



DRUMHELLER

RESILIENCY AND FLOOD MITIGATION OFFICE



DRUMHELLER
VALLEY

Resiliency and Flood Mitigation Program

REQUEST FOR PROPOSAL

PROPOSAL:	RFP for Engineering Prime Consultant Services Engineering Packages A and B (2020 – 2024)
DATE:	December 8 ,2020
FROM:	Darwin Durnie, Chief Resiliency and Flood Mitigation Officer TOWN OF DRUMHELLER REPRESENTATIVE

DATE PROPOSAL REQUIRED:

YEAR: **2021** MONTH: **January** DAY: **7** TIME: **11:00 AM** Local Time

- SUBMIT PROPOSAL IN A CLEARLY-MARKED & SEALED ENVELOPE –

"PROPOSAL FOR:

Drumheller Resiliency and Flood Mitigation Program - Engineering Prime Consultant Services Engineering Packages A and B (2020 – 2024) RFP 2020-12-10"

Attention: Darwin Durnie,
Chief Resiliency and Flood Mitigation Officer (CRFM Officer)

Deliver To: TOWN OF DRUMHELLER
702 Premier Way
Drumheller, Alberta T0J 0Y0

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1. DRFM Program Overview

The Town of Drumheller (Town), recognized as the “Dinosaur Capital of the World”, is rich in geological and paleontological history. The breathtaking landscapes surrounding Drumheller are unique in Canada and draw hundreds of thousands of visitors every year.

The Town has chosen to make significant investment to Mitigate Flooding and adapt to a changing Climate. In June of 2018 the Town began the process of applying to the Federal and Provincial Governments for financial assistance to implement a long-term strategy. Funding contribution agreements require, insofar as practicable, that public solicitation be made for contracts carried out under this funding arrangement.

The Council Vision is:

Through a proactive flood-mitigation strategy, we are committed to changing the channel on flood readiness with a sustainable plan to protect Drumheller from future flooding.

Together, we will shape the future of our community by protecting our people, our property, our economic growth, our environment and our cultural heritage.

The Town now is moving forward to implement this initiative through the Drumheller Resiliency and Flood Mitigation Program (DRFM Program) and has established the Office of Resiliency and Flood Mitigation (DRFM Office). A Chief Resiliency and Flood Mitigation Officer (CRFM Officer) has been appointed to direct the DRFM Program. This Program is expected to be completed by the end of 2024.

2. Confidentiality

In order to receive this RFP Invitation, your firm should have received, executed and returned a Non-Disclosure Agreement to the DRFM Office.

This project is of a most highly sensitive nature given the interest from the community regarding the possible impacts on residents and their properties. The nature of the project is that several different options will need to be reviewed for all project components in an objective and unbiased manner in order to select and deliver the option that makes the most sense for the overall good of the Town and all of their residents. This information needs to be properly disseminated to the residents by the DRFM Office. Ad-hoc or pre-mature disclosure of options under consideration, whether they come to fruition or not, could cause considerable anxiety within the community. Therefore, the confidential nature of Program information during the planning and implement of this program cannot be overstated.

3. Overview of Identified Projects

The DRFM Program is expected to involve the planning and execution of multiple projects at several locations within various Town communities. At this time the DRFM Office has identified eleven (11) projects that are at a level requiring a review for feasibility, followed by pre-design, design and construction as approved by the DRFM Office. The eleven current projects under considerations include:

- #1 - **Nacmine Dike** - (RDR 45,500 to 47,400 m)
- #2 - **West & Central Midland Dike** - (RDR 43,800 to 44,420 m)
- #3 - **East Midland Dike** - (RDR 41,850 to 43,800 m)
- #4 - **West & East Newcastle Dikes** - (RDR 41,860 to 43,450 m)
- #5 - **Hospital & W. Michichi Creek Dike A** - (MC 535 to RDR 42,340 m)
- #6 - **North Drumheller Dikes B & C** - (RDR 40,525 to MC 535 m)
- #7 - **Central Drumheller Dyke D** - (RDR 39,550 to 40,715 m)
- #8 - **Willow Estates Dike** - (RDR 37,400 to 37,700 m)
- #9 - **East Rosedale Dike** - (RDR 29,900 to RBR 527 m)
- #10 - **Lehigh Dike** - (RDR 19,700 to 20,475 m)
- #11 - **East Coulee Dike** – (RDRS 16,900 to 18,440 m)

The estimated dike stations are provided relative to the Red Deer River (RDR), Michichi Creek (MC) and Rosebud River (RBR) from AEP's 2019 River Studies. The use of the word "dike" in these project names is preliminary and may eventually refer to a new dike, dike upgrades or alternative risk mitigation measures to minimize flood damage based on feasibility and economics. It is anticipated that several additional smaller or more specialized projects will be identified and distributed over the term of the project (e.g. **Wayne Valley, Verdant Valley**).

In anticipation of these projects, the DRFM Office undertook a pre-qualification competition to select four civil engineering firms to act as prime consultants for various components of the project. The firms were selected based on qualifications in flood mitigation projects and all displayed different skills and expertise that were considered to be of most benefit to the Program. Rather than give all of the projects to one firm, it is proposed to split up the work between firms in a competitive manner. Splitting up the work will allow each firm to focus on the individual needs of the communities where their assigned projects are located; and will hopefully increase the chances for individual projects to be completed in a cost-effective and timely manner.

In preparation of this RFP, the four pre-qualified firms have been given access to a folder on the DRFM Google Drive and been asked to familiarize themselves with the file information available to assist in the preparation of their proposals. The suggested primary sources for individual project information are the five Alberta Government Grant packages for the project. Each grant package was built as a revision of the

previous package, and some projects dropped of the grant list, so the latest entry should be considered most accurate. A brief overview summary of each project and a preliminary cost estimate; as well as the relevant Grant package reference is provided in **Appendix A**. The other main reference is AEP’s 2019 River Studies by Northwest Hydraulics Consultants Ltd. which will be used as the basis for all flood mapping and stationing for these projects. Other information posted to the Google folder include:

1. Flood GIS files
2. HecRAS files
3. River Stationing alignment SHP and raster files
4. The Land Use Bylaw prepared by O2 Design
5. A Geotechnical Data Report prepared by ParklandGEO
6. Historical Geotechnical Reports
7. Terrestrial and Aquatic Environmental Reports
8. Climate Impacts Reports by Stantec Consulting Ltd.
9. LiDAR files
10. Altalis GIS files
11. DEM/Contours
12. Historical Dike Inspection, Flood and Aerial Photos
13. Existing dike SHP files
14. Drone footages

For any additional technical information required to prepare this proposal, please contact Mark.brotherton@parklandgeo.com, and the most current and relevant information will be added to the Google Drive, if available. For administrative questions please refer to Section 19.

4. Intent

The Town is seeking proposals to provide **Feasibility Assessment, Planning, Design and Contract Management to the DRFM Program** for eight (8) projects which have been grouped into two separate packages as follows:

PACKAGE	PROJECT
A	#1 - Nacmine Dike – Proposed Dike Construction #2 - West & Central Midland Dike – Existing Dike and Wall Upgrades #3 - East Midland Dike – Existing Dike Upgrades #4 - West & East Newcastle Dikes – Dike Upgrade and East Extension
B	#8 - Willow Estates Dike – Existing Dike Upgrade #9 - East Rosedale Dike – Proposed Dike #10 - Lehigh Dike – Proposed Dike or Relocation #11 - East Coulee Dike – Dike Upgrade and East Extension

This invitation is a continuation of the procurement process initiated through the **DRFM RFP Program, EP for Berms & Dikes 2020-07-22** which was the pre-qualification process for selection of prime consultants for this Program. As such, proposals are only being requested from the firms listed below. Any submissions received from others will not be review or considered.

1. Wood PLC

2. Klohn Crippen Berger Ltd.

These pre-qualified Providers are invited to submit a single proposal for both packages, with proposal attachments being separated by package (Package A and Package B). A “value-based selection” process will be employed for this procurement. The successful Consultant will be the firm whose proposal offers best value in terms of qualification, understanding and price. The selection criteria are discussed in Section 30. Proposal submissions will be evaluated based on all eight projects in all three packages.

The Town’s intent is for the pre-qualified Provider with the highest evaluated score to be awarded their choice between Package A and Package B. The Consultant with the next highest evaluated score will be awarded the package that is not selected. The Town reserves the right to choose the projects assigned to each consultant; modify the project packages; award both packages to one Consultant or cancel any of the projects in the three packages.

The Services would commence on or about **January 19, 2021** and would be provided on a contracted and schedule basis as approved by the DRFM Office. The individual or organization proposing to provide the Services is referred to in this Request as “Provider” and depending on the context of particular provision of this Request may also mean the Provider selected to provide the Services or the successful Provider.

The proposal submitted by the Provider in response to this Request for Proposals is referred to as the “Proposal.”

The Provider will be required to enter into a standard contract with the Town of Drumheller. A copy of the contract will be forwarded to your offices shortly under separate cover via the DRFM Office.

5. Previous Proposal Submissions

The two invited providers have already been selected as one of four Providers of professional services for the DRFM Program after being subject to a qualification-based selection process. The invitation to bid on this RFP was done in consideration of the information provided in their previous submissions. The previous submission for **DRFM RFP Program, EP for Berms & Dikes 2020-07-22** will be considered to form part of the evaluation of each Provider. Previously submitted information included:

1. Local Knowledge and Understanding of Drumheller Community;
2. Overall Project Understanding;
3. General Methodology for the Deliverables Listed in Section 6 below;
4. Qualifications and Experience of the Firm, including Project Brochures;
5. Proposed Team Organization and Key Staff, including resumes;
6. General Cost Estimates (for at least part of the program); and
7. Proposed Rate Sheets.

As such, the DRFM Office does not require resubmission of general methodology or qualification information for the firm or the proposed team offered in the previous submission. The only general qualification information provided in this submission should identify any substantial changes from the previous proposal, including but not limited to addition or deletion from the original project team. This proposal should include a verification statement that all information in the previous proposal is still valid; except as specifically identified in this proposal.

6. Scope of the Services

Scope of Services:

The scope of services relates to the engineering design, construction and tender document preparation for the berm dikes and flood mitigation measures in the Town of Drumheller. The services shall be conducted in a competent manner and comply with industry methods and practices in Alberta. The consultant's scope of work includes:

- Collecting and compiling the background information;
- Liaising with key stakeholders in support of the DRFM Office;
- Preparing a work plan and obtaining the approvals;
- Developing & creating an operation & maintenance the manual as per the deliverable list; and,
- Completion of the deliverables in time.

Scope of Work:

The work program is limited to the eight projects in the three work packages outlined in Section 4.

Deliverables:

The scope includes the following deliverables as a minimum requirement:

1. Conceptual Design and Feasibility Study
 - a) Statement of Flooding Situations;
 - b) Summarize Legislation & Regulation Requirements; and,
 - c) Concept Design & Feasibility Report.
2. Preliminary Engineering Design, Cost Estimating and Comparisons
 - a) Final Geotechnical Field Investigations and Lab Testing;
 - b) Groundwater and Hydrogeological Assessment;
 - c) Approvals and Permit Applications (see Section 8);
 - d) Design Report; and,
 - e) Public Consultation (1 event per community is required).
3. Detailed Design and Consultation for the Project
 - a) Construction Plans;
 - b) Civil Design;
 - c) Design Specifications and Quantity Estimates;
 - d) Environmental Design; and,
 - e) Structural Issues.
4. Tender Preparation
 - a) Procurement Documents;
 - b) Construction Inspection; and
 - c) Contract Documents.
5. Construction and Contract Administration
 - a) Construction Inspection;
 - b) Progress & Payment Documents;
 - c) Flooding Monitoring During the Project;
 - a) Field Inspections; and,
 - b) Construction Plans and Record Drawings.
6. Operation & Maintenance
 - a) Instruction Manual;
 - b) Maintenance Plans & Manual;
 - c) Integration with other O&M systems; and,
 - d) Training of operating personnel.

Acceptance Criteria:

An error free secure document submitted electronically and as a hard copy in required numbers. The document is created under the direction and supervision of a Professional Engineer currently permitted to practice in the Province of Alberta.

Constraints:

- The Consultant’s two proposals must be able to demonstrate that it has the personnel, materials, equipment, labor, transportation, machinery, tools, appliances, fuel, lubricants, and all other consumables and incidentals necessary for the completion of the work, including traffic control, when necessary.
- The Consultant's services will be required upon approval of successful bids and assignment of individual projects that are part of this invitational RFP.
- The Town and the Consultant may mutually agree to extend, expand or alter the agreement prior to the expiration of the initial term.
- The Providers should include provision for meetings during this project; in addition to the neighborhood Public Consultation meetings referred to in Point #2 above. The schedule of in-scope meetings should be as follows:
 - a) Two (2) meetings per month from award until May 2020;
 - b) One (1) meeting per month from May 2020 to Construction Start;
 - c) Bi-weekly Meetings during construction.

It may be assumed that virtual attendance for meetings via DRFM’s Google Meet account will be acceptable for the Provider’s senior office staff.

7. Services Provided by the DRFM Office

The DRFM Program has several ongoing initiatives, tasks and services which have been or will be assigned to consultants under separate contracts. These services do not need to be considered in the scope items for the assignment outlined in this RFP. These services include:

1. Land Agent Services and Survey;
2. Legal Survey;
3. First Nations Consultations;
4. Approvals and Permits (see Section 8);
5. Directing Public Consultations (see Section 10);
6. Structural Bridge Assessments: and,
7. Borrow Source Identification and Assessment.

Borrow requirements for this project have been identified by all of the Providers as a key design component. The Town has considerable experience with local soil and aggregate resources for civil construction and will be undertaking or commissioning concurrent studies and investigations to provide construction materials for this project and reasonable surplus stockpiles for temporary measures. These materials will

include: suitable berm fill, aggregates, rip rap, recycled pavement and concrete (for trails), etc. For proposal purposes it should be expected that the berm material provided for these projects will be similar to, or better than the material in the existing dike berms.

8. Approvals and Permits

The DRFM Office has already laid a foundation for the Approvals and Permitting process via discussions with the Province and preliminary work done by team members with the overall goal of streamlining the process. This work is ongoing and a preliminary Water Act Approval submission is planned by the end of the year. The Providers will be required to finalize Regulatory and Approvals requirements for their design sections; supplementary to any current DRFM work. The in-scope services work should be assumed to exclude potential permits or approvals for in-stream work such as bank armoring (i.e. Nav Waters, DFO, etc.). A PC Sum Allowance will be provided for these and any unforeseen regulatory and permitting requirements (see Section 9).

9. Contract Price Cost Sum Allowances

The Provider will be requested to carry several Prime Cost Sum allowances in their professional services contract. The reasons for this include: minimizing the number of sub-consultants working on the various work packages by taking advantage of pre-existing contracts; controlling/organizing site interaction with residents; reducing duplication; and allowing additional smaller professional services tasks to be assigned to individual Providers without the need for new RFPs. The following cost allowances will be required:

LINE ITEM	PC SUM ALLOWANCE
1. Permitting and Approvals	\$50,000.00
2. Historical Resources	\$20,000.00
3. Landscaping Design	\$20,000.00
4. Survey	\$20,000.00
5. Hydrotechnical Review	\$20,000.00
6. River Bank Armoring	TDB
7. Quality Assurance (QA) Testing	\$75,000.00
8. Borrow Site – Reclamation Pre-Grading	\$75,000.00
9. Out-of-Scope Tasks	\$150,000.00

All sub-consultant assignments for the PC Sum allowances under the awarded professional services contracts will be assigned solely at the discretion of the DRFM Office. The Provider may be asked for input into the assignments and may be asked to provide the services as an out-of-scope task based on an approved budget.

The river bank armoring requirements are currently under review, so the Providers will be requested to provide a budget allowance for professional services in their assigned areas once their work packages are awarded.

For information purposes, it is the DRFM Office's intent for QA construction materials testing to be undertaken on behalf of the Town as a PC Sum allowance in the professional services contract as noted above; and to require the contractors to provide quality control (QC) materials testing as part of their contract.

10. Public Engagement

As noted, confidentiality and community involvement in DRFM Program is very sensitive. **All engagements with the public, Town council and landowners must be organized and scheduled through the DRFM Office and their designated representatives at Scott Land and Lease Ltd.**

Public engagement with landowners is underway and the next formal Public Consultation meetings in the various neighborhoods are proposed for March 2021. The Providers will be expected to attend and participate with the DRFM Office.

11. Proposal Requirements

The Proposal for the work projects in Section 4 should address the following:

1. **Project Understanding.** A description of project understanding for the eight projects. It is noted that the pre-qualification submissions asked for a description of project understanding and overall comments were provided. It is reasonable to expect that the review of project information on the DRFM Google Drive may lead to modifications to the Providers understanding of the specific projects based on past or similar experience. The consultant is requested to provide a statement of understanding for all eight (8) projects of this RFP; in the context of the previous submission.

2. **Proposed Fees.** The DRFM Office is requesting that proposed fees be provided on a fixed fee basis by filling the Fee Schedule provided below.

PACKAGE/PROJECT	FEASIBILITY STUDY	PRE-DESIGN	DESIGN & TENDER	CONTRACT MANAGEMENT
PACKAGE A				
#1 Nacmine				
#2 West & Central Midland				
#3 East Midland				
#4 West & East Newcastle				
			TOTAL PACKAGE A	
PACKAGE B				
#8 Willow Estates				
#9 East Rosedale				
#10 Lehigh			n/a	n/a
#11 East Coulee				
			TOTAL PACKAGE B	

The basic project requirements as outlined in the DRFM Grant Packages provided in the Google Drive are considered to be relatively straight forward so it is considered reasonable to request fixed fee pricing.

The Provider should include a separate breakdown of the cost estimate and resources for both work packages (i.e. not by individual projects); as a means of demonstrating that the firm has the personnel, materials, equipment, labor, transportation, machinery, tools, appliances, fuel, lubricants, and all other consumables and incidentals necessary for the completion of the work.

3. **Alternate Fee Proposals.** The provider may choose to provide an alternate fee structure in addition to the schedule of fees in the requested table format above. The DRFM Office would consider these alternate proposals in the negotiation and assignment of the projects for this RFP, but only for the Design & Tender and Contract Management phases of these projects. These alternate fee proposals will not be used in assessment the “Pricing” under the criteria listed in Section 30.
4. **Out-of-Scope Work.** There is potential for additional assignments and unforeseen tasks that would be considered out-of-scope. To this end, the provider should verify that the proposed **Fees, Rates and Charges on Disbursements** in their previous will be applicable to these projects for “Out-of-Scope” Tasks. It should be understood that all “Out-of-Scope” work must be performed based on budgets pre-approved by the DRFM Office. All work performed without prior DRFM approval will be considered “In-Scope” unless otherwise accepted by the DRFM Office.
5. **Schedule.** The Provider should provide a conceptual schedule for the work

assuming the schedule for Package A and Package B would be similar; and the work for each would fit within the same schedule. If the Provider believes there are significant differences between the work packages they can submit a tailored schedule for both Packages A and B.

12. Schedule Milestone Dates

The first project milestone is a planned pre-tender virtual meeting for this RFP which will involve the DRFM Team, their consultants and all four Providers. The purpose of the meeting is to review the two RFPs with the Providers and clarify the DRFM Office requirements to aid in preparation of their proposals. This meeting is considered an out-of-scope request for services and will be billable under the assigned contracts. The tentative date of this virtual meeting is **December 10, 2020**. Providers should verify their attendance upon receipt of this RFP.

The tentative schedule for completion of construction for these work packages is year-end 2022 with a first post flood inspection in mid July 2023. Other key milestones for the project are:

January 18, 2021	- Town Council Meeting to Review/Award Assignments
March 26, 2021	- Completion of Public Consultations
April 30, 2021	- Submission of Pre-Design Reports
June 15, 2021	- All Project Approvals & Permits to be Complete
July 31, 2021	- Tendering of All Projects to be Complete
August 31, 2021	- Town Council Award of All Project Contracts
November 2022	- All Project Construction Completed

The Providers should verify their understanding and ability to meet these important milestone dates.

13. Expectations of Provider

The Provider will:

1. Become familiar with the objectives and scope of the DRFM Program and its office standards, guidelines, policies, procedures, organizational structure and operating/software systems.
2. Provide prompt and effective delivery of projects consistent with industry standards.
3. Provide industry standard equipment and well qualified personnel on all projects assigned to it

4. Provide adequate supervision to all of its employees.
5. The consultant must coordinate with other consultants and contractors working in the area and establish a good working relationship as well as effective coordination to ensure smooth progress and eventual transition of the work.

In addition to requisite skills and experience in the various engineering and planning services, the successful provider will be evaluated on their display of local knowledge of the Drumheller economy, infrastructure and emergency preparedness, response and recovery.

14. Approach to Delivery of Services

1. **Administrative Centre** - The DRFM Office is located on the second floor at 702 Premier Way in Drumheller, Alberta
2. **Electronic Records** - The Provider will supply digital and paper records to the CRFM Officer in a format suitable to the Director of Geomatic Services on all work performed.
3. **Physical Records** - The physical files and records for all Geomatic Services will be located at the DRFM Office.
4. **Confidentiality** - All services, communication, negotiations and agreements are to be maintained in strictest confidence and to be shared only with the DRFM Officer and the Director of Geomatic Services. All documents submitted to the Town will be subject to the protection and disclosure of the Alberta Freedom of Information and Protection of Privacy Act (FOIP ACT).

15. Proposal Mandatory Requirements

Proposals must comply with the following requirements in order to be considered by the Town. It will be at the Town's sole discretion to determine if a Proposal shall be disqualified due to insufficient or incomplete information.

16. Rejection of Proposals

The Town shall not be obligated to accept Proposals that are unsigned, incomplete, conditional, illegible, or contain irregularities of any kind, or if the Provider fails to meet all the requirements stated in this Request. The Town also reserves the right to disqualify any Provider's submission whose credentials or performance have been unsatisfactory in the past.

17. Town's Discretion

The Town reserves the right to accept any Proposal, and not necessarily the lowest cost Proposal.

18. RFP Clarifications/Addenda

Providers shall carefully examine the Request for Proposal Documents and report any errors, omissions, discrepancies or clauses requiring clarification. When deemed necessary, the Town shall respond to questions and clarifications by way of Addenda to report any changes to the Request for Proposal Documents. Any addenda issued prior to the closing date will form part of the Request for Proposal Documents.

19. Question or Inquiries

Questions about the RFP may be submitted via email and directed to:

Darwin Durnie
Chief Resiliency and Flood Mitigation Officer
darwin.durnie@drmprogram.com
Phone 403-875-1456

20. Proposal Review

The Proposals will be reviewed by the CRFM Officer on a confidential basis. The review may include a selection committee chosen by the CRFM Officer. Selection may be made based on the submitted Proposal or the CRFM Officer may choose to interview either of the invited Providers prior to selection.

The assignment of project work packages to the Providers will be made by the CRFM Officer shortly after the Town Council meeting on January 18, 2021, unless an extension is required.

21. Budget Funding

If the Proposal pricing submitted in the desired Proposal exceeds the amount the Town has budgeted or estimated, the Town may either reject all proposals, or attempt to negotiate an acceptable price with the Provider.

22. RFP Cancellation

The Town reserves the right to cancel this Request for Proposal for any reason without any liability to any provider or to waive irregularities and informalities at their own discretion. No payment will be made by the Town for costs incurred in the preparation or submission of this document.

23. Insurance

The Provider shall have and maintain during the duration of the Provider's services, the following insurance coverage:

- a) General Liability Insurance in an amount not less than Two Million Dollars (\$2,000,000) per occurrence for personal injury and/or property damage. Automobile Liability Coverage in an amount not less than Two Million Dollars (\$2,000,000) per accident for bodily injury and/or property damage.
- b) Errors and Omissions Insurance covering the services provided by the Consultant with policy limits not less than Two Million Dollars (\$2,000,000) per claim.

The Provider shall provide confirmation from the Provider's insurer that these policies are in effect.

24. Conflict of Interest

The Provider shall have no pecuniary interest in the business of any third party that would cause, or seem to cause, a conflict of interest in carrying out any Consulting services for the Town. Should such an interest be acquired during the Proposal process, the Provider shall immediately declare it to the Town. The Town will, immediately upon notification, take action as it deems appropriate. This may include rejection of the submitted Proposal.

25. Proposal Format Requirements

Proposals shall not exceed 15 pages, 8 1/2 X 11 in 11 point font excluding resumes.

26. Qualifications and Experience

Providers are to explain why they are the best choice to provide the services as described in the Request for Proposal. Key strengths should be clearly identified. Provide summary and related references for at least three projects completed within the last five years, for which the Provider has provided services.

27. Key Staff and Qualifications

Resumes for key staff have been previously provided in the invitee's proposal for the **DRFM RFP Program, EP for Berms & Dikes 2020-07-22**. Please do not resend these resumes, but a resume shall be provided for any new key staff member for the provider's team that includes, but is not limited to, qualifications, education, experience, capability and current workloads. The location of the offices of the key team members shall be identified. New resumes will not be considered part of the 15 page limit.

28. Project Understanding

In the proposal for this RFP the Providers are asked to focus on, and provide a clear understanding of the objectives and critical issues that could affect the outcome for each of the eight (8) specific projects in these three proposed work packages (i.e. not the global project understanding addressed in their previous proposal submissions). The provider should include a clear explanation of their proposed approach for these eight (8) projects. The Provider shall also include any innovative comments and ideas pertaining to these project that may not have been addressed in the two RFPs for this Program.

29. Additional Content

Providers may at their discretion include additional information which they consider relevant to ensure a full and proper evaluation, provided that the specified maximum 15 page limit is not exceeded.

30. Evaluation of Proposals

Each proposal received will be evaluated on the basis listed below. The Town of Drumheller will have the sole and unfettered discretion to award up to the maximum number of points for each criterion listed below.

ITEM	CRITERIA	WEIGHTING
1	Company Background and Related Project Experience	5
2	Project Team Members' Related Experience & Qualifications	15
	<i>Proposed Project Manager/Lead's Experience and Qualifications (5)</i>	
	<i>Key Project Team members (10)</i>	
3	Project Understanding	35
	<i>Understanding of the purpose of the project (10)</i>	
	<i>Understanding of the scope of this assignment (25)</i>	
4	Implementation Methodology & Project Schedule	15
	<i>Deliverables (5)</i>	
	<i>Schedule (5)</i>	
	<i>Methodology (5)</i>	
5	Pricing	30
	Total Points	100

The provider's responses to these technical requirements will be evaluated using a rating scale of 0 to 5 based on the criteria below.

RATING	EXPLANATION
5 -Excellent	Exceeds Requirement/Adds Value
4 - Above Average	Exceeds Minimum Requirements
3 - Average	Meets Minimum Requirements
2 - Below Average	Falls Short of Expectations. Lacking Innovation
1 - Poor	Falls to Meet Minimum Requirements
0 – Non-Responsive	Did Not Attempt to Address Requirement

The rating will then be multiplied by the weighting as specified in the chart above. Each weighted score will be added to arrive at a total score. This scoring will assist the committee in evaluating the proposal but will not be the sole method of evaluation or selection. The calculated point for each proposal will then be multiplied by the weight indicated in the Evaluation Criteria and Weighting table.

The fees /salary evaluation will be calculated by taking the lowest Proposal Price divided by each Provider's Proposal Price using the rates set out in the Pricing Form. But in no case, will pricing alone be sufficient to determine the successful provider.

31. Proposal Feedback

Both Providers will be notified within two (2) business days of contract assignment awards.

32. Communication

Providers are required to ensure that no communication is made by the provider/bidder or its representatives, including a third-party representative employed or retained by it, to promote or oppose any bid/proposal, make any public announcement, or communicate with any news media in any way unless such communication has first been approved by the Town.

33. Proposal Submission Form

The proposers will complete the following Proposal Submission Form and include a signed copy with the Proposal. In case of an incomplete or conditional proposal, the Provider will list the exceptions for a non-conforming proposal bid on a separate document and include in the Proposal.

RFP for Engineering Prime Consultant Services Engineering Packages A and B (2020 – 2024)

PROPOSAL SUBMISSION FORM

PROPOSALS THAT ARE UNSIGNED, INCOMPLETE, CONDITIONAL, ILLEGIBLE, OBSCURE, CONTAIN ARITHMETCAL ERRORS, ERASURES, ALTERATIONS OR IRREGULARITIES OF ANY KIND, MAY BE CONSIDERED INVALID.

THE LOWEST, OR ANY EVALUATED PROPOSAL, MAY NOT NECESSARILY BE ACCEPTED. THE TOWN OF DRUMHELLER RESERVES THE RIGHT TO REJECT ANY OR ALL PROPOSALS, OR TO ACCEPT THE PROPOSAL EVALUATED TO BE IN THE BEST INTEREST OF THE TOWN OF DRUMHELLER

THE UNDERSIGNED PROVIDER HEREBY PROVIDES THE ATTACHED PROPOSAL TO PERFORM THE PROJECT/WORK AS DESCRIBED SUBJECT TO ACCEPTANCE AND SUCCESSFUL NEGOTIATION OF A CONTRACT SUITABLE TO THE TOWN OF DRUMHELLER

PROVIDER: _____

PRINT NAME OF AUTHORIZED REPRESENTATIVE:

SIGNATURE: _____

DATE: _____

EMAIL: _____

TELEPHONE: _____

APPENDIX A – DRFM PROJECT SUMMARIES

Summary Table - Projects #1 to #11

Individual Project Summaries for Packages A and B:

- #1 - **Nacmine Dike** - (RDR 45,500 to 47,400 m)
- #2 - **West & Central Midland Dike** - (RDR 43,800 to 44,420 m)
- #3 - **East Midland Dike** - (RDR 41,850 to 43,800 m)
- #4 - **West & East Newcastle Dikes** - (RDR 41,860 to 43,450 m)
- #8 - **Willow Estates Dike** - (RDR 37,400 to 37,700 m)
- #9 - **East Rosedale Dike** - (RDR 29,900 to RBR 527 m)
- #10 - **Lehigh Dike** - (RDR 19,700 to 20,475 m)
- #11 - **East Coulee Dike** – (RDRS 16,900 to 18,440 m)

DRUMHELLER RESILIENCY AND FLOOD MITIGATION PROGRAM

PROJECT LIST

PROJECT	DESCRIPTION	COST ESTIMATE	
		Construction	Total
#1 Nacmine Dike	Structural - Proposed Dike Construction	\$1,960,000	\$2,800,000
#2 West & Central Midland Dike	Structural - Existing Dike & Wall Upgrades	\$480,000	\$1,900,000
#3 East Midland Dike	Structural - Existing Dike Upgrade	\$480,000	\$500,000
#4 West & East Newcastle Dikes	Structural - Dike Upgrade and Proposed East Extension	\$1,050,000	\$3,100,000
#5 Hospital & W. Michichi Creek Dike A	Structural - Existing Dike Upgrade & South Extension	\$670,000	\$800,000
#6 North Drumheller Dikes B & C	Structural - Existing Dike Upgrade	\$1,020,000	\$1,150,000
#7 Central Drumheller Dyke D	Structural - Existing Dike & Wall Upgrades	\$3,300,000	\$3,720,000
#8 Willow Estates Dike	Structural - Existing Dike Upgrades	\$460,000	\$520,000
#9 East Rosedale Dike	Structural - Proposed Dike	\$1,140,000	\$2,580,000
#10 Lehigh Dike	Structural - Proposed Dike or Relocation	\$0	\$2,066,000
#11 East Coulee Dike	Structural - Dike Upgrade & Proposed East Dike Extension	\$2,560,000	\$2,900,000

Notes: • Cost estimate is based on the most recent Grant Application package, if available.

- Construction costs include a 20% contingency estimate.
- Lehigh dike construction cost estimate is \$0, because it is greater than assessed property values.

DRUMHELLER RESILIENCY AND FLOOD MITIGATION PROGRAM

PROJECT #1		Nacmine Dike	
Community History	Nacmine is the first community located upstream of the Drumheller Valley as identified in Figure 1. Nacmine has experienced flooding in both 2005 and 2013 in which it required temporary dyking. A photo from the 2005 flood can be found in Figure 2. There have been no permanent facilities established since this time. Due to the length of Nacmine adjacent to the river, its protection is a high priority for the Town.		
Existing Conditions	Nacmine consists of mostly residential structures with a majority of these structures located in the flood fringe as outlined in Figure 3. The orange areas are the flood fringe and the red areas are the floodway based on a regulated 1:100 flow. The 2014 total assessed value for residents in the flood fringe, not including land, is approximately 26.5 million dollars. Figure 4 shows hydraulic data at the location of the project, and how deviations in river flow impacts the water elevation.		
Risk to Critical Infrastructure	A sewer lift station is located in the Red Deer River floodway and is at risk of inundation during flood events. It is critical that this lift station is protected during the flood events. See Figure 7 for the location. Through a network of gravity sewer pipe, the sanitary sewage flows to the Nacmine Sanitary Sewer Lift Station. From here, the pumps lift the sanitary sewage to the 5th street east lift station on higher ground. The pumps are controlled by the electrical equipment and will malfunction if they are inundated and would be out of operation during and after a flood event. The cross-contaminated floodwater in the wet well has the potential to overflow into the streets and river, and back up in houses and could pose a serious threat to the health of residents.		
Proposed Construction	Currently Nacmine has no existing berms in place. 3D model of the proposed berm can be found in Figure 5 and outlines our proposed alignment for new permanent berm construction. To protect against a flow of 1890 cms, this berm will involve the construction of a dyke varying from a depth of 1 m to 2 m. A breakdown of the cost estimate is outlined in Figure 6.		
Water Course	Red Deer River		
Category	Structural - Proposed Dike Construction		
Estimated Project Cost	\$2,800,000		
Length of Dike Model	1.4 km		
Berm Height Elevation	686.2 m		
Volume	6500 m ³		
COST ESTIMATE			
1 Stripping and tree removal			\$99,000
2 Excavation of topsoil and core			\$148,500
3 Earth dyke construction			\$1,312,800
4 Landscaping			\$74,250
Subtotal:			\$1,634,550
5 Contingencies (20%)			\$326,910
6 Professional Services (15%)			\$245,183
7 Relocation Assistance			\$593,000
TOTAL ESTIMATE (2014)			\$2,800,000

*Source: Nacmine information in DRFM Grant #5 Package (Sept. 30, 2017).

**Notes: The reference figures can be found in the grant package. Professional services number is for estimating purposes only. The total is rounded up.

DRUMHELLER RESILIENCY AND FLOOD MITIGATION PROGRAM

PROJECT #2		West & Central Midland Dike	
Community History	Midland is located upstream of Downtown along the Drumheller Valley as identified in Figure 1 below and have experienced flood events due to the Red Deer River in the past. The Seepage Mitigation at Central Midland project location is identified in Figure 1. This community has experienced flooding during both 2005 and 2013. High water exceeded the roadway height causing seepage and percolation through the ground and roadway pavement. Temporary pumping measures were required to keep the area from inundation. This location was identified in the March 1984 Drumheller Flood Control Study ('83, '84) which was completed by Alberta Environment and was identified as an area that required structural measures to reduce flood damages to the existing areas.		
Existing Conditions	Midland consists of mostly residential structures with a majority of these structures located in the flood fringe as outlined in Figure 2. The orange areas are the flood fringe and the red areas are the floodway based on a regulated 1:100 flow. The 2014 total assessed value for residents in the flood fringe, not including land, is approximately 34.1 million dollars. Figure 3 shows hydraulic data at the location of the project, and how deviations in river flow impacts the water elevation. Currently the cut off walls are not water tight and water is seeping through and there are concerns that the existing dyke structure could experience catastrophic failure and thereby inundating Midland. The Town is not satisfied with the existing level of security. Seepage through existing catch basin leads and the paved road was a problem as well as faulty backflow preventers and leaky pipes.		
Proposed Construction	The west dike berm would be raised. Repairing the existing dyking (wall) structures is required for this project to ensure a waterproof structure. This will require the removal and replacement of the existing New Jersey barriers. Repairs to the piping is also required. A breakdown of the cost estimate is outlined in Figure 4.		
Water Course	Red Deer River		
Category	Structural - Existing Dike & Wall Upgrades		
Estimated Project Cost	\$1,900,000		
Length of Dike Model	0.952 km dike and 0.309 km wall		
Berm Height Elevation	685.75 m to 685.3		
Volume	Raise dike 0.613 m		
Cost Estimate - West Midland Dyke			
1 Stripping and tree removal			\$75,000
2 Excavation of topsoil and core			\$50,000
3 Drainage piping/backflow preventer			\$100,000
4 Earth dyke construction			\$550,000
5 Landscaping			\$20,000
6 Concrete end floodwall			\$275,400
Subtotal:			\$1,070,400
7 Contingencies (20%)			\$214,080
8 Professional Services (15%)			\$160,560
TOTAL ESTIMATE (2014)			\$1,400,000
Cost Estimate - Central Midland Wall			
1 Piping Repairs			\$200,000
2 Raising the concrete wall			\$100,000
3 Replacement of New Jersey Barriers			\$100,000
Subtotal:			\$400,000
4 Contingencies (20%)			\$80,000
5 Professional Services (15%)			\$60,000
TOTAL ESTIMATE (2014)			\$500,000

*Sources: West Midland information in DRFM Grant #1 Package (July 3, 2014); and the Central Midland information in DRFM #5 Package (September 30, 2017).

**Notes: The reference figures can be found in the grant package. Professional services number is for estimating purposes only. The total is rounded up.

DRUMHELLER RESILIENCY AND FLOOD MITIGATION PROGRAM

PROJECT #3		East Midland Dike
Community History	<p>Midland is located upstream of Downtown along the Drumheller Valley as identified in Figure 1 below and have experienced flood events due to the Red Deer River in the past. These areas are included as one project as they are of equal importance to the Town and are in the vicinity of each other which would allow for cost efficiencies if completed by one contractor.</p> <p>One of the most significant events in current history occurred in 2005 with recorded river flows of 1450 cms. During this event, the entire length of Midland required temporary berms and photos of these efforts can be seen in Figure 2. In 2007, West Midland was upgraded; however, the East Midland, particularly the Marshall Estates still requires upgrading. During 2013 flooding along East Midland was experienced and emergency protection was again required to protect against a flow of 1310 cms. Temporary berms were successful in protecting East Midland during these events; however The Town required substantial resources to protect this area twice in the past 10 years. Permanent protection would allow Midland to be more resilient to flooding and provide protection for the more regularly occurring higher probability floods. This location was identified in the March 1984 Drumheller Flood Control Study ('83, '84) which was completed by Alberta Environment and was identified as an area that required structural measures to reduce flood damages to the existing areas.</p>	
Existing Conditions	<p>Midland consists of mostly residential structures with a majority of these structures located in the flood fringe as outlined in Figure 3. The orange areas are the flood fringe and the red areas are the floodway based on a regulated 1:100 flow. In combination with Newcastle, the 2014 total assessed value for residents in the flood fringe, not including land, is approximately 51 Million dollars. Figure 4 shows hydraulic data at the location of the project, and how deviations in river flow impacts the water elevation.</p>	
Proposed Construction	<p>Midland currently has an existing berm system. The West end of Midland is well protected and did not require emergency measures during the 2013 flood event. If required, temporary measures can be implemented if an unlikely, larger event is experienced. However, East Midland was not built to the same elevation and requires areas of the existing berm to be raised, as well as new berming. A 3D model of the proposed berm can be found in Figure 5 and outlines the area of the berm that requires raising existing berms, or temporary measures.</p>	
Water Course	Red Deer River	
Category	Structural - Existing Dike Upgrade	
Estimated Project Cost	\$500,000	
Length of Dike Model	0.8 km	
Berm Height Elevation	685 m	
Volume	12000 m ³	
Cost Estimate		
1 Earth dyke improvements		\$400,000
Subtotal		\$400,000
2 Contingencies (20%)		\$80,000
3 Professional Services (15%)		\$60,000
TOTAL ESTIMATE (2014)		\$500,000

*Source: East Midland and Newcastle information in DRFM Grant #3 Package (Sept. 30, 2015).

**Notes: The reference figures can be found in the grant package. Professional services number is for estimating purposes only.

DRUMHELLER RESILIENCY AND FLOOD MITIGATION PROGRAM

PROJECT #4		West & East Newcastle Dikes	
Community History	Newcastle is located upstream of Downtown along the Drumheller Valley as identified in Figure 1 below and has experienced flood events due to the Red Deer River in the past. Newcastle's diking was constructed in the 80s; however, this was not sufficient to protect against the 2005 flood event and extensive temporary dyking had to be constructed as can be seen in Figure 2. The dyking established by the province is incomplete with respect to preventing floodwater entering at the upstream right bank of the Red Deer River.		
Existing Conditions	Newcastle consists of mostly residential structures with a majority of these structures located in the flood fringe as outlined in Figure 3. The orange areas are the flood fringe and the red areas are the floodway based on a regulated 1:100 flow. In combination with Newcastle, the 2014 total assessed value for residents in the flood fringe, not including land, is approximately 51 Million dollars. Figure 4 shows hydraulic data at the location of the project, and how deviations in river flow impacts the water elevation.		
Proposed Construction	The west side of Newcastle is influenced by the narrowing of the river at the front of an island where rapids are present. In front of the rapids, the flood water level on the West side of the river is higher than the East side. A section of this dyke consists of 0.5m high precast barriers. A 3D model of the proposed berm can be found in Figure 5 and outlines the area of the berm that requires rising of the existing berm to a higher elevation as well as new berming.		
Water Course	Red Deer River		
Category	Structural - Dike Upgrade and Proposed East Extension		
Estimated Project Cost	\$3,100,000		
Length of Dike Model	1.6 km		
Berm Height Elevation	684.9 m		
Volume	7500 m ³		
Cost Estimate - West Newcastle Dike and Wall Upgrades			
1 Stripping and tree removal			\$12,500
2 Excavation of topsoil and core			\$32,500
3 Piping and Backflow Preventor			\$84,000
4 Earth dyke construction			\$220,500
5 Landscaping			\$15,000
6 Concrete & Gravel Flood Wall			\$202,500
7 Riverbank Armour			\$867,000
Subtotal:			\$1,434,000
8 Contingencies (20%)			\$286,800
9 Professional Services (15%)			\$215,100
TOTAL ESTIMATE (2014)			\$1,900,000
Cost Estimate - East Dike Extension			
1 Stripping and tree removal			\$12,500
2 Excavation of topsoil and core			\$32,900
3 Piping and backflow preventor			\$82,500
4 Earth dyke construction			\$625,000
5 Landscaping			\$15,000
6 Piping & outfall repairs			\$105,000
Subtotal:			\$872,900
7 Contingencies (20%)			\$174,580
8 Professional Services (15%)			\$130,935
TOTAL ESTIMATE (2014)			\$1,200,000

*Source: East Midland and Newcastle information in DRFM Grant #3 Package (Sept. 30, 2015).

**Notes: The reference figures can be found in the grant package. Professional services number is for estimating purposes only. The totals are rounded up.

DRUMHELLER RESILIENCY AND FLOOD MITIGATION PROGRAM

PROJECT #8 Willow Estates Dike	
Community History	The Willow Estates project location is identified in Figure 1. Willow Estates has experienced Community History flooding in both 2005 and 2013 in which it required temporary emergency measures. 2005 flood photos are included in Figure 2.
Existing Conditions	The Willow Estates community consists of predominately residential housing. However, critical infrastructure is also located in this project area and includes the main lift station for all of Drumheller as well as the river intake for their water source. Structures located in the flood fringe are outlined in Figure 3. The orange areas are the flood fringe and the red areas are the floodway based on the regulated 1:100 flow. Figure 4 shows hydraulic data at the location of the project, and how deviations in river flow impacts the water elevation. In 2005, improvements were made by the Province to establish dyking for the Willow Estates area. However, the existing berms are not high enough to protect against higher probably flood elevations and are not currently protected to the 1: 1 00 regulated flow.
Risk to Critical Infrastructure	The 19th street sewer liftstation is located in the Red Deer River flood way and is at risk of inundation during flood events. It is critical that this lift station is protected during the flood events. The pumps are controlled by the electrical equipment and will malfunction if they are inundated and would be out of operation during and after a flood event. The cross contaminated floodwater in the wet well has the potential to overflow into the streets and river, and back up in houses and could pose a serious threat to the health of residents.
Proposed Construction	As there are existing dykes located in this community, there are areas where these dykes will have to be raised as well as installing new berms. A 3D model of the proposed berm can be found in Figure 5 and outlines the area of the berm that requires rising of the existing berm to a higher elevation as well as new berm construction. A dyke is required on the west side of the major drainage channel which Proposed Construction enters the river at the east end of Willow Estates. A flood gate will be required on the channel from the west. The roadway that follows the CNR tracks to residents east of Willow Estates has a low spot on it preventing access to housing east of this point during a flood event. The road is a narrow gravel road which can be easily raised through the low section. A breakdown of the cost estimate is outlined in Figure 6.
Water Course	Red Deer River
Category	Structural - Existing Dike Upgrades
Estimated Project Cost	\$520,000
Length of Dike Model	0.5 km
Berm Height Elevation	683 m
Volume	2700 m ³
Cost Estimate	
1 Stripping and tree removal	\$12,800
2 Excavation of topsoil and core	\$23,200
3 Earth dyke construction	\$316,000
4 Landscaping	\$25,200
5 Roadway construction	\$9,700
Subtotal:	\$386,900
6 Contingencies (20%)	\$77,380
7 Professional Services (15%)	\$58,035
TOTAL ESTIMATE (2014)	\$520,000

*Source: Willow Estates information in DRFM Grant #5 Package (Sept. 30, 2017).

**Notes: The reference figures can be found in the grant package. Professional services number is for estimating purposes only. The total is rounded down.

DRUMHELLER RESILIENCY AND FLOOD MITIGATION PROGRAM

PROJECT #9		East Rosedale Dike
Community History	The Rosedale/Aerial community locations are identified in Figure 1. This area experienced flooding in both 2005 and 2013 in which it required temporary emergency measures. 2005 flood photos can be found in Figure 2. Flood water enters the aerial district at the intersection of Railway Ave. and 1 st Avenue. It then flows overland exiting the developed area east of Starmine Road, where it passes Community History into a channel taking it back to the Red Deer River. Currently there are no existing dykes in this location. This location was identified in the March 1984 Drumheller Flood Control Study ('83, '84) which was completed by Alberta Environment and was identified as an area that required structural measures to reduce flood damages to the existing areas.	
Existing Conditions	This community consists of predominately residential housing. However, critical infrastructure is also located in the Aerial community and includes the lift station. Structures located in the flood fringe are outlined in Figure 3. The orange areas are the flood fringe and the red areas are the floodway based on the regulated 1 :100 Existing Conditions flow. Figure 4 shows hydraulic data at the location of the project, and how deviations in river flow impacts the water elevation.	
Proposed Construction	model of the proposed berm can be found in Figure 5. A breakdown of the cost estimate	
Water Course	Red Deer River	
Category	Structural - Proposed Dike	
Estimated Project Cost	\$2,580,000	
Length of Dike Model	2.3 km	
Berm Height Elevation	680.5 m	
Volume	6300 m ³	
Cost Estimate		
1 Stripping and tree removal		\$78,750
2 Excavation of topsoil and core		\$83,125
3 Earth dyke construction		\$764,520
4 Landscaping		\$22,500
Subtotal:		\$948,895
5 Contingencies (20%)		\$189,779
6 Professional Services (15%)		\$142,334
7 Relocation Assistance		\$1,296,060
TOTAL ESTIMATE (2014)		\$2,580,000

*Source: East Rosedale/Aerial Flats information in DRFM Grant #5 Package (Sept. 30, 2017).

**Notes: The reference figures can be found in the grant package. Professional services number is for estimating purposes only. The total is rounded up.

DRUMHELLER RESILIENCY AND FLOOD MITIGATION PROGRAM

PROJECT #10		Lehigh Dike	
Community History	The Lehigh community location is identified in Figure 1. Lehigh experienced flooding in both 2005 and 2013 in which it required temporary emergency measures which included dyking, sandbagging and evacuation orders. The 2005 flood photos can be found in Figure 2. Geotechnical issues are present and seepage occurred under the temporary emergency dyking in both 2005 and 2013.		
Existing Conditions	The Lehigh community consists of predominately residential housing. Structures located in the flood fringe are outlined in Figure 3. The orange areas are the flood fringe and the red areas are the floodway based on the regulated 1:100 flow. Figure 4 shows hydraulic data at the location of the project, and how deviations in river flow impacts the water elevation. Currently there are no existing berms located in this community. The 2014 total assessed value for residents in the flood fringe protected within the berm, not including land, is approximately 1.1 million dollars. Assessed value with land is 2.07 million dollars		
Proposed Construction	Currently there are no berms constructed in Lehigh. Therefore permanent measures will be required. A 3D model of the proposed permanent berm can be found in Figure 5. A breakdown of the cost estimate is outlined in Figure 6.		
Water Course	Red Deer River		
Category	Structural - Proposed Dike or Relocation		
Estimated Dike Cost	\$2,280,000		
Estimated Project Cost	\$2,066,000		
Length of Dike Model	0.8 km		
Berm Height Elevation	677.3 m		
Volume	3600 m ³		
Cost Estimate			
1	Earth dyke construction		\$1,381,600
Subtotal:			\$1,381,600
2	Contingencies (20%)		\$276,320
3	Professional Services (15%)		\$207,240
4	Relocation Assistance		\$418,900
TOTAL ESTIMATE (2014)			\$2,280,000

*Source: Lehigh information in DRFM Grant #3 Package (Sept. 30, 2015).

**Notes: The reference figures can be found in the grant package. Professional services number is for estimating purposes only. The total is rounded up.

DRUMHELLER RESILIENCY AND FLOOD MITIGATION PROGRAM

PROJECT #11		East Coulee Dike	
Community History	The East Coulee community is located at the south end of Drumheller. East Coulee experienced flooding in both 2005 and 2013 in which it required temporary emergency measures which included dyking, sandbagging and evacuation orders.		
Existing Conditions	The East Coulee community consists of predominately residential housing. Structures located in the flood fringe are outlined in the NHC Open Water Inundation Maps. Currently there is an existing 750 m long berm located in the west half of this community from Highway 10 to the East Coulee lift station at 4th Street.		
Proposed Construction	Currently East Coulee has an existing berm on the west half of the community. The east half of the townsite has no protection in place. An alignment of the proposed berm can be found in the O2 Design plan which outlines the proposed alignment for existing and new permanent berm construction. Several houses along the east section of River Drive are in close proximity to the river bank and will be in conflict with a proposed berm dike. A rough breakdown of the cost estimate is outlined below.		
Water Course	Red Deer River		
Category	Structural - Dike Upgrade & Proposed East Dike Extension		
Estimated Project Cost	\$2,900,000		
Length of Dike Model	0.75 m of existing dike and 0.85 km of new dike		
Berm Height Elevation	676.6 m		
Volume	4000 m ³		
Cost Estimate			
3	Earth dyke construction		\$1,530,000
4	Relocation Assistance		\$500,000
5	Landscaping		\$100,000
Subtotal:			\$2,130,000
6	Contingencies (20%)		\$426,000
7	Professional Services (15%)		\$319,500
TOTAL ESTIMATE (2014)			\$2,900,000

*Source: Prorated based on Lehigh information in DRFM Grant #3 Package (Sept. 30, 2015).

**Notes: The reference figures can be found in the grant package. Professional services number is for estimating purposes only. The total is rounded up.