined by the Natural Resources Conservation Service (NRCS). The Runoff Curve Number (CN) for the watershed above Gilmore Lake Road is based on a weighted

average of land use and soil types. Maps of the soils, their respective descriptions and HSG designation are also included in the **Appendix**. The resulting SCS Curve Number (CN) for the watershed is seventy (70).

Hydrologic Methodologies and Assumptions

Stormwater design and evaluation criteria were taken from the *Omaha Regional Stormwater Design Manual*, current edition. The 100-year, 50-year, 25-year, 10-year and 2-year, 24-hour storm events were used to evaluate the overall site and existing stormwater collection and conveyance infrastructure. The SCS Type II storm distribution was used for all storm events. The SCS unit hydrograph method was used to model the storm events with curve numbers correlating to existing land use for direct runoff calculations. A two minute computation interval was used for the hydrograph development. Channel routing was not used due to the computation interval and relatively short spatial distances between hydrograph combine points.

The hydrologic analysis of the site was performed with assistance of Intelisolve's Hydraflow Hydrographs 2007 software. A basin schematic of the existing watershed and sub-basins runoff pattern is included with the hydrologic model in the **Appendix**.

Hydrologic characteristics of the watershed – area, land use/curve number and times of concentration - are based on the 2007 aerial photography and use of the 2-foot contours. The overall watershed and individual sub-basins were delineated using 2-foot contours extracted from the Sarpy County GIS Database and USGS quadrangle maps. Curve numbers are obtained from Table 2-8 of the *Omaha Regional Stormwater Design Manual*. Curve numbers are weighted based on lot size and differing land uses. The times of concentration for stormwater runoff for the sub-basins were calculated using the TR55 method.

The storm drain system information is derived from Sarpy County GIS mapping. These maps provided storm drain pipe sizes and inlet locations. However, inlet size and configuration are not identified on these maps. Visual confirmation of inlet locations, inlet sizes, pipe sizes and depths was not included in the scope of services.

Although it could be assumed that the inlets and culverts attenuate some of the peak flow rates due to constriction of flow and provide some stormwater storage, no stormwater runoff detention is modeled as it is difficult to do this accurately with only 2-ft topographic contours and inaccurate culvert and inlet inverts and sizes.

Table 1
Summary of Hydrologic Characteristics and Stormwater Runoff

Basin ID	Area (acres)	Weighted SCS Curve Number (CN)	Hydro-logic Soil Group (HSG)	Time of Concentra-tion (minutes)	Peak Flow, 2-year (cfs)	*Peak Flow, 10-year (cfs)*	*Peak Flow, 25-year (cfs)*	*Peak Flow, 50-year (cfs)*	Peak Flow, 100-year (cfs)
Wolf Creek Watershed	366.5	70	B,C,D	52.4	136	382	506	635	769

Summary of Hydrologic Analysis

The drainage channel west of Wolf Creek is the topographic low point and primary stormwater conveyance for the subject watershed. The hydrologic model results appear reasonable given the existing land use and flow paths. Some attenuation and storage of runoff can be expected at constriction points in the system – inlets, pipes, culverts, etc. This level of analysis was not performed due to the level of accuracy of data used.

Option 'A': Improve Channel Section and Culvert Capacity at Gilmore Lake Road

Option 'A' Assumptions

The hydrologic and hydraulic criteria for the proposed drainage structure are based on Nebraska Department of Roads design criteria. The culvert at Gilmore Lake Road shall be designed to convey the 25-year (4% chance) runoff event with a headwater no higher than one foot above the soffit elevation of the pipe or box structure or overtopping the roadway. A bypass channel for storm runoff events less frequent than the 25-year event shall convey that additional flow rate eastward then southward around the eastern portion of the VFW 10727 parking lot and buildings.

Permanent drainage easements will need to be acquired for portions of Outlot 'B' of Spring Creek Subdivision, the VFW property and Outlot 'A' of Green Meadows Replat One.

Channel Section Improvement Recommendations

Channel realignment of Wolf Creek shall begin approximately 200 feet north of Gilmore Lake Road. Realignment of the channel will enable the channel and culvert structure to convey the stormwater runoff more efficiently through the crossing at Gilmore Lake Road. The improved channel section will require a deeper approach to the inlet of the culvert at Gilmore Lake Road.

The channel section upstream of Gilmore Lake Road must be realigned to create a more direct flow through the improved culvert section and the downstream channel section. The channel section downstream of Gilmore lake road will require stabilization measures as the physical space limitations between the VFW building and the existing residential subdivision west of the channel are limited and the channel depth is greater in this location. The culvert at Gilmore Lake Road shall be increased in sized to accommodate the 25-yr runoff criterion. Please refer to **Exhibit 'B.'**

Culvert Section Improvement Recommendations

The culvert section required to convey the 25-yr runoff event using the previously mentioned NDOR 25-year design requirement is two, parallel 72-inch diameter pipes. The double barrel pipe section will provide a conveyance cross-sectional area of 56.5 square feet. Concrete pipe was selected as the preferred construction method and material as it easier and less expensive to fabricate and install, in general, than reinforced concrete box or a cast-in-place concrete box culvert. Corrugated metal pipe has a higher manning's roughness coefficient and therefore requires a greater cross-sectional area to convey the design peak flow rate.

Option 'A' Channel and Culvert Improvements, Opinion of Probable Construction Costs

Item	Unit	Cost/Unit	Qty	Total
Remove and Dispose of Trees, Debris	LS	$2,750.00	1	$2,750.00
Clear and Grub Site	LS	$9,500.00	1	$9,500.00
Excavation	CY	$7.00	700	$4,900.00
Unsuitable Soils, Remove and Dispose	CY	$12.00	1000	$12,000.00
36" RCP Remove and Dispose	LF	$15.00	36	$300.00
30" RCP	LF	$50.00	24	$1,200.00
72" Diameter RCP	LF	$330.00	200	$66,400.00
Reinforced Concrete Headwalls	LS	$15,000.00	1	$15,000.00
Erosion Control Blanket	SY	$2.00	300	$600.00
Rock Rip Rap, Class C,	TON	$40.00	510	$20,400.00
Crushed Rock Surfacing	TON	$28.00	90	$2,520.00
Seeding, Fertilize, Mulch	AC	$2,000.00	1	$2,000.00
Subtotal				$137,570.00
Contingencies @ 20%				$27,514.00
Total				**$165,084.00**

Permanent Drainage Easements

0.1 Acre x $5,000 / Acre = **$500**

Estimated Engineering and Design Costs

Engineering Costs (Topographic Survey, Preliminary and Final Design and Specifications) estimated at 12% of Total Construction Costs

Engineering: $165,084 x 0.12 = **$19,810**

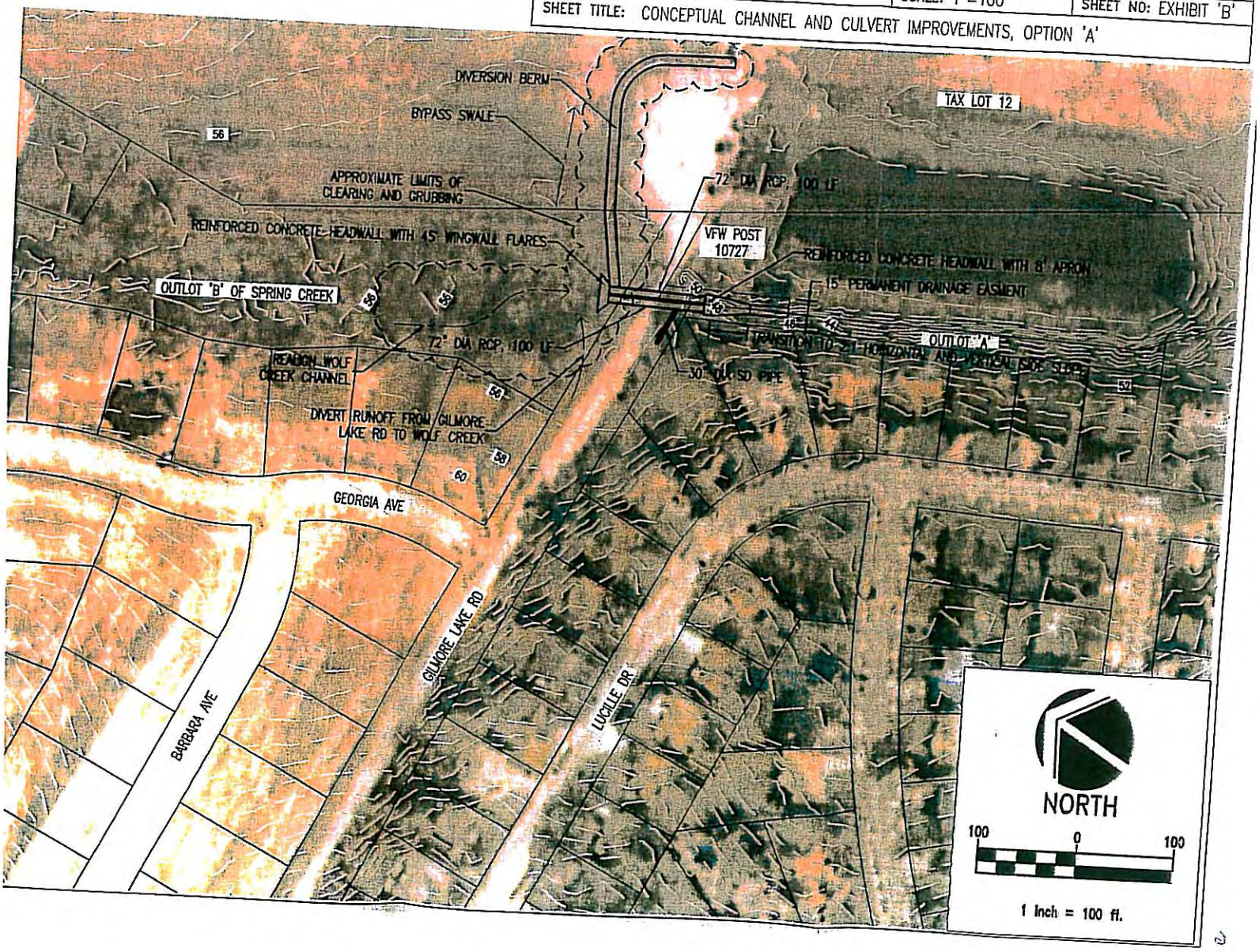
Total Project Costs = Easement Costs + Construction Costs+ Engineering Costs = $185,394

)TO PROVIDED BY SARPY COUNTY GIS.

SCHEMMER
ARCHITECTS | ENGINEERS | PLANNERS

PROJECT: GILMORE LAKE ROAD HYDRAULIC STUDY			
JOB NO: 05857.001			
DATE: 11/01/2010	DRAWN: DJK	SCALE: 1"=100'	SHEET NO: EXHIBIT 'B'

SHEET TITLE: CONCEPTUAL CHANNEL AND CULVERT IMPROVEMENTS, OPTION 'A'



PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
www.papionrd.org

URBAN CONSERVATION ASSISTANCE PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: March 16, 2011

2. PROJECT NAME: Big Papio Trail Erosion and Sediment Improvements – Pacific Street

3. PROJECT SPONSOR: City of Omaha Parks, Recreation and Public Property

ADDRESS: 1819 Farnam Street, Ste. 701
Omaha, NE 68114

4. CONTACT PERSON: John Williams
TITLE: Park Planner

5. TELEPHONE: 444-5943

6. PROJECT LOCATION:
The project is located along the Big Papio Trail at the undercrossing of Pacific Street.

Refer to Exhibit 'A'

7. DESCRIPTION OF PROBLEM:
Run-off from the bridges washes down the embankment and erodes the bare ground directly under the bridges. This causes sediment to build up across the trail below the bridges. The sediment creates a slipping hazard on the trail and is also unsightly and causes trail users to walk or bike through the muddy sediment.

Refer to Exhibit 'B'

8.PROPOSED SOLUTION:
Direct the water coming off the bridges to not flow to the bare areas under the bridges. Grading will be done in the areas where the water comes off the bridge. To help reduce the erosion of the water coming off the bridge we propose to place rip rap in the areas where water exits the bridges. Rip rap will also be placed on the slope below the bridge so in the event some water does find its way into the bare soil below the bridge the rip rap will disperse its energy and the rip rap will also stabilize the soil.

An under drain will be provided at the toe of the embankment slope to remove any water that builds up along the edge of the trail.

Refer to the attached Exhibit 'C'.

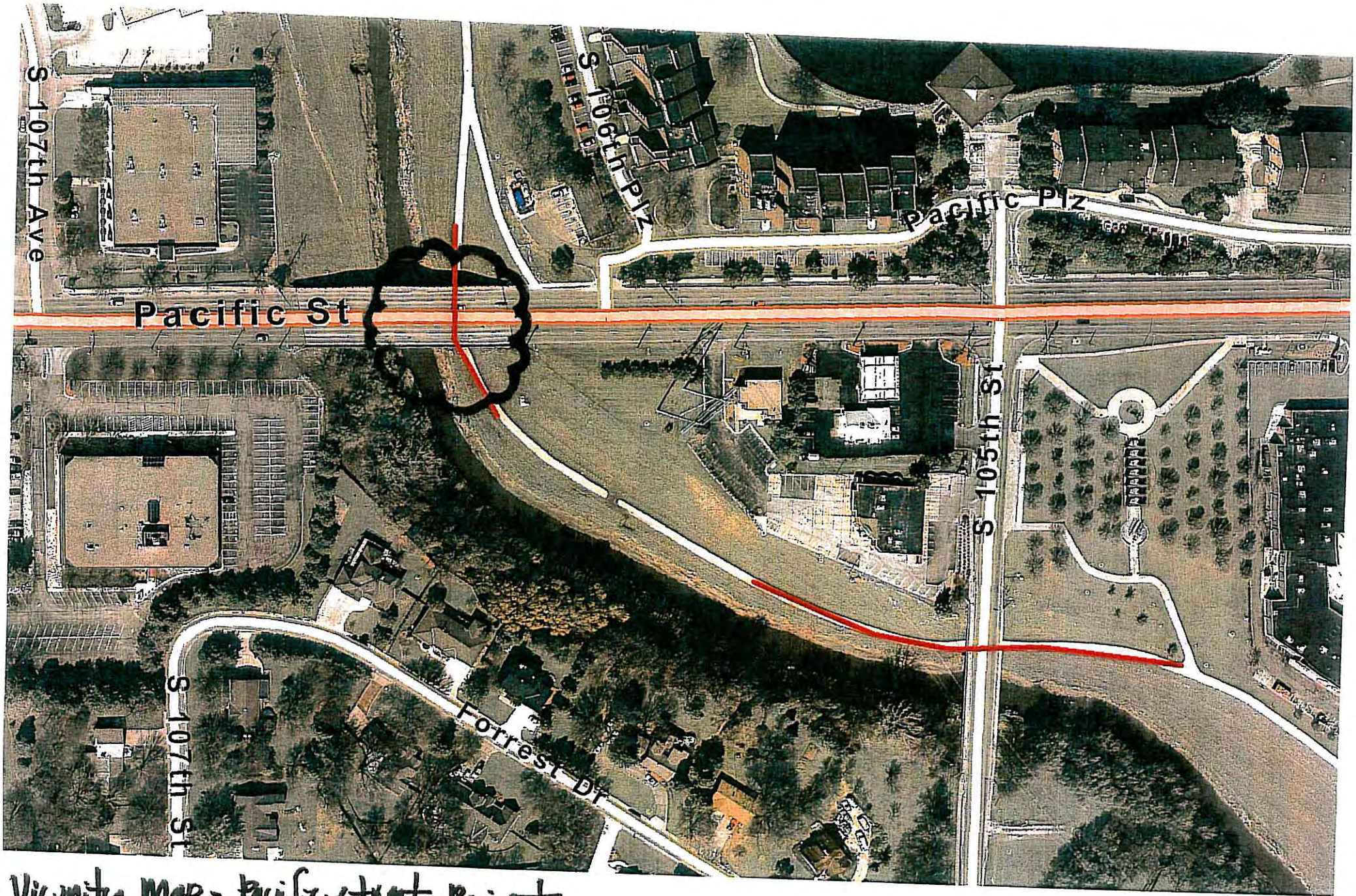
9. TOTAL ESTIMATED COST: $31,500.00

10. COST SHARE REQUESTED: $18,900.00 (60% of total)

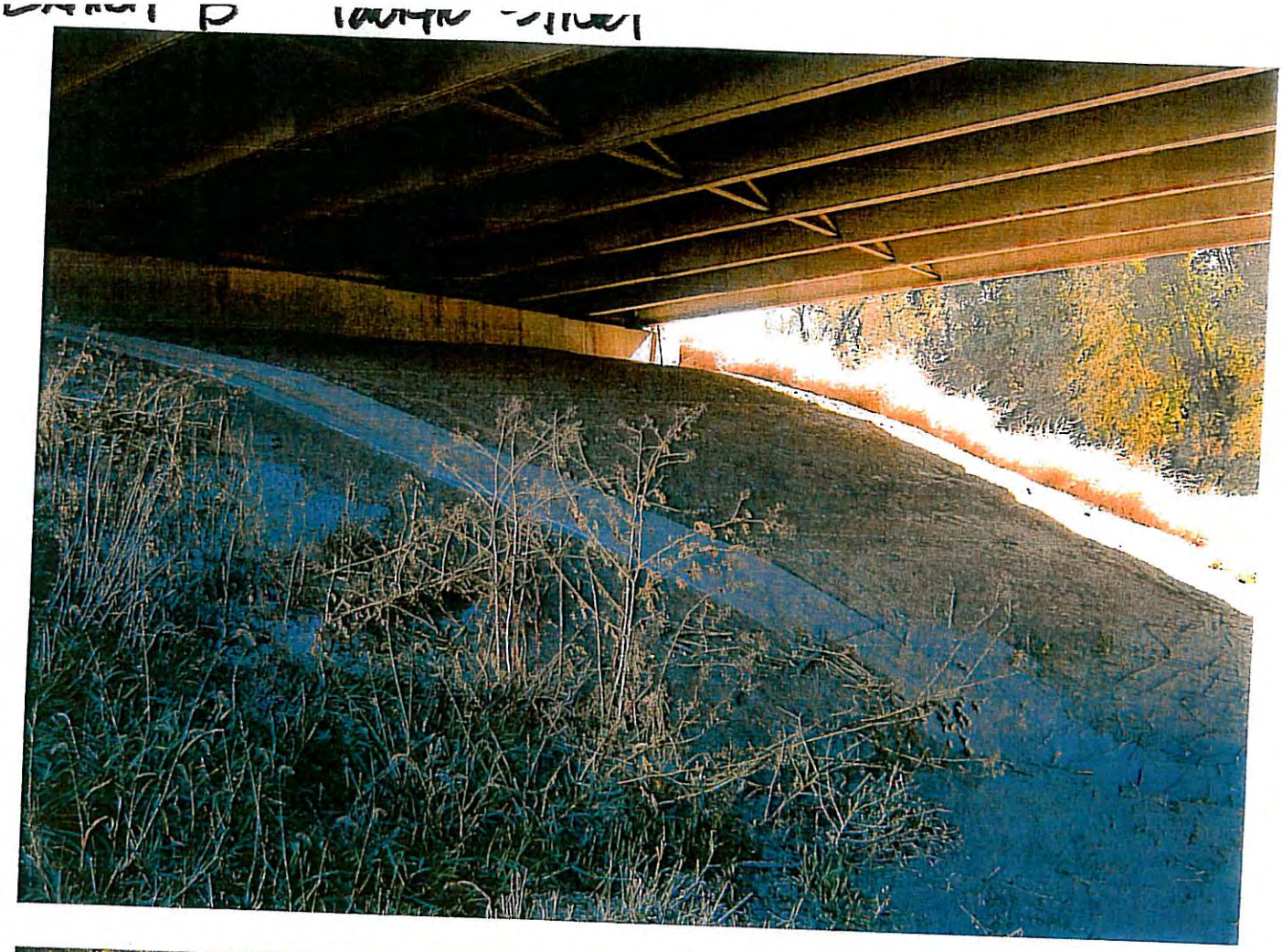
11. SIGNATURE/TITLE: John Williams – Park Planner

FORM 17.0B

Exhibit 'A'



Vicinity map - Pacific street Project



BIG PAPIO TRAIL - EROSION CONTROL @ PACIFIC ST.				
ITEM	UNITS	QTY.	UNIT PRICE	TOTAL
Misc. Grading	LS	1	$500.00	$500
New Concrete Paving, 6" thick shoulders	SF	391	$4.25	$1,662
Underlayment Fabric, Below Rip Rap	SF	1903	$3.00	$5,709
Class I Rip Rap	TN	275	$50.00	$13,750
Geoweb GW30 system	LS	1	$3,000.00	$3,000
Drain Tile, 6"	LS	1	$1,000.00	$1,000
Seeding	LS	1	$500.00	$500
Staging/Mobilization	LS	1	$2,500.00	$2,500
SUBTOTAL				$28,621
Contingency @ 10%				$2,862
CONSTRUCTION TOTAL				$31,483

Exhibit C

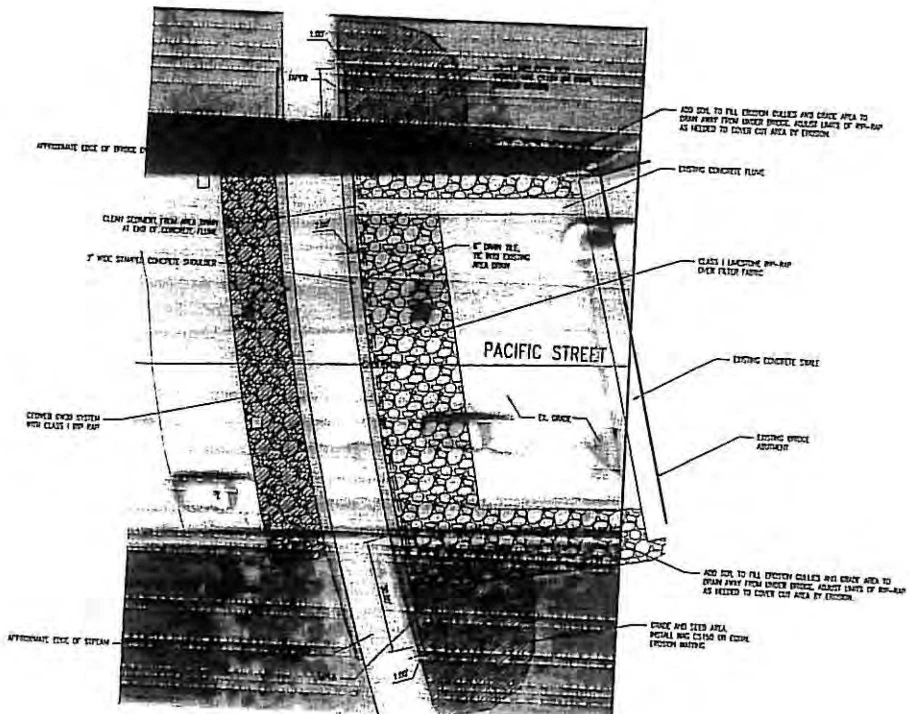
KEY

RIP-RAP OVER FABRIC (APPROX. 1,270 SQ. FT.)

RIP-RAP OVER GEOWEB SYSTEM (APPROX. 420 SQ. FT.)

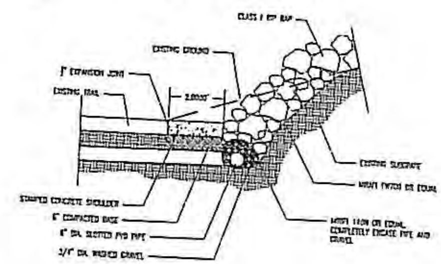
NOTES:
1. AREA AS NEEDED RIP-RAP SHALL BE GRADED SYSTEM

NORTH



CONSTRUCTION PLAN & PACIFIC STREET UNDERCROSSING
SCALE: 1" = 10'-0"

NOTES:
1. STAMPED CONCRETE SHOULDER SHALL BE REGULAR GRAY CONCRETE W/COBBLESTONE PATTERN.
2. RIP-RAP SHALL BE ADJUSTED IN PLACE SO ALL VOIDS ARE FILLED AND STONE IS TIGHTLY PACKED.
3. PERFORATED DRAIN PIPE SHALL BE SLOPED A MIN. OF .5% TOWARD THE EXISTING AREA DRAIN.



1 / C-2 TYPICAL RIP-RAP SECTION @ SLOPED ABUTMENT
SCALE: 1/2" = 1'-0"

PARKS
RECREATION
1819 Farnam St. # 701
Omaha, Ne. 68183-0701
(402) 444-5900

DRAWING NAME:
SITE PLAN

PROJECT NAME:
BIG PAPIO TRAIL EROSION CONTROL IMPROVEMENTS UNDERCROSSING @ PACIFIC ST.

C-2
1 OF 2

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th Street
Omaha, NE 68138-3621
402-444-6222
www.papionrd.org

URBAN CONSERVATION ASSISTANCE PROGRAM

SPECIAL PROJECT REQUEST APPLICATION

1. DATE: March 16, 2011

2. PROJECT NAME: Big Papio Trail Erosion and Sediment Improvements – 105th Street

3. PROJECT SPONSOR: City of Omaha Parks, Recreation and Public Property

ADDRESS: 1819 Farnam Street, Ste. 701
Omaha, NE 68114

4. CONTACT PERSON: John Williams
TITLE: Park Planner

5. TELEPHONE: 444-5943

6. PROJECT LOCATION:
The project is located along the Big Papio Trail at the undercrossing of 105th Street.

Refer to Exhibit 'A'

7. DESCRIPTION OF PROBLEM:
Run-off from the bridges washes down the embankment and erodes the bare ground directly under the bridges. This causes sediment to build up across the trail below the bridges. The sediment creates a slipping hazard on the trail and is also unsightly and causes trail users to walk or bike through the muddy sediment.

Refer to Exhibit 'B'

8.PROPOSED SOLUTION:
Direct the water coming off the bridges to not flow to the bare areas under the bridges. Grading will be done in the areas where the water comes off the bridge. To help reduce the erosion of the water coming off the bridge we propose to place rip rap in the areas where water exits the bridges. Rip rap will also be placed on the slope below the bridge so in the event some water does find its way into the bare soil below the bridge the rip rap will disperse its energy and the rip rap will also stabilize the soil.

An under drain will be provided at the toe of the embankment slope to remove any water that builds up along the edge of the trail.

Refer to the attached Exhibit 'C'.

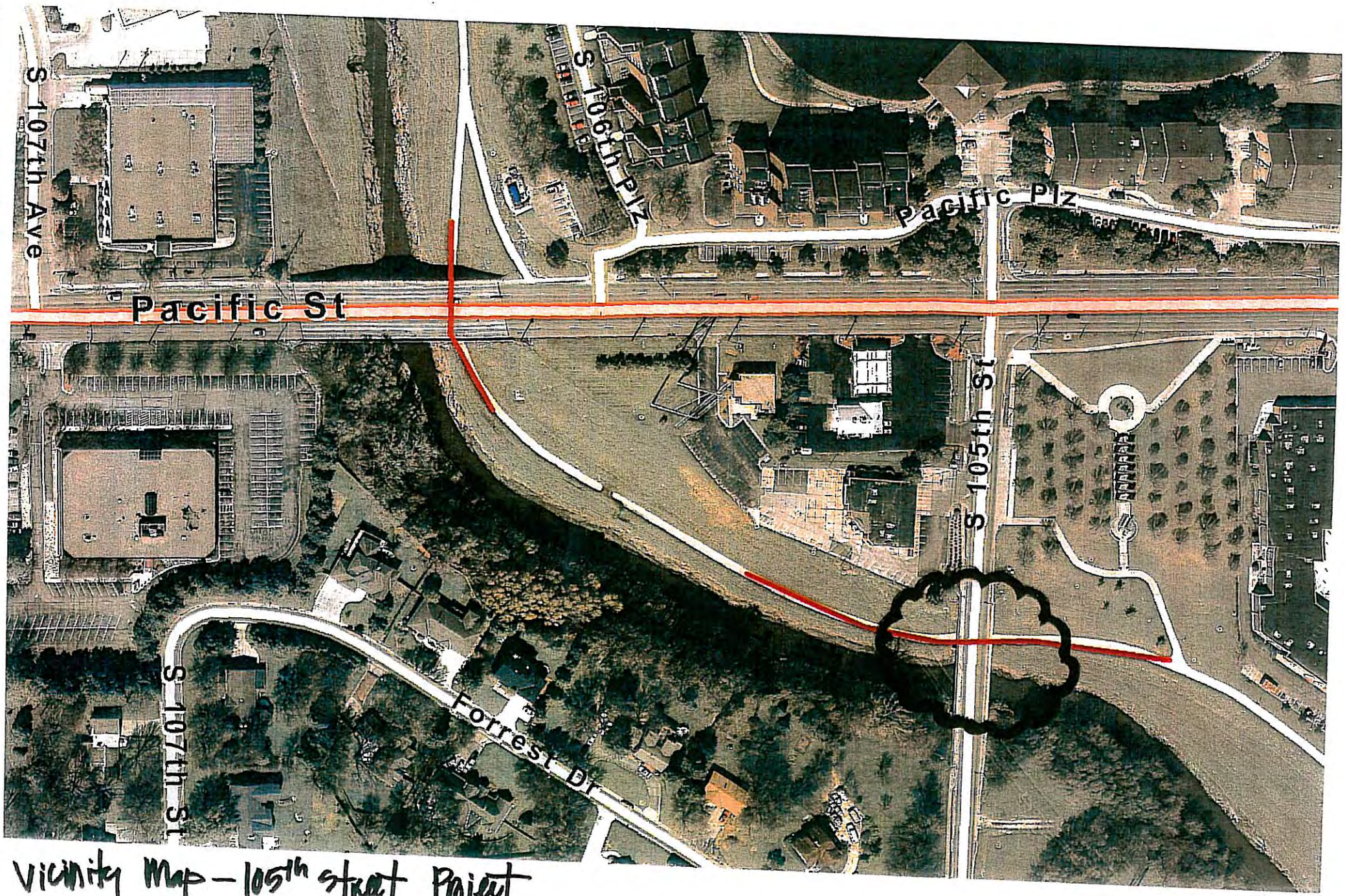
9. TOTAL ESTIMATED COST: $22,500.00

10. COST SHARE REQUESTED: $13,500.00 (60% of total)

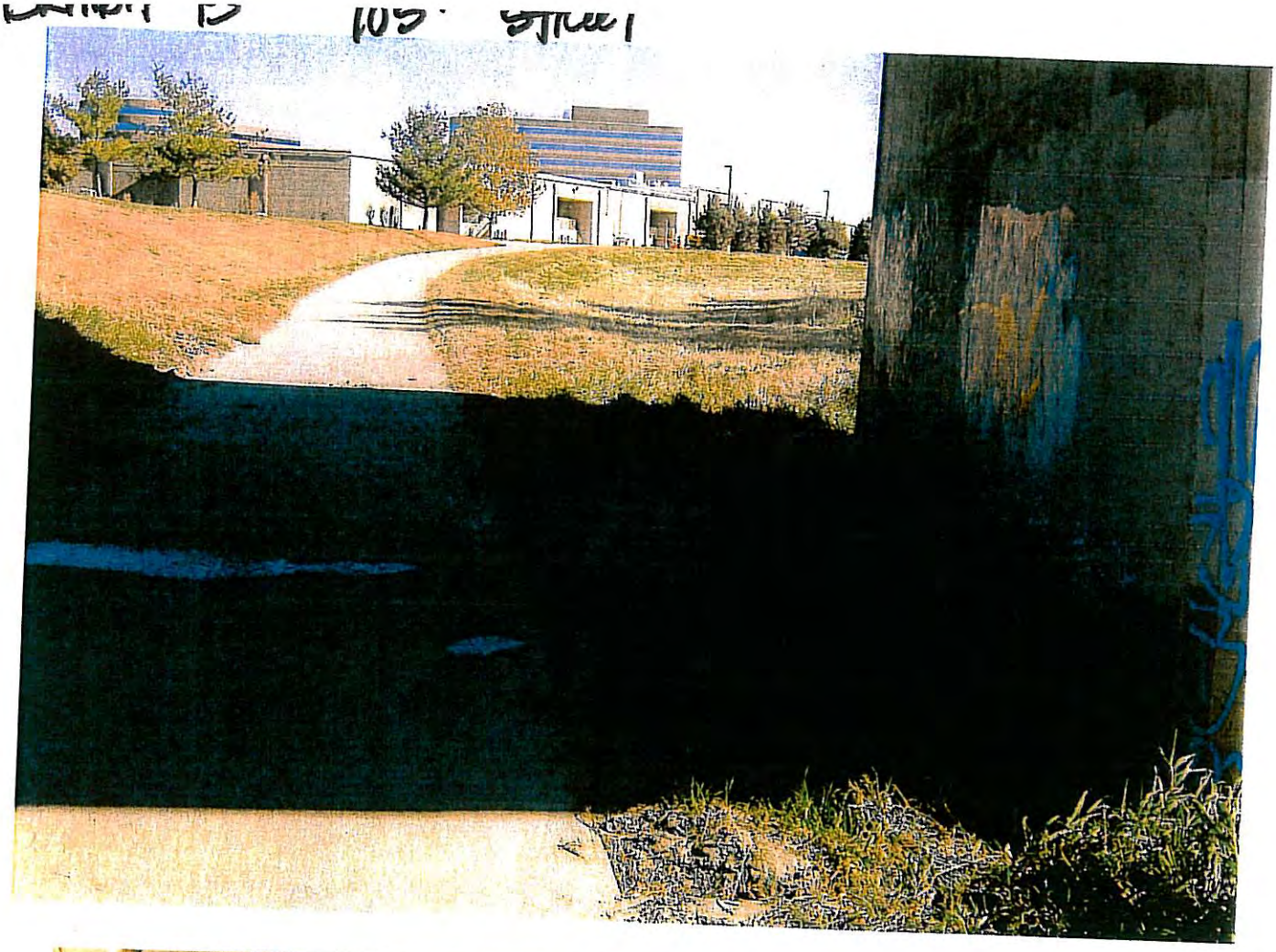
11. SIGNATURE/TITLE: John Williams – Park Planner

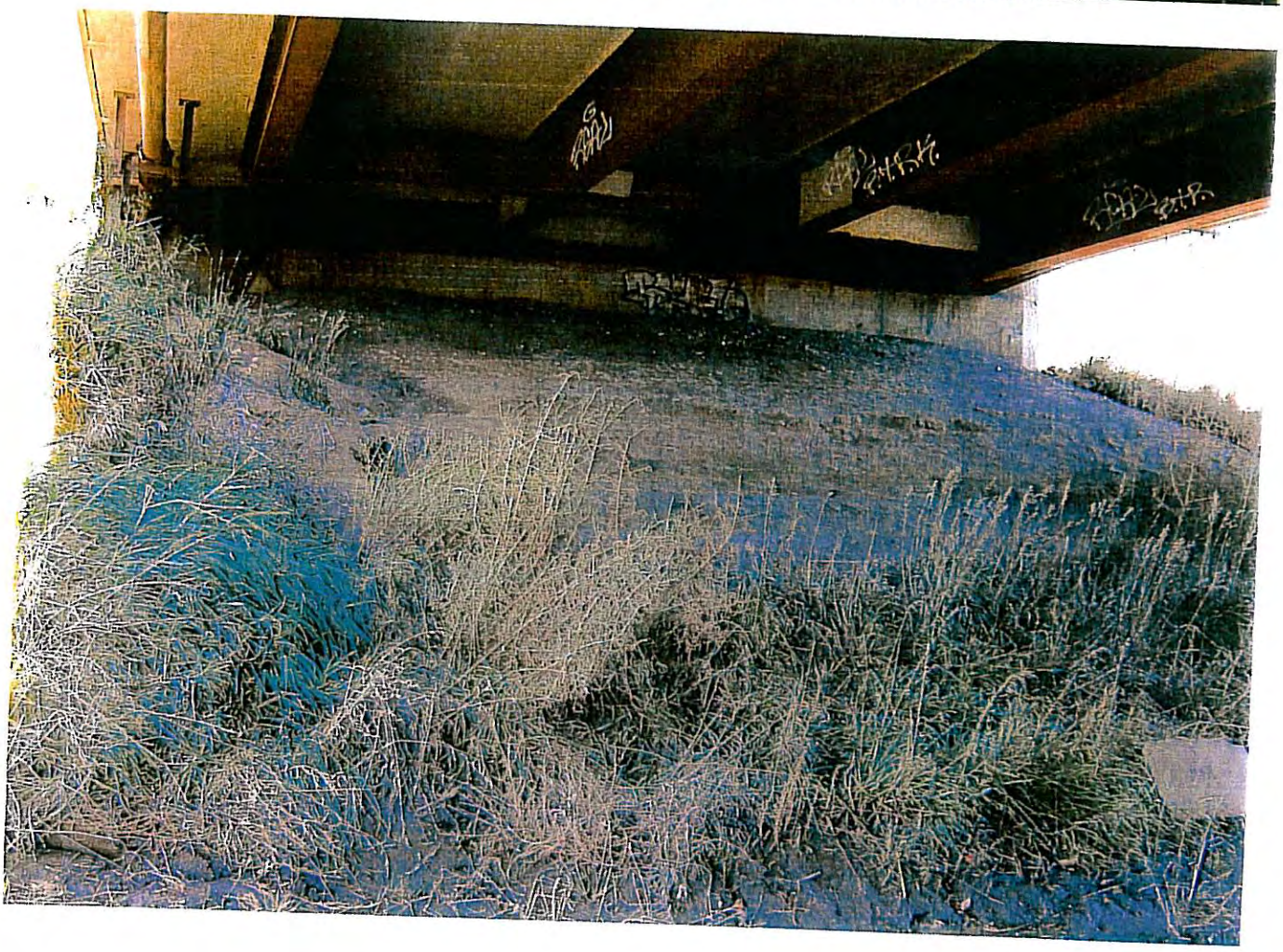
FORM 17.0B

Exhibit A



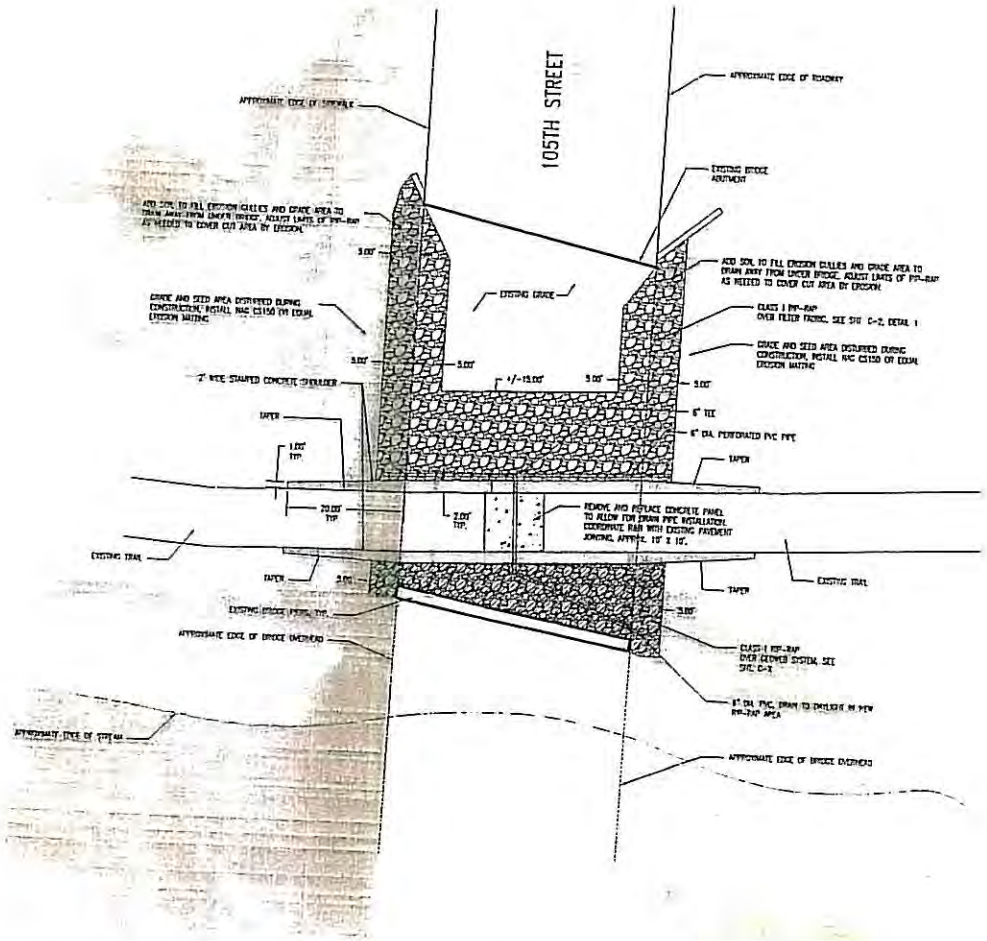
Vicinity Map – 105th Street Project





BIG PAPIO TRAIL - EROSION CONTROL @ 105TH ST.				
ITEM	UNITS	QTY.	UNIT PRICE	TOTAL
Misc. Grading	LS	1	$500.00	$500.00
Remove Existing Trail	SF	100	$2.00	$200.00
Subgrade Preparation	SY	15	$3.00	$45.00
New Concrete Paving, 6" thick	SF	100	$4.00	$400.00
New Concrete Paving, 6" thick shoulders	SF	280	$4.25	$1,190.00
Underlayment Fabric, Below Rip Rap	SF	1270	$3.00	$3,810.00
Class I Rip Rap	TN	180	$50.00	$9,000.00
Geoweb GW30 system	LS	1	$2,250.00	$2,250.00
Drain Tile, 6"	LS	1	$1,000.00	$1,000.00
Seeding	LS	1	$350.00	$350.00
Staging/Mobilization	LS	1	$1,700.00	$1,700.00
SUBTOTAL				$20,445.00
Contingency @ 10%				$2,044.50
CONSTRUCTION TOTAL				$22,489.50

Exhibit "C"



CONSTRUCTION PLAN & 105TH STREET UNDERCROSSING
SCALE: 1" = 10'- 0"

KEY

RIP-RAP OVER FABRIC (APPROX. 1,370 SQ. FT.)

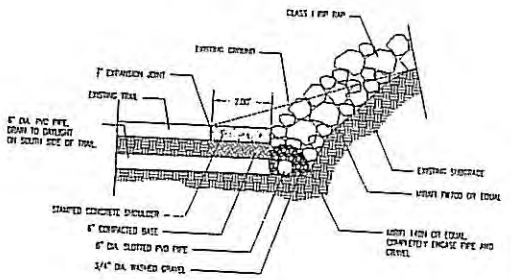
RIP-RAP OVER GEOWEB SYSTEM (APPROX. 450 SQ. FT.)

NORTH

0 5 10 20

NOTES
1. AREA TO RECEIVE RIP-RAP SHALL BE GRADED SMOOTH

NOTES:
1. STAMPED CONCRETE SHOULDER SHALL BE REGULAR GRAY CONCRETE W/COBBLESTONE PATTERN.
2. RIP-RAP SHALL BE ADJUSTED IN PLACE SO ALL VOIDS ARE FILLED AND STONE IS TIGHTLY PACKED.
3. PERFORATED DRAIN PIPE SHALL BE SLOPED A MIN. OF .5% TOWARD THE OUTLET PIPE. THE OUTLET PIPE SHALL SLOPE A MIN OF .5% TO DAYLIGHT



1 / C-2 TYPICAL RIP-RAP SECTION @ SLOPED ABUTMENT
SCALE: 1/2" = 1'- 0"

PARKS
RECREATION
1819 Farnam St., # 701
Omaha, Ne. 68183-0701
(402) 444-5900

DRAWING NAME: SITE PLAN

PROJECT NAME: BIG PAPIO TRAIL EROSION CONTROL IMPROVEMENTS UNDERCROSSING @ 105TH ST.

DESIGNED BY: JCK
DETAILED BY: JCK
APPROVED BY:
DATE: NOVEMBER 15, 2018

C-2
1 OF 2

La Vista
Community Pride. Progressive Vision.

April 1, 2011

Mr. Gerry Bowen
Natural Resources Planner
Papio-Missouri River NRD
8901 South 154th Street
Omaha, NE 68138-3621

APR – 8

RE: Keystone Trail – La Vista Link
ENH-77(50)
Project Status Update

Mr. Bowen:

I am writing per your request to provide an update on the Keystone Trail-La Vista Link hiking/biking trail project. After a great deal of effort to get the plans and related paperwork approved, we were recently informed that this project will be bid at the April or May, 2011 NDOR letting. The construction period has been set for Sept. 6, 2011 through Nov. 5, 2011.

We also received an updated cost estimate from the NDOR dated March 7, 2011. In that estimate they advised us that the Federal share has been increased from 70% to 80% for the construction and construction engineering services. Attached is an Updated Project Cost summary that I have prepared for your use. The information shows that the funds we would like to receive from the PMRNRD Trails Assistance Program would be reduced from the previous request of $52,366. Until actual bids are received I would propose using a figure of $50,000 for the assistance we are requesting. After bids are received by the NDOR we can give you an updated cost.

Please contact the undersigned with any questions or if you need additional materials to support this request.

Submitted by:

John M. Kottmann

John M. Kottmann, P.E.
City Engineer

City Hall
8116 Park View Blvd.
La Vista, NE 68128-2198
p: 402-331-4343
f: 402-331-4375

Community Development
8116 Park View Blvd.
p: 402-331-4343
f: 402-331-4375

Fire
8110 Park View Blvd.
p: 402-331-4748
f: 402-331-0410

Golf Course
8305 Park View Blvd.
p: 402-339-9147

Library
9110 Giles Rd.
p: 402-537-3900
f: 402-537-3902

Police
7701 South 96th St.
p: 402-331-1582
f: 402-331-7210

Public Works
9900 Portal Rd.
p: 402-331-8927
f: 402-331-1051

Recreation
8116 Park View Blvd.
p: 402-331-3455
f: 402-331-0299

KEYSTONE TRAIL-LA VISTA LINK
ENH-77(50), CN 22251
UPDATED PROJECT COSTS
BASED ON NDOR PS&E ESTIMATE
31-Mar-11

COST CATEGORY		LOCAL SHARE	FEDERAL SHARE	CATEGORY TOTAL	
Preliminary Engineering (Design)		$8,446.20	$19,707.80	$28,154.00	70/30
Preliminary Engineering (Extra) (Allowance for full Fed. Oversight)		$800.00	$3,200.00	$4,000.00	80/20
Construction Engineering		$7,645.52	$30,582.09	$38,227.61	80/20
Constructon w/Contingency		$57,164.17	$228,656.70	$285,820.87	80/20
	Totals	$74,055.90	$282,146.58	$356,202.48	$356,202.48
Extra Design work due to full federal oversight and not covered by$4,000 NDOR adjustment		$15,000.00			
Local Share Total		$89,055.90			
NRD Participation, 50% Local Share		$44,527.95			

Note: Local share does not include right of way costs which are not listed as an eligible cost item in Trails Assistance Program

Form 17.40 A

TRAILS ASSISTANCE PROGRAM

APPLICATION FORM

1. DATE: 03/14/08

2. PROJECT NAME: La Vista Link - Keystone Trail

3. PROJECT SPONSOR: City of La Vista
(Address)

9900 Portal Road

La Vista NE 68128

4. CONTACT PERSON: Joe Soucie TITLE: Director

5. TELEPHONE: 331-8927 (work) 680-2016 (cell)

6. PROJECT LOCATION ** : Start Point: 7427 S. 69th Street

Ending Point: Southeast Corner of 66th & Harrison Street

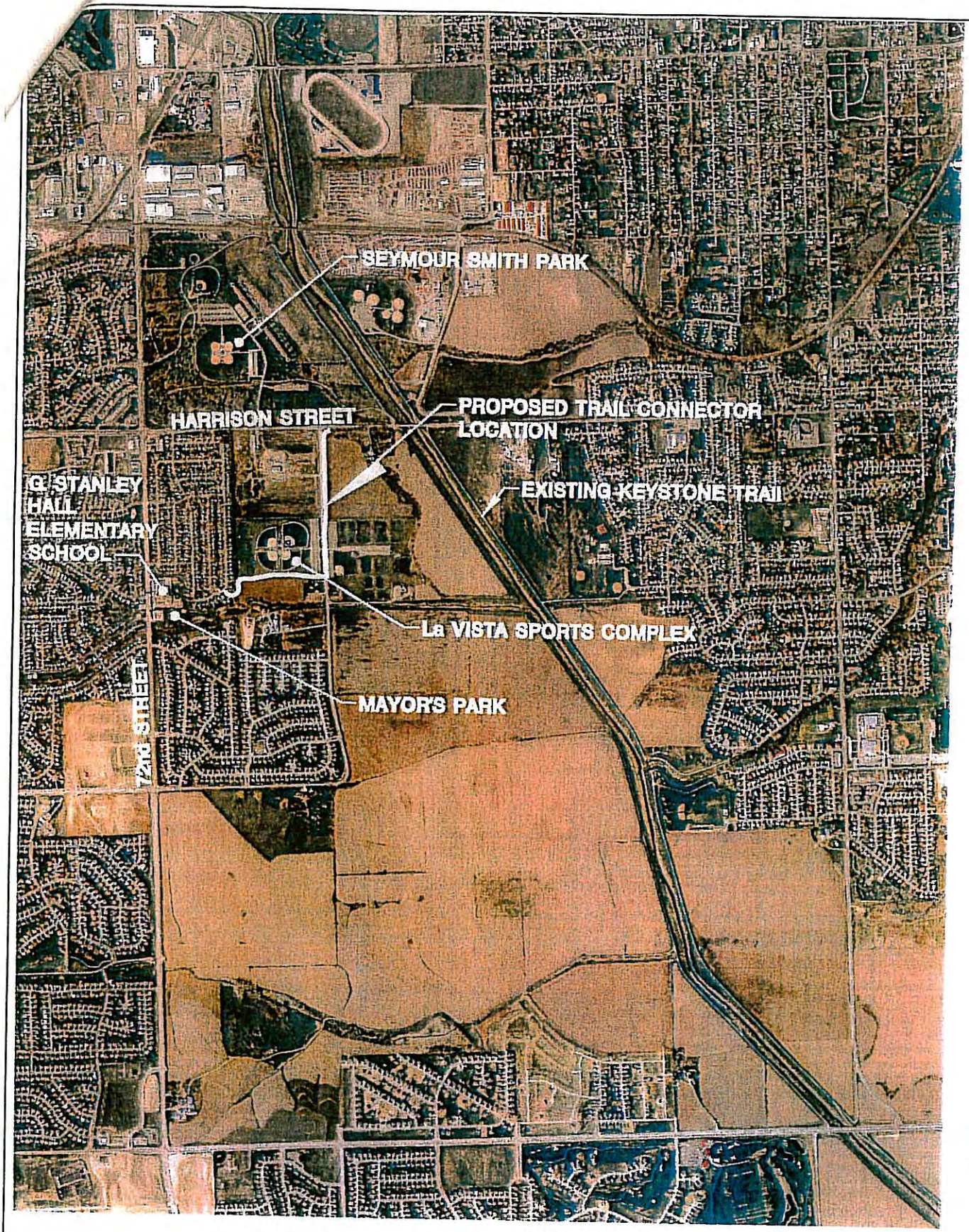
7. DESCRIPTION OF PROJECT ** : The La Vista Link Trail is intended to be an alternative transportation corridor for residents and visitors to access the La Vista Sports Complex, Keystone Trail and other parts of the community as the La Vista Master Trail Plan expands. Currently there is no transportation corridor to the Sports Complex for pedestrians or bicyclists unless they use existing roadways or the grass shoulders on those roads. The La Vista Link would provide a safe alternate route for non-motorized traffic to travel.

8. TOTAL ESTIMATED COST: $ 349,109.35

9. COST SHARE REQUEST: $ 52,366.40

10. SIGNATURE/TITLE: Joe Soucie

** Attach additional sheets as necessary.



2 THOMPSON, DREESSEN & DORNER, INC.
Consulting Engineers & Land Surveyors
10836 OLD MILL ROAD OMAHA, NEBRASKA 68154
PHONE: 402.330.8860 FAX: 402.330.5866 EMAIL: TD2MAIL@TD2CO.COM
WEBSITE: WWW.TD2CO.COM

JOB #: 171-254 DWG: 171254CN_Trail.DWG

CITY OF LAVISTA

KEYSTONE TRAIL CONNECTOR

VICINITY MAP

SCALE: AS SHOWN
DATE: 9-29-06
DRAWN BY: DWG
CHECKED BY: JMK
REVISIONS: