MEMORANDUM

TO: Board of Trustees

THROUGH: Steven J. Pinkerton
General Manager

FROM: Bradley A. Johnson, P.E.
Director of Asset Management

Charley Miller, P.E.
Principal Engineer

SUBJECT: Review, Discuss, and Possibly Authorize Multiple Contracts for the Diamond Peak Incline Creek Culvert Rehabilitation Project – 2017/2018 and 2018/2019 Capital Improvement Project: Fund: Community Services; Division: Ski; Project # 3499LI1101; Vendors: Q&D Construction, Inc. in the amount of $3,792,459, CH2M, Inc. in the amount of $70,000, and Tri Sage Consulting in the amount of $92,150

STRATEGIC PLAN: Long Range Principle 5 – Assets and Infrastructure

DATE: May 23, 2018

I. RECOMMENDATIONS

That the Board of Trustees moves to:

1. Award a guaranteed maximum price construction contract to Q&D Construction, Inc. in the amount of $3,792,459, consisting of a $3,401,209 base contract and a $391,250 risk reserve, for construction of the Diamond Peak Incline Creek Culvert Rehabilitation Project.

2. Authorize Chair and Secretary to execute the contract based on a review by General Counsel and Staff.

3. Authorize Staff to approve all change orders associated with the contract and the risk reserve.
4. Authorize Staff to enter into an Additional Services Addendum with CH2M, Inc. totaling $70,000 for design services during construction of the project.

5. Authorize Staff to enter into an Additional Services Addendum with Tri Sage Consulting totaling $92,150 for construction inspection services during completion of the project.

II. **DISTRICT STRATEGIC PLAN**

Long Range Principle 5 – Assets and Infrastructure – The District will practice perpetual asset renewal, replacement, and improvement to provide safe and superior long term utility services and recreation activities.

- The District will maintain, renew, expand, and enhance District infrastructure to meet the capacity needs and desires of the community for future generations.

- The District will maintain, procure, and construct District assets to ensure safe and accessible operations for the public and the District’s workforce.

**Budgeted Initiatives for 2017-2018**

- Complete final design and construction permitting of the Incline Creek Culvert Rehabilitation at Diamond Peak Project.

**Budgeted Initiatives for 2018-2019**

- Complete construction, via the Construction Manager at Risk Method, of the Incline Creek Culvert Rehabilitation at Diamond Peak Project.

III. **BACKGROUND**

Within the Diamond Peak base area, Incline Creek is contained within a buried 72-inch diameter corrugated metal pipe (CMP) culvert running approximately 1,800-feet from just above the upper parking lot to just below the Schoolhouse Lift loading area. This culvert was installed by Boise Cascade in the 1960s to facilitate the construction of the base area of Ski Incline (now called Diamond Peak). Along with
Diamond Peak, this culvert is now owned by the District and the District is solely responsible for its maintenance and upkeep. The District has no as-built information or engineering drawings regarding the design, construction, alignment, or planned life expectancy of the culvert.

In August of 2011, the District began a multi-year project to complete the condition assessment, engineering analysis, design, and construction cost estimating associated with developing a project approach to address this aging and failing District asset. At the December 13, 2017 meeting of the Board of Trustees, Staff presented a comprehensive report on the status of the project that detailed the final condition assessment findings, the designed improvements, and recommended utilizing the Construction Manager at Risk (CMAR) contracting method, as allowed under Nevada Revised Statute (NRS) 338.169, to deliver the construction phase of the project. CMAR is a hybrid contracting method that includes bidding, design, and construction with Owner, Designer, and Contractor working collaboratively to reach a constructible and cost effective approach.

At the February 7, 2018 meeting, the Board of Trustees awarded a competitively bid CMAR contract to Q&D Construction to complete preconstruction services. As a component of the preconstruction phase, Q&D Construction worked with District Staff, the Engineer of Record, CH2M, and the onsite construction oversight representative, Tri Sage, to develop, estimate, and provide design input for the replacement and rehabilitation of the entire length of 72-inch CMP and the remaining un-replaced portions of 36-inch CMP in the Diamond Peak base area. Q&D Construction was also responsible for the public, competitive bidding of any subcontracts associated with completing the work.

The developed final project design includes three distinct elements for replacement and rehabilitation. The 36-inch CMP tributary will include the open trench installation of 100-feet of new high-density polyethylene (HDPE) culvert in the same alignment and 300-feet of new HDPE culvert realigned out of the base area to reduce the number of conflicts with existing base area utilities (water transmission and distribution, sewer, snowmaking air and water, natural gas, electrical, as well as copper and fiber optic communication).

The remaining two elements address the 1,800-feet of main 72-inch culvert. The first 400-feet, beginning at the upstream entrance, will be slip-lined with a 60-inch smooth-walled pipe. The annular space will be grouted between the 60-inch and
72-inch void space. This section is under over 25-feet of fill which makes open trench replacement costly and infeasible. Additionally, a new concrete headwall will be constructed at the upstream entrance to this section. The lower 1,400-feet will be open trenched and replaced with 72-inch HDPE culvert. During construction, both Incline Creek and the tributary will be diverted around the worksite, via multiple pumps and surface pipes, and reintroduced downstream of the project area. Following completion of pipe replacement and rehabilitation, all disturbed areas will be restored with a combination of salvaged sod for the creek bed, coir fabric for sloped areas, and hydro-seeding.

The CMAR preconstruction phase culminated in the open book development and negotiation of a guaranteed maximum price (GMP) contract to complete construction of the project in late summer 2018. The GMP is a cost plus fee contract developed consistent with the requirements of NRS 338.169. The District pays the direct cost for work performed on the project plus an allowable overhead and profit mark-up fee for labor, materials, products, construction equipment, and subcontractors. Project accounting shall be open book subject to review by the District and, if requested by the District, audit by third party.

For this contract, Q&D Construction committed to an 11% fee during the competitive CMAR selection process. Additionally, any savings between the actual price to complete the work and the guaranteed maximum price goes to the District.

The project is anticipated to take approximately 80 working days to complete. The project will begin in early July and be completed by the October 15th Tahoe Regional Planning Agency grading deadline.

IV. BID RESULTS

The District publicly advertised this project for CMAR services consistent with the requirements of NRS 338.169 in December 2017 and awarded the CMAR contract to Q&D Construction at the February 7, 2018 meeting of the Board of Trustees with the intent of reaching an acceptable GMP. A discussion of the selection process and the bid results can be found in the agenda item memorandum for the February 7, 2018 meeting. Consistent with the requirements of NRS 338.169, Q&D Construction advertised and publicly bid subcontracts for slip-lining, pressure grouting, mortar lining, reinforcing steel, and revegetation.
The contracts with CH2M and Tri Sage Consulting are not subject to competitive bidding within the meaning of NRS 332.115 as described in subsection (b) Professional Services.

Per NRS 625.530, selection of a professional engineer to perform work on public works projects (where the complete project costs exceed $35,000) is to be made solely on the basis of the competence and qualifications of the engineer and not on the basis of competitive fees.

CH2M has been the project engineer since the start of project planning and design. Additionally, CH2M has completed multiple projects in the past for the District including the design of the Sewer Pump Station #8 Improvements Project, the Burnt Cedar Disinfection Plant Improvements Project, and the Water Pump Station 4-1/5-3 Improvements Project.

Tri Sage has previously worked for the District providing construction management and owner's representative services on the 2014, 2015, 2016, and 2017 Watermain Replacement Projects, the Spooner Pump Station Improvements Project, the Burnt Cedar Water Disinfection Plant Improvements Project, the Water Pump Station 4-1/5-3 Improvements Project, and the Public Works Equipment Storage Building Project.

V. **FINANCIAL IMPACT AND BUDGET**

A total of $1,367,500 is included in the 2017/2018 Capital Improvement Program Budget under the Incline Creek Culvert Rehabilitation at Diamond Peak Project (Project # 3499LI1101 – see attached data sheet) and of this amount, $600,452.67 is presently available and will be carried forward into Fiscal Year 2018/2019. There is an additional $3,785,000 budgeted for this project in the 2018/2019 Capital Improvement Program Budget (see attached data sheet).

The following table outlines the total available project budget.
Review, Discuss, and Possibly Authorize -6-  
May 14, 2018

Multiple Contracts for the Diamond Peak Incline Creek Culvert Rehabilitation Project – 2017/2018 and 2018/2019 Capital Improvement Project: Fund: Community Services; Division: Ski; Project # 3499LI1101; Vendors: Q&D Construction, Inc. in the amount of $3,792,459, CH2M, Inc. in the amount of $70,000, and Tri Sage consulting in the amount of $92,150.

Total Available Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>3499LI1101 – FY17/18 Funds</td>
<td>$600,452.67</td>
</tr>
<tr>
<td>3499LI1101 – FY18/19 Funds</td>
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<td><strong>Total Available Budget</strong></td>
<td><strong>$4,385,452.67</strong></td>
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The estimated project construction budget is presented in the following table.

Estimated Project Construction Budget

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<td>Design Engineering Services (CH2M)</td>
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<td>District Staff Time</td>
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The construction phase of the project will not begin incurring costs until after July 1, 2018 and therefore all expenses associated with the proposed contract award will be entirely a component of the 2018-2019 Fiscal Year.

VI. **ALTERNATIVES**

Not authorize the contracts and direct Staff not to complete the Diamond Peak Incline Creek Culvert Rehabilitation Project via the CMAR method. Doing so will require additional time and expense to bid the project via the traditional design-bid-build method. Doing so will not allow enough time for construction in 2018 and leaves the District vulnerable to project risk due to the unknowns and potential complications associated with the condition of the culvert.
VII. COMMENTS

A copy of the project plans and specifications can be found on the District website:

www.yourtahoeplace.com/ivgid/resources/construction-updates/culvert-rehabilitation

VIII. BUSINESS IMPACT

This item is not a “rule” within the meaning of Nevada Revised Statutes, Chapter 237, and does not require a Business Impact Statement.
<table>
<thead>
<tr>
<th>Project Number:</th>
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<tbody>
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<td>Title:</td>
<td>Incline Creek Culvert Rehabilitation at Diamond Peak</td>
</tr>
<tr>
<td>Asset Class:</td>
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<tr>
<td>Division:</td>
<td>99 - General Administration</td>
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<tr>
<td>Budget Year:</td>
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<td>Project Something:</td>
<td>LI - Land Improvements</td>
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<tr>
<td>Active:</td>
<td>Yes</td>
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</table>
Project Description

Within the Diamond Peak base area, Incline Creek is contained within a buried 72-inch diameter corrugated metal pipe (CMP) culvert running approximately 1,500 feet from just above the upper parking lot to just below the Schoolhouse Lift loading area. The culvert runs beneath the upper and lower parking lots roughly along the Western edge of the Diamond Peak Skiier Services Building (DPSSB) and then following the Eastern boundary of the lower parking lot. Additionally there is a feeder creek contained within a buried 36-inch CMP culvert intersecting the Incline Creek 72-inch culvert near the Southwest corner of the DPSSB. Rehabilitation work would involve in-situ lining of the CMP culvert via a structural application while Incline Creek is diverted via temporary pumping. This project is a multi-year multi-phase Project. A condition assessment investigation was performed in 2011/2012 with a pre-design evaluation completed in 2012/2013. These initial phases determined both culverts are in poor condition and badly in need of rehabilitation to avoid eventual pipe collapse.

Project Internal Staff

The Engineering Department would manage all phases of this project.

Project Justification

This project must be completed to avoid an eventual pipe collapse of either both the 72” and 36” CMP in the base area. A collapse could impact the structural integrity of the DPSSB, parking lots, and/or the general base area of the ski resort. The District has no as-built information or engineering drawings regarding the design, construction, alignment, or planned life expectancy of this culvert. This culvert is not and has not been on any routine inspection or maintenance program. During construction of the DPSSB, the culvert was encountered in multiple locations and a number of buried access hatches were located. A brief field inspection of the interior of the culvert, via those uncovered access hatches, identified areas in which spot corrosion has eaten through the entire wall thickness of the CMP. This project allows for an engineering design, permitting, and culvert rehabilitation for its entire length.

Forecast

<table>
<thead>
<tr>
<th>Budget Year</th>
<th>Total Expense</th>
<th>Total Revenue</th>
<th>Difference</th>
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<td>Year Total</td>
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<tr>
<td>2012</td>
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Mar 02, 2017 02:41 PM
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<td>Incline Creek Culvert Rehabilitation at Diamond Peak</td>
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<tr>
<td>Division:</td>
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Active: Yes
Project Description

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Rehabilitation and replacement work is being delivered via the Construction Manager at Risk contracting method as defined in Nevada Revised Statute Section 338. Work will involve a mix on in-situ rehabilitation and direct pipe replacement while Incline Creek is diverted via temporary pumping. This project is a multi-year multi-phase project. This project allows for an engineering design, permitting, and culvert rehabilitation for the entire length of 72-inch CMP and the remaining lower portions of 36-inch CMP.

There is approximately 1,000-feet of 24-inch CMP remaining along the western edge of the Spillway run. Visual inspections indicate this section remains in operable condition and no signs of failure have appeared to date. This section will continue to be monitored and maintained to inform future capital budgets.

Project Internal Staff

The Engineering Department would manage all phases of this project.

Project Justification

During construction of the DPSSB, the culvert was encountered in multiple locations and a number of buried access hatches were located. A brief field inspection of the interior of the culvert, via those uncovered access hatches, identified areas in which spot corrosion has eaten through the entire wall thickness of the CMP. Condition assessment investigation via video inspection was performed in 2011/2012 and again in 2016/2017 via high definition video with laser profiling. Pre-design and design analysis began in 2011. These initial phases determined both culverts are in poor condition and badly in need of rehabilitation to avoid eventual pipe collapse. This project must be completed to avoid an eventual pipe collapse of either both the 72" and 36" CMP in the base area. A collapse could impact the structural integrity of the DPSSB, parking lots, and/or the general base area of the ski resort. The District has no as-built information or engineering drawings regarding the design, construction, alignment, or planned life expectancy of this culvert. Prior to launch of this multi-year project in 2011, the culverts have not been on any routine inspection or maintenance program.

Forecast

<table>
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<tr>
<th>Year</th>
<th>Total Expense</th>
<th>Total Revenue</th>
<th>Difference</th>
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</thead>
<tbody>
<tr>
<td>2019</td>
<td>3,150,000</td>
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<tr>
<td>Construction</td>
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<tr>
<td>2012</td>
<td>3,785,000</td>
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<td>3,785,000</td>
</tr>
</tbody>
</table>

Year Identified  | Start Date | Project Partner | Manager | Est. Completion Date
---|------------|-----------------|---------|---------------------
2012 | Principal Engineer |
Diamond Peak
Incline Creek Culvert Rehabilitation
Construction Contract Award

May 23, 2018

Bradley A. Johnson, P.E. – Director of Asset Management
Charley Miller, P.E. – Principal Engineer

INCLINE VILLAGE
GENERAL IMPROVEMENT DISTRICT
ONE DISTRICT ~ ONE TEAM
District Strategic Plan

Long Range Principle #5 – Assets & Infrastructure
The District will practice perpetual asset renewal, replacement, and improvement to provide safe and superior long term utility services and recreation activities.

- Maintain, renew, expand, and enhance District infrastructure to meet the capacity needs and desires of the community for future generations.
- Maintain, procure, and construct District assets to ensure safe and accessible operations for the public and the District’s workforce.

Budgeted Initiatives for 2017-2018
- Complete final design and construction permitting of the Incline Creek Culvert Rehabilitation at Diamond Peak Project.

Budgeted Initiatives for 2018-2019
- Complete construction, via the Construction Manager at Risk Method, of the Incline Creek Culvert Rehabilitation at Diamond Peak Project.
Diamond Peak Culverts

- ~1,800-lf of 72” and ~3,500-lf+ of 24” – 36” diameter corrugated metal pipe culverts carrying Incline Creek and tributary
- Runs beneath parking lots, base area, and Schoolyard, Lodgepole, and Spillway runs
- Constructed in early 1960’s
- No construction as-builts or historic maintenance/inspection data
- Identified to be in poor condition during 2010 construction of Skier Services Building
Video Inspection

October 2011 STA 1+33 (US->DS)

October 2016 STA 1+43 (DS->US)

October 2011 STA 3+10 (US->DS)

October 2016 STA 3+15 (DS->US)
Video Inspection

October 2011 STA 6+08 (US->DS)

October 2016 STA 6+08 (DS->US)

October 2011 ~4+35 (US->DS)

October 2016 STA 4+56 (US->DS)
Project Milestones

- **August 2011** – Engineering Investigation Contract Award, Hydraulic Analysis, and Video Inspection
- **August 2012** – Preliminary Engineering Contract Award, Rehabilitation Alternatives Evaluation, and Preliminary Cost Estimating
- **November 2013** – Additional Preliminary Design Engineering Contract Award, Hydraulic Mitigation Design, Base Map Development, and Preliminary Cost Estimate Update
- **June 2016** – Design Contract Award, Laser Profiling of Pipe Interior, and Preliminary Cost of Construction Estimate
- **February 2017** – Legacy Project Discussion
- Annual Capital Budget Project Tours
- **December 2017** – Project Update with Pipe Condition Findings, Probable Cost of Construction Estimate, Project Approach, and CMAR Contracting Method
Construction Manager at Risk

- Similar to traditional delivery – but more collaborative
- Allows traditional selection of engineering services
- Design Build “light” – helps reduce risk
- Two contracts with Owner
- Design and construction pricing in parallel

Diagram:
- Owner
- Designer
- CM
- Subcontractors

Timeline:
- Plan Project
  - Procure Engineering Services
    - (Qualifications Based Selection)
- Develop Design Concept
  - CMAR Request for Proposals
    - (Qualifications and Price Based Selection)
- Verify Design/Oversee Construction
  - Guaranteed Maximum Price Defined Prior to Construction
- Operate
  - Construction Services
  - Preconstruction Services
  - Warranty
CMAR Bidding

- In Compliance with NRS 338.169
- December 2017 – Publicly Advertised Project for Competitive CMAR Bids
- January 2018 – CMAR Interviews and Contractor Selection
- February 2018 – CMAR award to Q&D Construction by Board of Trustees
- April 2018 – Finalize Design Plans
- May 2018 – Negotiate Construction Contract
Project Approach (Tributary)

- 100 feet of new 36” HDPE Pipe in the original alignment
- 300 feet of new 36” HDPE Pipe in a new alignment
- Benefits... reduction of numerous conflicts with existing utilities.
Project Approach (Upper Main Line)

- 400 feet of slip-lining the 72” existing pipe with a 60” Pipe
Upper 400 feet (60” New Pipe)
Project Approach (Lower Main Line)

- Lower 1,400 feet will be a conventional open trench replacement of 72” CMP with same size HDPE pipe
Lower 1,400 feet (72” HDPE)
How the CMAR contract works

• Open Book Cost + Fee (profit and overhead)
  – Negotiated Fee (11%)
  – Other CMAR Respondent (15%)

• Subcontracting
  – Slip-lining, pressure grouting, mortar lining, reinforcing steel, and revegetation.
  – Competitively bid by Q&D in compliance with NRS 338.169

• Guaranteed Maximum Price (GMP)
  – Base Contract
  – Risk Reserve (Contingency)
  – Savings go to the District
# Project Construction Budget

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- December 2017 Probable Cost of Construction Estimate: $4,435,000
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The construction phase will not begin incurring costs until after July 1, 2018 and therefore all expenses associated with the proposed contract award will be entirely a component of the 2018-2019 Fiscal Year.
Project Next Steps

• Award GMP construction contract – May 2018
• Construct project – June - October 2018
  – June 2018
    • Project contracting and mobilization
  – July 2018
    • Begin diverting flows
    • Slip-lining upper section
    • Open trench lower section
  – August 2018
    • Install tributary section
  – September 2018
    • Restore and revegetate entire site
  – October 2018
    • Project complete
Recommendation

That the Board of Trustees moves to:

1) Award a guaranteed maximum price construction contract to Q&D Construction, Inc. in the amount of $3,792,459, consisting of a $3,401,209 base contract and a $391,250 risk reserve, for construction of the Diamond Peak Incline Creek Culvert Rehabilitation Project.

2) Authorize Chair and Secretary to execute the contract based on a review by General Counsel and Staff.

3) Authorize Staff to approve all change orders associated with the contract and the risk reserve.

4) Authorize Staff to enter into an Additional Services Addendum with CH2M, Inc. totaling $70,000 for design services during construction of the project.

5) Authorize Staff to enter into an Additional Services Addendum with Tri Sage Consulting totaling $92,150 for construction inspection services during completion of the project.