DPS2.Q61. In reference to Exhibit GMP-JC-5 179631, Gage Hydro, please provide:

a. An explanation as to if there are any other justifications for a project that will cost $3,281,976 for a dam that will produce only 2,641 MWh on average, with estimated annual revenue of $105,640?

b. A detailed explanation as to if GMP has investigated maintaining the dam but not using the facilities for power production. If so, what is the cost to simply maintain the dam?

DPS2.A61.

a. Please reference the Project's Financial Analysis, which describes the primary purpose of this project is safety—principally the safety of GMP field personnel for continuous safe and reliable operation of the facility. As detailed in the Financial Analysis, enabling workers to safely operate the facilitate will improve dam safety and the secondary purpose of regulatory compliance with the facility's FERC license and Section 401 water quality certification, by restoring the ability to control pond elevation and flows. Revenue from restoring the ability to generate at the facility is an additional benefit.

b. GMP evaluated several options before proceeding with the scope of work identified. Please see Attachment GMP.DPS2.Q61 for the initial report described in Financial Analysis Q9. The report's findings included several options for the facility including the decommissioning of the facility. Please refer to the attached study for further details regarding decommissioning of the facility.

   This work product was the first step in identifying a safe and effective solution. Ultimately GMP chose to proceed with engineering and design of a Hinged Flashboard System.

Person/s Responsible for Response: Jason Lisai; Josh Castonguay
Title of Person/s: Director, Generation & Relay Operations; Vice President, Chief Innovation Executive
Date: April 6, 2022

Flashboard Engineering Study

Gage Hydroelectric Project, FERC No. 2397

February 5, 2021

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Appendices

1 Executive Summary

Green Mountain Power (GMP) has requested that HDR perform a study of alternatives for modifying or replacing the existing flashboard system at the Gage Hydroelectric Project (Project). The Gage Hydroelectric Project is located on the Passumpsic River near the Town of St. Johnsbury, Caledonia County, Vermont. The Project consists of a concrete gravity dam (north, center, and south sections), a headgate structure, a power canal, powerhouse, and a substation adjacent to the power canal.

The hinged flashboards at the north section of the concrete gravity dam have historically been maintained using an overhead tramway system. The tramway system utilizes a work basket and a lifting hoist, both suspended with separate wire ropes. Currently, operation of the system is completely manual with an operator in the control house sending the work basket over the dam and raising the lifting hoist while two workers in the work basket manually lower themselves to attach the lifting hoist over the edge of a flashboard and setting a wooden strut to support the flashboard once it has been raised.

HDR's approach and scope of work was focused on the evaluation of four (4) alternatives:

- Alternative 1 – Rehabilitation or Replacement of Existing Tramway and Trolley Systems
- Alternative 2 – New Bridge Augmented by Rehabilitated Tramway and Trolley Systems
- Alternative 3 – New Inflatable Dam (Automated Flashboard System)
- Alternative 4 – Decommissioning of the Project

Alternative 1 was developed in collaboration with SkyTrans Manufacturing, LLC who is a third-party manufacturer of trolley/sky-way systems. This alternative is based upon high level field observations of the tramway and trolley systems performed on July 17, 2020 jointly between HDR and SkyTrans and consists of two separate options including rehabilitation of the existing Tramway and trolley systems as well as a complete replacement of the system.

Alternative 2 considers the installation of a new bridge that would be used to access the hinged flashboards. This alternative assumes that the tramway and trolley systems would be rehabilitated in order for the lifting hoist to be used to manipulate the flashboards. Upon further review, it was determined that the bridge would need to be longer than initially expected and, in the end, two options were developed to provide different access options to the bridge.

Alternative 3 considers installation of a new inflatable dam along the full length of the north spillway section. HDR reached out to Obermeyer Hydro, Inc. and Atlantic Fluid Technology (Dyrhoff) to provide proposals for Obermeyer crest gates (Alternative 3A) and a rubber dam (Alternative 3B). For both alternatives it was assumed that no major demolition of the existing crest would be required; with only new additional concrete added to the crest as needed, anchors would be post-installed, and modifications to the

existing abutments would be as needed. A new masonry building was assumed to house the blower for each alternative.

Alternative 4 considers the required scope and cost for decommissioning the Project.

HDR developed Class 4 cost estimates for each Alternative based on the Association for the Advancement of Cost Engineering (AACE) methodology, with the expected accuracy range for these estimates to be -30 percent of the estimated cost at the low end, and +50 percent of the estimated cost at the high end. These cost estimates are intended to provide a general indication of costs associated with implementation of the various alternatives studied for the purposes of informing GMP's consideration of Project alternatives. These estimates are not intended to be used for reliance for securing financing. The opinion of probable cost for each Alternative is included in the Table 1-1 below.

Table 1-1. Opinion of Probable Costs

Alternative	Total Estimated Cost (-30%)	Total Estimated Cost (+50%)
Alternative 1A – Rehabilitation of Existing Tramway and Trolley Systems	$420,000	$900,000
Alternative 1B – Replacement of Existing Tramway and Trolley Systems	$1,190,000	$2,550,000
Alternative 2A – Construct 1 New Bridge and Rehabilitate Existing Tramway and Trolley Systems	$ 2,310,000	$4,950,000
Alternative 2B – Construct 2 New Bridges and Rehabilitate Existing Tramway and Trolley Systems	$2,590,000	$5,550,000
Alternative 3A – New Obermeyer Crest Gates	$1,328,000	$2,846,000
Alternative 3B – New Rubber Dam	$1,362,000	$2,918,000
Alternative 4 – Decommissioning of the Project	$385,000	$4,425,000

HDR also performed an analysis of the incremental energy savings that could be realized for each of the Alternatives 1 through 3 and it was concluded that due to the effective operation of the hinged flashboards with the current tramway and trolley systems there will only be the potential for small incremental energy gains attributable to alternative headpond operation, with a potential gain of 150,000 kilowatt hours (kWh) based on observations of 2015-2020 operation. These incremental gains/losses do not include comparison of labor/materials costs for the existing flashboard maintenance.

Conclusions derived from this study are presented below in Section 7.

2 Introduction and Background

The 0.7 megawatt (MW) Gage Hydroelectric Project (Project) is owned and operated by Green Mountain Power (GMP) and is licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2397. The Project was issued a Subsequent (Minor) License from the FERC on December 8, 1994. The Project is located on the Passumpsic River near the Town of St. Johnsbury, Caledonia County, Vermont.

The Project consists of a concrete gravity dam (north, center, and south sections), a headgate structure, a power canal, powerhouse, and a substation adjacent to the power canal.

The purpose of this report is to document an engineering study to develop safe alternatives for operating and maintaining the hinged flashboards at the Gage Project in accordance with local, state, and federal safety standards and in accordance with the Project's current FERC license.

The north section of the concrete gravity dam has bottom-hinged steel flashboards installed. The south section has wooden flashboards with steel pins (schedule 80 pipe). The center section is a non-overflow section. The north section is located adjacent to the left abutment and is 175.8 feet long with a crest elevation of 534.2 feet mean sea level (msl) and has 5.7-foot-tall flashboards. The south section is located to the left of the headgate structure that is adjacent to the right abutment. The south section is 42.8 feet long with a crest elevation of 538.9 feet msl and has 1-foot-tall flashboards. The center section is located between the north and south sections and is 30 feet long with a crest elevation of 542.1 feet msl.

The normal pool elevation is 539.15 feet msl, approximately 9 inches below the top of the flashboards. The current FERC license states that lowered flashboards need to be reset to prevent the pool elevation from dropping 2 feet below the normal pool elevation.

The hinged flashboards at the north section of the concrete gravity dam have historically been maintained using an aerial tramway and trolley systems that spans from the right abutment to the left abutment above the concrete gravity dam. The tramway is suspended from A-frame steel structures located at each abutment. The tramway is equipped with trolley systems that can transport a work basket and a lifting hook out above the spillway. The work basket is suspended with a 1/2-inch wire rope, and the lifting hook is suspended with a separate 5/8-inch wire rope. Currently, operation of the system involves one operator in the control house sending and returning the work basket out over the dam and sending, returning, lowering, and raising of the lifting hook. Two workers in the basket manually lower the basket down to the crest of the dam using a chain fall and align the lifting hook over the edge of a flashboard to be raised. Once the flashboard is raised, a worker in the basket would set a 4-inch by 4-inch by 8-foot-long wooden strut to support the flashboard.

The pin-type flashboards at the south section are reset without the use of the overhead tramway.

3 Approach for Alternatives Study

The purpose of this engineering study is to evaluate safe processes to operate and maintain the hinged flashboards through rehabilitation and upgrade of the existing tramway system or other structural alternatives, such as construction of an operating bridge or installation of an inflatable dam (automated flashboard system).

HDR's approach and scope of work is focused on development of concepts for a manual flashboard operations system for comparison to a rubber dam concept and a high-level review of decommissioning of the Project as an alternative to restoring the hydroelectric Project to operating condition.

4 Flashboard Operating System Alternatives

4.1 Alternative 1 – Rehabilitation or Replacement of Existing Tramway and Trolley Systems

For this alternative, HDR investigated upgrading the existing tramway and trolley systems. The information for this alternative was provided by SkyTrans Manufacturing, LLC (SkyTrans) a subconsultant to HDR. SkyTrans is a third-party manufacturer of trolley/sky-way systems based in Contoocook, NH. This alternative is based upon high-level field observations of the tramway and trolley systems performed on July 17, 2020, jointly between HDR and SkyTrans and assumptions as listed below. However, please note, that in order to verify the assumptions for refurbishment, it will first be necessary to conduct an in-depth inspection of the entire system which will include the abutments and anchorages, towers, wire ropes, winches and trolley systems, and work basket including raising and lowering machinery and drive systems.

The alternative to upgrade the existing tramway and trolley systems includes the following:

- The foundations and anchors currently exhibit deterioration at both the north and south ends of the tramway and will be repaired and repainted. An estimate is included for nominal repairs, an inspection by HDR structural engineers, and the design of the repairs. However, further inspection and analysis is needed to determine the extent of the repairs needed.
- A-frame towers support the tramway at both ends with a separate tower system for the hoist and basket. The towers were observed to have no major corrosion and only light surface rust where the paint has failed. An estimate for repair and refurbishment of the towers is included, however, the towers will be analyzed and the resulting repairs could be much more intensive or the towers may even need to be replaced.
- The track ropes for both the lifting hoist and work basket appear to be in good condition but will require magnetic resonance testing to determine their exact condition and to ensure compliance with industry safety standards. The towers have wire ropes connected to anchors which keep the wires for the lifting hook

and work basket in tension. The ropes are reeved through a block and tackle at the anchors which will be inspected, and components replaced as needed to provide the required 4.5:1 safety ratio. Wire ropes also move the lifting hoist and work basket back and forth and are connected to winches in the control house. The components of these ropes will be inspected and reused if possible. However, based on further inspection they may need to be replaced.

- The trolley systems that move along the track ropes for the lifting hoist and work basket will need to be removed and inspected to determine if they can be refurbished or will require replacement based on their condition and compliance to current industry standards. The estimate includes nominal costs for refurbishment.
- The work basket is considered a key safety issue of the system. The work basket is currently manually raised and lowered by the workers in the work basket and movement along the track rope is communicated to an operator in the control house by hand signals. The safety issue is if the workers in the basket become incapacitated, there is no way to raise and lower the work basket from land or communicate movement as the operator has a limited view from the control house. It is recommended that the winches which lower and raise the basket be motorized and be able to be controlled by both the workers in the basket and the operator on land. A radio should also be installed in the work basket to communicate between the workers and operator in case of an emergency.
- The drive system should be replaced as it is antiquated and is possibly the original equipment. When maintenance is required, parts are difficult to find or need to be manufactured specifically for this machinery. New modern machinery and controls would allow for increased room in the control house and can be located to allow for the operator to obtain a clear line of sight to the work basket. A mobile control panel for the operator is recommended for operation of the trolleys and work basket since it would provide the ability for the operator to move from the control house to a location outside where the operator can have a direct view of the work basket and lifting hoist.
- The estimate includes upgrading the lifting hook so that it can be operated by the workers inside the work basket. The existing system currently requires that the lifting hook be operated from the abutment, where the operator has a limited line of sight.
- The estimate includes upgrading the lifting hook to include air locks in order to prevent overloading the equipment, especially during icy conditions.

All repairs, rehabilitation, and/or replacement of components will meet the requirements of VOSHA, Occupational Safety and Health Administration (OSHA), the Vermont Tramway Board, National Fire Protection Association standards, ANSI B77.1-2017, Vermont Department of Labor Passenger Tramway Board, and Green Mountain Power. Please see Appendix B for the full report provided by SkyTrans.

Alternative 1A presents the cost estimate associated with refurbishment of the existing system per the scope and assumptions listed above. This estimate could increase based on results of a more thorough inspection.

An additional cost estimate (Alternative 1B) was developed for this alternative assuming that the tramway and trolley systems would be completely replaced with new modern tramway and trolley systems. This provides a more conservative approach assuming that upon further inspection complete replacement is recommended.

4.2 Alternative 2 – New Bridge Augmented by Rehabilitated Tramway and Trolley Systems

This alternative involves the installation of a new bridge or bridges in order to access the hinged flashboards. This alternative assumes that the tramway and trolley systems would be rehabilitated in order for the lifting hoist to be used to manipulate the flashboards.

During the scoping phase of this Project it was assumed that the construction of a new 190-foot-long bridge spanning the north spillway would provide access to the hinged flashboards. After the preliminary site inspection and examining the existing plans, it was determined that the bridge will have to be longer. The longer bridge is required to span from an abutment at the rock island located at the south end of the north spillway section to an abutment located near the existing tramway abutment at the north end. During initial scoping it was not clear that a portion of the dam to the north of the north spillway section is overtopped during normal flows. This resulted in the location of the new north bridge abutment having to be moved further north near the existing tramway abutment, which changed the 190-foot-long bridge to a 220-foot-long bridge.

There are two options to access the proposed bridge. The first is to provide another access bridge, with a new abutment near the canal and adjacent to the headgates, that would span to the proposed bridge abutment at the rock island, on the south side of the north spillway section. This access bridge would be approximately 80 feet in length would require a new abutment to be constructed at the 'island' and would share the abutment at the south end of the 220-foot-long bridge. The other method of access would be from the north end of the 220-foot-long bridge. If the two-bridge option is preferred, both bridges would be prefabricated structures and would be constructed to maintain a minimum of 1 foot freeboard over the 100-year-flood elevation.

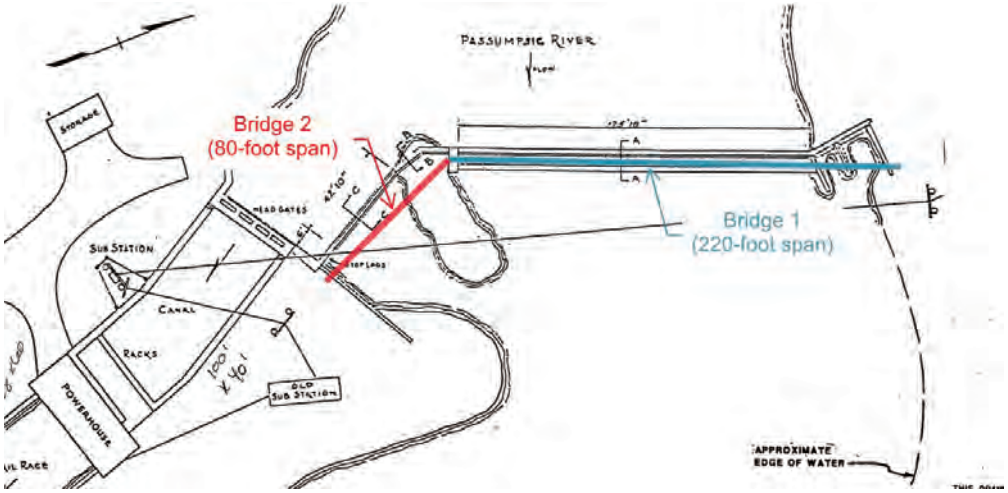


Figure 4-1. Plan View of Gage Dam Showing the Proposed New Bridges

Based on high-level field observations of the site, HDR has assumed that the existing tramway abutment to the north of the north spillway section will require rehabilitation because: 1) it has been in place since it was constructed for the existing tramway system in 1929 and; 2) because part of it will be used as the abutment for the new bridge. HDR has assumed costs for an in-depth inspection of the existing site, specifically the existing abutment at the north end of the spillway and the tramway system and a subsurface investigation for this alternative.

Regardless of the access option chosen, construction of the new bridge requires an improvement/upgrade of the existing access road from River Road to the existing north abutment and the preparation of a construction site/laydown area. Getting to the access road from River Road would require crossing existing railroad tracks. After access from the north end is completed, a temporary work trestle will have to be constructed downstream of the spillway. This trestle will be used to construct both the 80-foot-long bridge (if this option for access is chosen) and the new 220-foot-long bridge. The abutments for the bridges will be constructed first and then the prefabricated bridges could be assembled on land. After assembly is complete, the contractor can lift the bridges, each as a single unit, by a crane located on the temporary trestle.

With either option, two (2) cranes would be required, one on the trestle and the second located at the north abutment. The cranes would be used to lift the sections from each end and put them in place.

Due to the requirement to have the bridge 1 foot above the 100-year-flood levels, the new bridge deck would be located approximately 12 feet above the hinged flashboards. To access the flashboards, a movable access platform will be constructed on the west (upstream) side of the bridge. The access platform will have to be manipulated into position by the operators and then they would have to leave the bridge and get onto the access platform in order to attach the lifting hoist to the hinged flashboards.

In addition to the construction of the new bridge(s), the existing tramway and trolley systems will have the work basket portion removed and the lifting hoist portion rehabilitated. The costs from Alternative 1A were included in the cost estimate for Alternative 2A and 2B.

Since construction of the new bridges requires access from River Road and crossing the railroad, a flagman employed by the railroad will have to be on site whenever work is being performed. HDR has assumed costs associated with this work in our opinion of probable construction costs provided in Section 6.

The new bridges and the rehabilitated tramway and trolley system will meet the requirements of VOSHA, OSHA, International Building Code (IBC), AASHTO LRFD Bridge Design Specifications and LRFD Guide Specifications for Design the of Pedestrian Bridges and Green Mountain Power.

4.3 Alternative 3 – New Inflatable Dam (Automated Flashboard System)

This alternative consists of installing a new 175-foot-long inflatable dam on the north spillway section to replace the existing hinged flashboards. A previous flashboard study performed by Kleinschmidt Associates in 1999 (KA 1999) compared the effect of installing three different lengths of an inflatable dam on the north section based on the evaluation of flow data. The lengths were 87.5 feet (50% of the north spillway), 125 feet (71% of the north spillway), and 175 feet (100% of the north spillway). The study found that for a 125-foot-long inflatable dam section, there was still a 20 percent probability in any one year that the existing hinged flashboards for the remaining 50-foot length that were left in place could fail.

This study only considered installing a new inflatable dam along the full length of the north section since there would not be a feasible way to safely raise or lower any existing hinged flashboards that were left in place if they were to get tripped. Two inflatable dam alternatives were studied and include:

1. Obermeyer Crest Gates (Alternative 3A)
2. Rubber Dam (Alternative 3B)

Obermeyer Hydro, Inc., upon request from HDR, provided a proposal for new Obermeyer crest gates. Atlantic Fluid Technology, upon request from HDR, provide a proposal from Dyrhoff for a new rubber dam. The cost estimate for Alternative 3A and 3B is located in Appendix A.

4.3.1 Obermeyer Crest Gates

It was assumed that no major demolition of the existing crest would be required for the new Obermeyer crest gates, with only some minor demolition and concrete work at the crest. The main anchors and the anchors for the restraining straps would be post-installed. The existing dam abutments would need to be modified for the installation of a new abutment plate at each end of the Obermeyer crest gates. However, no new piers would need to be constructed. See Figure 4-2 below for a proposed section view.

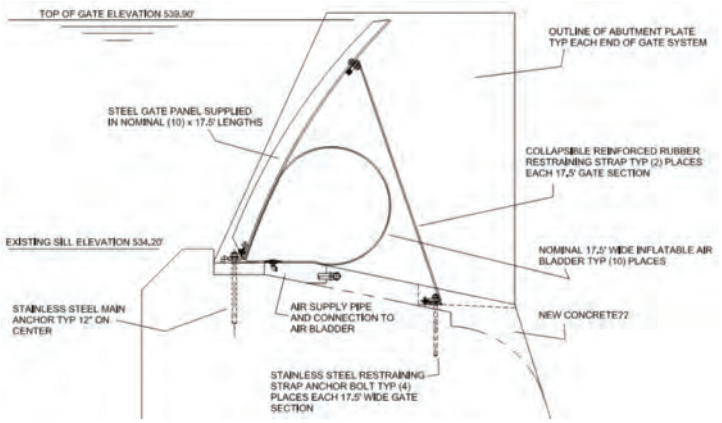


Figure 4-2. New Obermeyer Crest Gates for the North Spillway Section

A new masonry building was assumed to house the blower for the Obermeyer crest gates, and it appears it could be located to the left of the gate house structure near the south section of the concrete gravity dam, or on the left abutment.

This alternative eliminates the risk associated with having to send workers to manually reset flashboards since the Obermeyer crest gates would be fully automated. Furthermore, the full automation could likely increase energy generation at the Project by potentially maximizing storage throughout the year.

Obermeyer crest gates can be prone to icing since they are constructed with steel gate panels. Ice can form on the upstream side of the gates, on the downstream side of the gates and bladders, and at the abutment plates. Icing of the abutment plates can be mitigated by installing heaters behind the abutment plates or installing HDPE abutment plates instead of metal plates. Icing of the upstream side of the gates can be mitigated by using ice eaters, which circulate the typically warmer water up from the bottom of the reservoir (may not be effective with shallow reservoirs), or by installing a bubbler system (was not included in the estimated cost). Regularly spilling small amounts of water (~1-inch) can help to prevent the formation of ice on the upstream side of the gate and can also help to thaw ice on the downstream side of the gate and bladder.

Challenges during construction could consist of difficulties with installing the post-installed anchors and the safe management of water while work is being performed on the crest.

4.3.2 Rubber Dam

Proposed modifications to the existing spillway for the rubber dam consist of adding an upstream corbel for the main anchor line and adding a new concrete overlay to the ogee and downstream face of the spillway. It was assumed that no major demolition of the existing crest would be required. See Figure 4-3 below for a proposed section view.

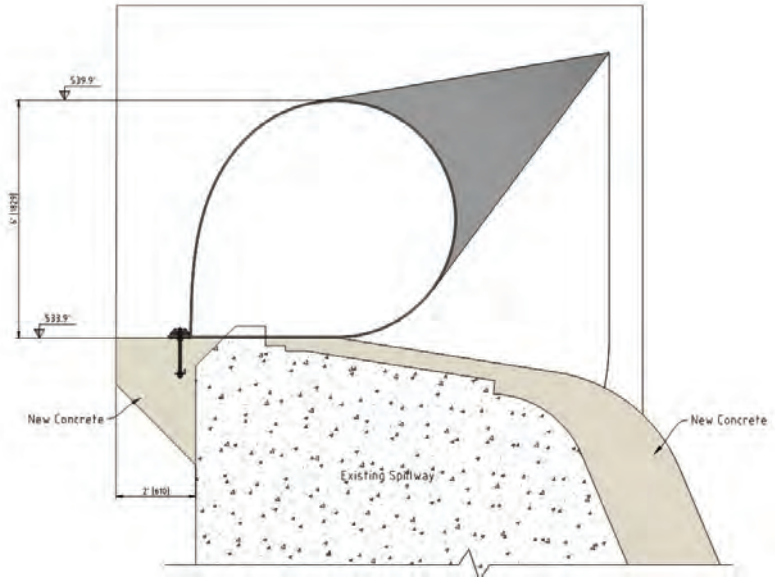


Figure 4-3. New Rubber Dam for the North Spillway Section

The existing dam abutments would need to be modified so that the concrete abutments sloped in towards the spillway at 2V:1H, or 3V:1H if necessary. Rubber dams can have vertical abutments, but it is ideal to have sloped if possible in order to prevent the possibility of low points at the abutments that can be caused by 90 degree corners. No new piers would need to be constructed for this alternative.

The same blower building assumed for the Obermeyer crest gates was assumed for the rubber dam.

This alternative eliminates the risk associated with having to send workers to manually reset flashboards. However, this alternative has limited ability to modulate spillway flows, compared to the Obermeyer crest gates. Approximately 20 percent of the total height of the rubber dam is adjustable, which is 1.2 feet for a 6-foot-tall rubber dam. Ideally, this means that the rubber dam could be partially deflated 1.2 feet to pass flows before it would have to be fully deflated to pass larger flows. However, the rubber dam representative did not recommend that the rubber dam typically be partially deflated.

Furthermore, the exhibit drawings indicate that the height of the existing north spillway section varies from 3 feet to 13 feet. Based on the field photo in the figure below, the shortest section may be located at the right abutment. With the shorter sections, there is a potential that the rubber dam, when deflated, would rub against the foundation at the toe of the spillway.

Figure 4-4. Field Photo of the North Spillway Section (Looking Upstream)

The safe management of water during the construction of this alternative would likely be more difficult since the water level would need to be maintained some height below the new concrete corbel that would be constructed on the upstream face.

4.4 Alternative 4 – Decommissioning of Project

4.4.1 Description of the Gage Project and the Passumpsic River

The Gage Project was originally built with, or used, a previously existing, timber crib dam and began operation in 1921. After the flood of 1927, this dam was replaced with the existing concrete gravity structure and returned to service in 1929. The cableway and hoist were also installed at that time. Due to improper setting of the original concrete, the south section of the dam was replaced in the 1970s. The current Gage Dam consists

generally of a concrete gravity dam with a 176-foot-long north section with a maximum height of 13 feet, a 30-foot-long center section, and a 43-foot-long south section with a maximum height of 18 feet.

The Gage Project is located on the Passumpsic River. The Passumpsic River originates near Lyndonville, Vermont, where the East and West branches of the Passumpsic River converge. The mainstem of the Passumpsic River is 22.6 miles long from its source to its confluence with the Connecticut River. There are seven hydroelectric projects located on the mainstem Passumpsic River as shown in Table 4-1.

Table 4-1. Hydroelectric Projects Located on the Passumpsic River

FERC No.	Project Name	River Mile	Licensee	Notes
P-3051	East Barnet	0.5	GMP	FERC Exemption
P-2400	Passumpsic	5.5	GMP	Minor Project <1.5 MW
P-2397	Gage	7.2	GMP	Minor Project <1.5 MW
P-2399	Arnold Falls	9.5	GMP	Minor Project <1.5 MW
P-2396	Pierce Mills	14.9	GMP	Minor Project <1.5 MW
P-2839	Great Falls	16.1	Lyndonville, VT	Major Project <5 MW
P-3090	Vail	17.1	Lyndonville, VT	Minor Project <1.5 MW

As indicated in the Commission's 1994 Environmental Assessment (EA) (appended to the 1994 license order), cold-water fisheries, and salmon in particular, are important resources ecologically and to the public. The EA indicates that the Moose River is stocked with Atlantic salmon fry and parr. The Moose River enters the Passumpsic River between the Gage and Arnold Falls Projects. The Passumpsic Project, located downstream of the Gage Project, is located at a natural falls, which FERC indicated would act as a barrier to downstream and potential upstream fish passage.

Based on a 1990 cultural resources evaluation performed in support of the Project's previous relicensing, it was determined that the Project as a whole possesses integrity of design, workmanship, and materials, and thus the Gage Project meets Criterion C of the National Register of Historic Places (NRHP). The south section of the dam was reconstructed using forms and materials consistent with those of the original 1929 concrete gravity section. As a result, the dam also possesses integrity of design, workmanship, and materials. These integrities have been diminished at the cable hoist house because of the expansion of the adjacent garage; however, the machinery remains intact and operational within. The canal/headgate structure remains essentially unaltered from its original construction, thus possessing integrity of design, workmanship, and materials. The powerhouse retains its engineering integrity because the foundation reconstruction was consistent with the original design. No prehistoric or

historic archaeological sites eligible for the National Register have been recorded on land owned by the licensee.

4.4.2 Description of the License Surrender and Decommissioning Process

The Commission issues licenses and exemptions for hydropower projects under the provisions of the Federal Power Act. To surrender a license or exemption, the licensee/exemptee must file a request with the Commission. The Division of Hydropower Administration and Compliance (DHAC) processes applications to surrender a project license or exemption to ensure that safety and environmental concerns are addressed before allowing the project to be removed from federal jurisdiction.

To surrender a license, the licensee must prepare an application in accordance with 18 Code of Federal Regulations (CFR) §6.1. Each application for license surrender must include the reason for surrendering the license and a copy of the license and all amendments associated with the project.

All licensees filing a surrender application with the Commission must address issues such as dam and public safety as well as environmental resources. The licensee must also identify all project features (i.e., dam and reservoir, power plant, transmission lines, and/or recreation facilities) and how they will be disposed. The surrender application must include a plan for decommissioning the project. Decommissioning can include leaving project features in-place for other uses or removal of project features and site restoration. The plan must address any dam safety or environmental concerns that could remain after the license is surrendered. Licensees should review articles that address environmental issues and consult with the appropriate resource agencies before filing the application with the Commission.

Once the surrender application is complete, the Commission will issue a public notice with a minimum 30-day comment period before acting. The Commission will only approve a surrender of license after the licensee has fulfilled its obligations under the license and/or as established by the Commission.

When a project's FERC license is surrendered (subsequent to FERC approval), FERC jurisdiction of the project terminates. If any project facilities remain subsequent to surrender and decommissioning, the remaining facilities will fall under the jurisdiction of the state, or other regulatory entity, as applicable. The state would then be at liberty to impose its own licensing or other regulatory regime, free from any restrictions imposed earlier by operation of the Federal Power Act. Where the owner is not able to meet the State's requirement (e.g., dam safety requirements), presumably the owner would have to remove the project or take other appropriate remedial action authorized or required under state law.

Dam removal in Vermont is subject to permitting under the Vermont Agency of Natural Resources (VANR) and depending on the type of impacts and size of the impoundment and watershed, may require the following permits/approvals:

- Wetland Management Plan – Vermont Department of Environmental Conservation (VTDEC) Wetlands Program – dam removals and other restoration

projects that affect protected state wetlands under the Vermont Wetland Rules require that a plan be submitted to the State Wetlands Coordinator.

- Dam Order – VTDEC Dam Safety Program - dams that impound at least 500,000 cubic feet of water or sediment (or both) require an order prior to any construction, reconstruction, or removal.
- Stream Alteration Permit – VTDEC River Management Program – dams that fall below the 500,000 cubic foot threshold for a dam order may require a stream alteration permit.
- Section 1272 Order – VTDEC River Management Program – projects that do not require a stream alteration permit will likely be authorized by one of these orders, which focus on prevention or control of a downstream discharge of sediment or other pollutants.
- Additional approvals from state agencies that may be required include:
    - Water Quality Certification - VTDEC Water Quality Division
    - Construction Stormwater Permit – VTDEC Stormwater Management Program
    - Insignificant Waste Management Event Approvals – VTDEC Solid Waste Management Program
    - Act 250 Permit – Vermont Natural Resources Board
    - Historic Resources Review – VT Division of Historic Preservation

In addition to the FERC and state permitting requirements, other federal permitting for removal of the dam would likely include permits from the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (for discharge of dredge or fill material into waters of the U.S., including wetlands) and Section 10 of the Rivers and Harbors Act (for structures or work in navigable waters of the U.S.).

The following summarizes the basic steps in surrendering a FERC license. These items encompass the full range of possible steps, but often some can be eliminated based on public perception of the proposed decommissioning and FERC's assessment of the economic viability of the project if ownership were transferred to another licensee.

1. The Licensee must prepare and distribute an initial consultation document explaining why it no longer wishes to continue project operation under the FERC license and how the facilities will be decommissioned. This document will be used to initiate consultation with agencies and other interested parties.
2. The Licensee then initiates consultation with agencies and other interested parties on the proposed decommissioning and predicted environmental effects. Studies may be required depending on issues raised considering the proposed decommissioning plan. For facilities older than 50 years, this process usually involves consultation with the State Historic Preservation Office (SHPO) under Section 106 of the National Historic Preservation Act unless the project has already been determined not eligible for listing on the National Register of Historic Places.

3. The Licensee files an application for surrender that includes the proposed decommissioning plan, schedule, costs, and predicted environmental effects.
4. The License files applications for other federal permits from the USACE and state permits, as determined necessary.
5. FERC then issues an A (or Environmental Impact Statement, if deemed necessary) pursuant to the National Environmental Policy Act.
6. FERC then considers comments submitted on the EA and the Licensee's consultation record to issue a surrender order outlining the terms that must be completed before the license is terminated.

4.4.3 Considerations for License Surrender and Decommissioning of the Gage Project

HDR provides the following considerations related to a potential license surrender and decommissioning of the Gage Project. However, HDR also notes that much of what drives the schedule and scope of the decommissioning is based on stakeholder consultation prior to filing the license surrender application with the Commission and other federal and state permitting applications with USACE and VANR.

- FERC's decommissioning process is a stakeholder-driven process that is highly influenced by the input of applicable state and federal agencies, as well as additional interested parties. If the stakeholders are in agreement regarding the decommissioning plan and the final disposition of the Project structures, the process can be relatively streamlined with limited additional consultation and permitting costs. However, if a mandatory conditioning agency or party affected by the decommissioning is in disagreement with the proposed decommissioning plan, the Project owner may face a larger level of consultation and potential environmental studies to demonstrate why the owner's proposed decommissioning alternative is the preferred alternative. In addition, resource interests such as sediment management, shoreline stabilization, fish movement, cultural and historical resources, recreation, aesthetics, and water quality can significantly influence the overall cost of the decommissioning process. Ultimately, FERC's issuance of the surrender order is a federal action that is subject to the same statues and regulations as FERC's relicensing process.
- The Gage Project is a Minor Hydropower Project less than 1.5 MW; therefore, the regulatory requirements associated with the application for a license surrender are less burdensome than those for a Major Hydropower Project. However, whereas the application process for the surrendering of a Minor Project may be less burdensome, given the Commission's decommissioning process and the required consultation process, the potential cost savings of decommissioning a Minor Project are limited.
- The Gage Project does not occupy federal lands; therefore, the decommissioning process will not have an additional requirement to restore the lands to a condition satisfactory to the federal agency having supervision over such lands, which would be the case if there were any federal lands associated with the Project.

- The Gage Project is the third dam of seven on the Passumpsic River, which flows into the Connecticut River in northern Vermont. Additionally, the Passumpsic Project, located downstream of the Gage Project, is built at a natural falls that is believed to be a natural barrier to fish. Therefore, there does not appear to be a strong case for reestablishing natural fish movement at the Project by removing the Gage Dam.
- The Gage Project has been found to be eligible for the National Register of Historic Places, inclusive of the dam, powerhouse, and other appurtenances, including the cableway system. Decommissioning of the Gage Project will require consultation with the SHPO and, depending on the scope of the decommissioning (i.e., removal of Project structures), will likely require completion of a Historic American Buildings Survey (HABS) and a Historic American Engineering Record (HAER) pursuant to the requirements of the National Park Service and SHPO.
- Based on conversations with FERC's New York Regional Office regarding other project decommissioning activities in the Northeast, if the Project's dam is to stay in place as part of the final decommissioning and surrender process, FERC will look to confirm that all outstanding dam safety issues and recommendations have been met. FERC has taken the approach that if they are going to transfer the jurisdiction of the structure to the State, the structure will meet the Commission's dam safety requirements at the time of the transfer.
- Based on conversations with FERC DHAC staff regarding other decommissioning proceedings, FERC's position related to decommissioning is that the licensee has benefited from use of the waters of the U.S. over the term of the license and surrender and decommissioning of the Project must meet the requirements of all applicable federal and state statutes and regulations prior to issuance of the final surrender order (i.e., relieve the licensee of their responsibilities under the Federal Power Act). Therefore, FERC will look to confirm that applicable agencies and additional stakeholders are in agreement with the licensee's surrender and decommissioning plan and that all activities outlined in the approved plan are met prior to issuing the final order.
- Given that the Project's existing license does not expire until November 30, 2034, it is very unlikely that a potential surrender and decommissioning proceeding would overlap with the Project's relicensing proceeding. Of note, if the two proceedings were to overlap, the schedule of the surrender and decommissioning proceeding would be significantly driven by the statutory schedule requirements of the relicensing proceeding. Given this factor, HDR does not recommend allowing the two processes to overlap.

4.4.4 Estimated Range of Costs for License Surrender and Decommissioning of the Gage Project

Given that FERC's decommissioning process and other federal and state permitting requirements is largely stakeholder and consultation driven, a Class 4 cost estimate (-30% to +50%) was developed for the likely tasks that will be required to surrender and

decommission the Gage Project. Given the potential stakeholder input to the process, in addition to cost, the range of -30% to +50% is also applicable to the “Schedule.”

In addition, given that a resource area (e.g., sediment management or shoreline stabilization) can result in a larger level of consultation and potential study and remediation activities, it is essential to reevaluate the cost and schedule estimates routinely over the course of the proceeding. Given the current unknowns regarding such larger potential resource areas to be addressed, there is a potential that the final cost and schedule of the surrender and decommissioning could exceed the estimated ranges.

5 Flashboard Operating System Generation Analysis

HDR had intended to provide an estimate of incremental energy generation for each alternative to aid in the evaluation of flashboard system alternatives. However, the Project headpond rating curve, tailwater rating curve, turbine and generator efficiency curves were not available and, therefore, an energy generation estimate was not able to be completed. GMP was able to provide SCADA (supervisory control and data acquisition) data which was used to evaluate the headpond operation and help identify the effects of flashboard operation on energy generation.

HDR used information from the FERC license exhibits to estimate turbine discharges and spillway capacity to use in the review of the SCADA data. The Exhibit F drawings listed turbine and generator ratings, which indicated that Unit 1 (U1) is generator-limited at 300 KW and Unit 2 (U2) is generator-limited at 400 kW. Using an assumed gross head of 15 feet, assumed headloss of 1.5 feet, and an overall generating efficiency of 85 percent estimated that the combined U1 and U2 hydraulic capacity would be approximately 720 cubic feet per second (cfs). Assuming no board leakage or other discharges, the Project flashboards would begin spill at flows above station hydraulic capacity.

Flashboards are typically designed to fail at two or more feet of head over the flashboards. To evaluate the flow at which the flashboards would begin to fail, HDR created a preliminary spillway discharge calculation for the two spillway sections and the center non-overflow section. The preliminary calculations indicate that the headpond would reach 2 feet over the flashboards at a spillway flow of approximately 2,200 cfs, or a total river flow of 3,000 cfs with the units at full generation. Therefore, with daily average river flows above 3,000 cfs, it is likely that flashboards would start failing, and the operations data was reviewed for high flow periods greater than 3,000 cfs.

HDR evaluated flows at the site using a downstream U.S. Geological Survey (USGS) flow gate (USGS No. 01135500 Passumpsic River at Passumpsic, Vt) which has flow records for a period of record of 1928 to present. Daily average flows were prorated to the Gage Dam using a direct ratio of drainage areas resulting in a ratio of 0.952. Figure 5-1 presents the annual flow duration graph, indicating that the flow of 3,000 cfs is exceeded approximately 3 percent of the time on average.

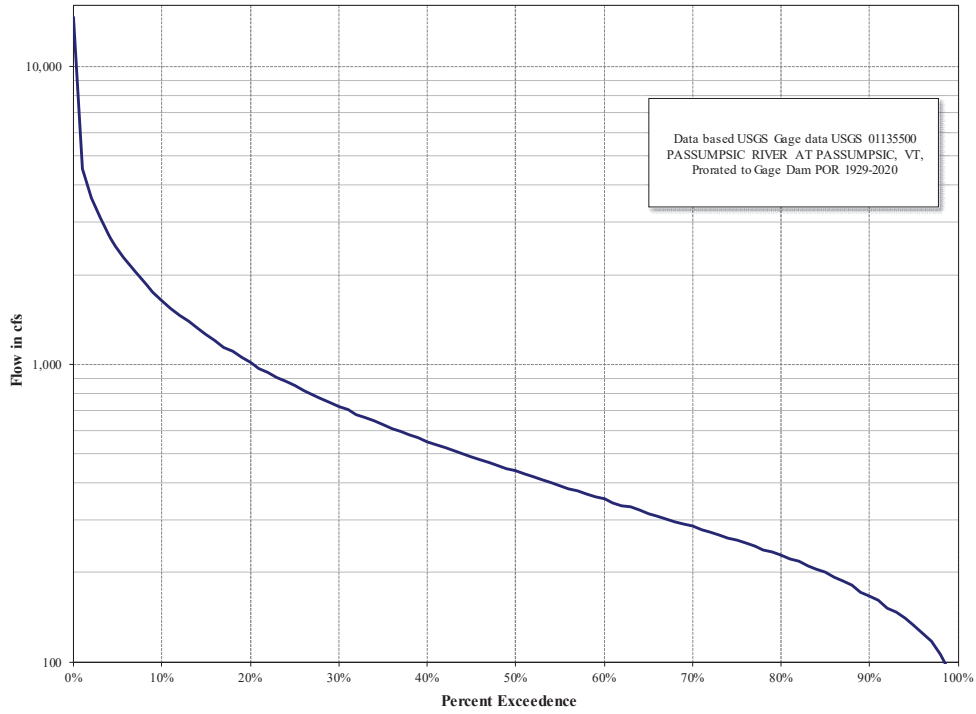


Figure 5-1. Flow Duration Curve at Gage Dam

5.1 Required Headpond Levels

Project operation requires the headpond elevation to be near the normal full pond elevation of 539.15 feet msl, noting that generation is not possible when the hinged flashboards are in the down position.

5.2 Current Flashboard System Operation Procedures

There are two flashboard sections operated by the Project; the 5.7-foot-tall, hinged boards along the 175.8-foot-long main spillway, and the 1-foot-tall flashboards along the 42.8-foot-long secondary spillway. The existing flashboard maintenance is performed by plant personnel when flashboards are tripped and the headpond elevation is lowered by more than 1.5 feet below normal maximum pond elevation. The 5.7-foot-tall, hinged boards are raised using the aerial tramway and trolley systems, while the 1-foot-tall boards are replaced by maintenance crew working directly on the fixed crest.

GMP provided SCADA data for HDR's review. HDR organized the 15-minute operation data for use in reviewing the headpond operation in terms of the actual recorded elevation to determine if there were any operation patterns.

Figure 5-2 presents the headpond elevation data in an elevation-duration graphical format, showing the percent of time a headpond elevation is equaled or exceeded. The figure compares the full period of data between 2015 to 2020, which included two large headpond "outages." One outage was in 2018 where the headpond was drawn down for an extended period to perform a gate repair. The second outage was in 2020 after the aerial tramway system was tagged-out and the flashboards were no longer maintained.

Figure 5-2 shows that the headpond was well managed and was operated above elevation 538.4 feet (1.5 feet below top of boards) for over 97 percent of the time. Figures 5-3 through 5-8 show the headpond elevation and river flows for the years 2015-2020.

A review of the high flow events in April of 2015 shown on Figure 5-3 have river flows that would have resulted in flashboard failures, however no drop in headpond elevation is recorded, indicating efficient, prompt maintenance of flashboards. Similarly, 2016 headpond data illustrated on Figure 5-4 shows effective flashboard maintenance and no loss of headpond elevation. The 2017 headpond data illustrated on Figure 5-5 shows no loss of headpond in April of 2017 from high flows of 6,700 cfs. There is a period in late September where the headpond was lowered for 11 days, however it would appear to be a maintenance event and did not result in any unplanned loss in generation. Figure 5-6 shows headpond operation in 2018 where maintenance following high flows in late April held headpond elevations at full pond, noting the summer-winter drawdown for gate maintenance. Late December is the first flashboard failure event visible in the operating data, as the high flow event occurred on December 22 with flows and headpond starting to recede on Christmas Eve with maintenance crews restoring flashboards and headpond on December 27. This event resulted in a maximum headpond elevation drop of about 4 feet for three days, with a maximum energy loss of approximately 50,400 kWh. Figure 5-7 shows a high flow event of up to 11,000 cfs resulting in flashboard loss and a reduced headpond elevation for approximately nine days, resulting in an energy loss of up to 151,000 kWh if that resulted in a station shutdown. Figure 5-7 shows other small headpond elevation drops of up to 1.5 feet in August and September that would have resulted in approximately a 10 percent reduction in energy generation from operation at reduced head.

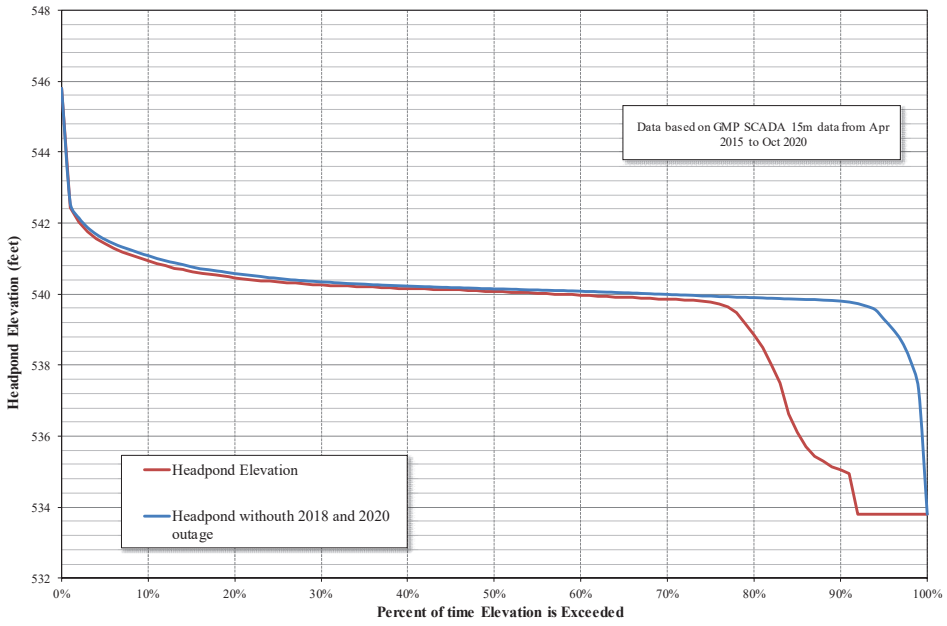


Figure 5-2. Elevation-Duration Graph

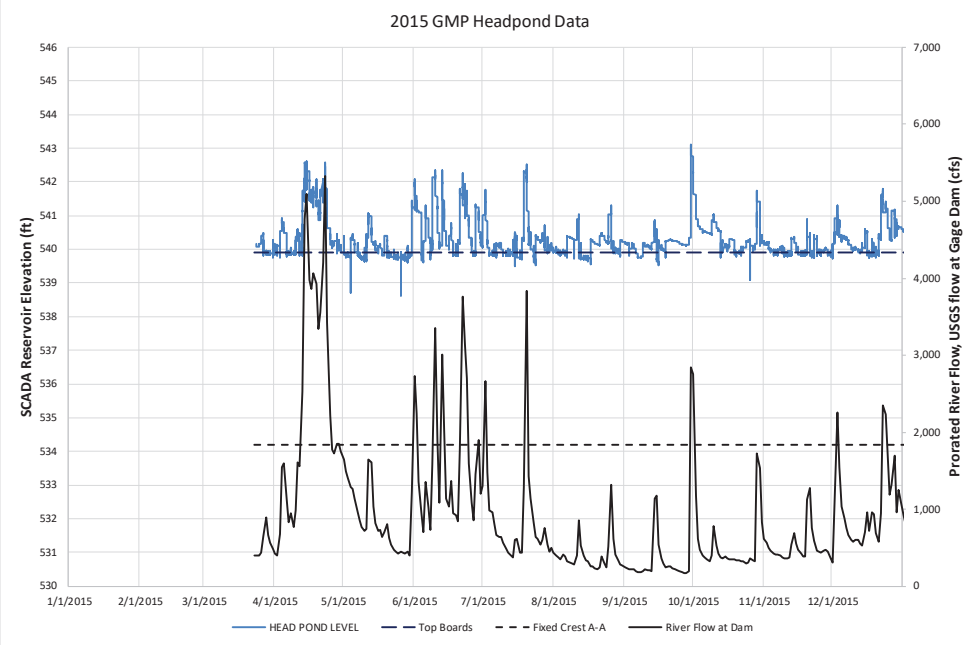


Figure 5-3. 2015 headpond data and flow data

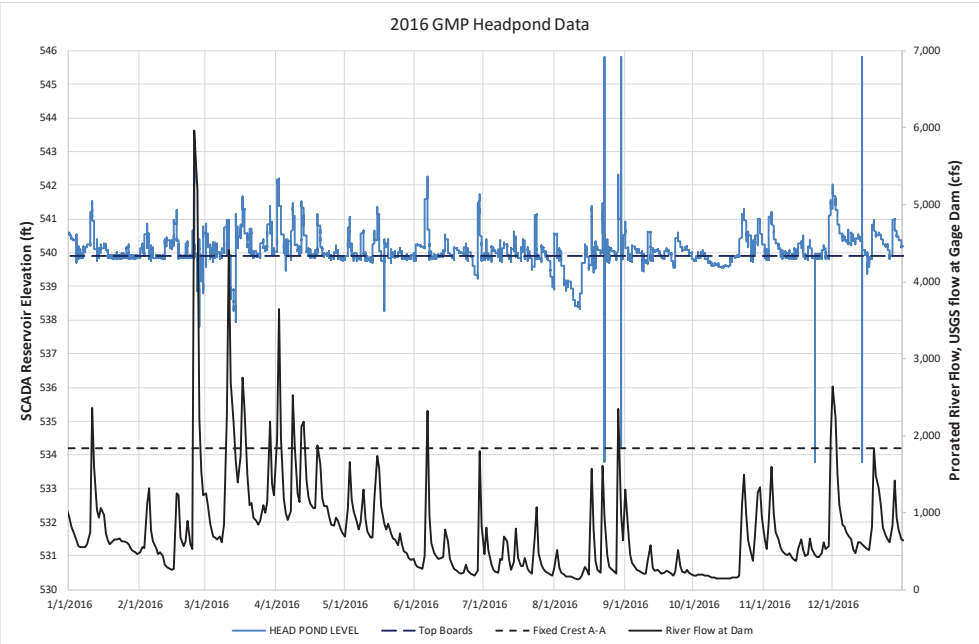


Figure 5-4. 2016 headpond data and flow data

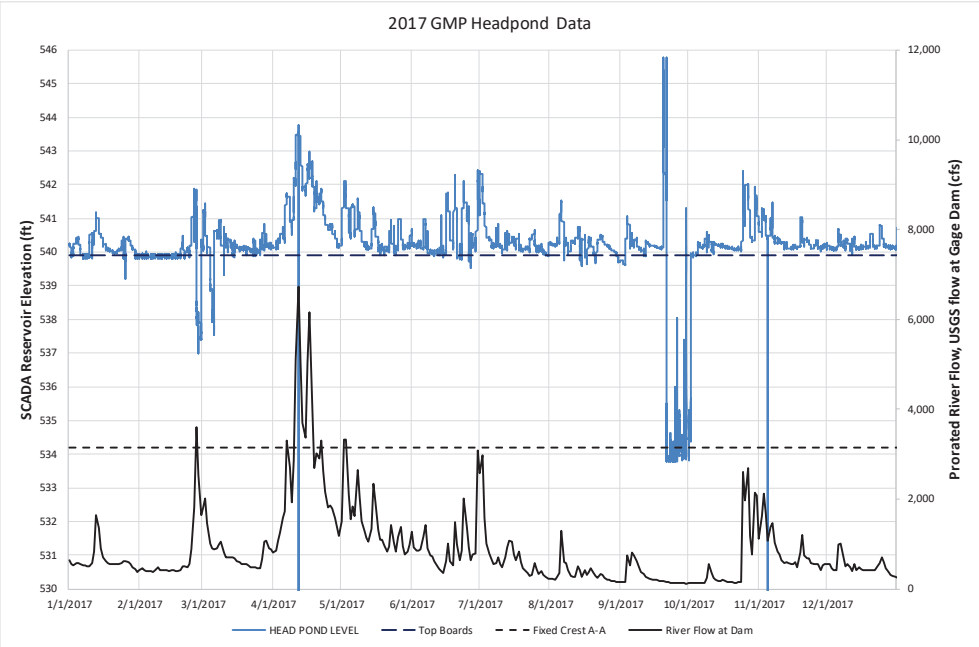


Figure 5-5. 2017 headpond data and flow data

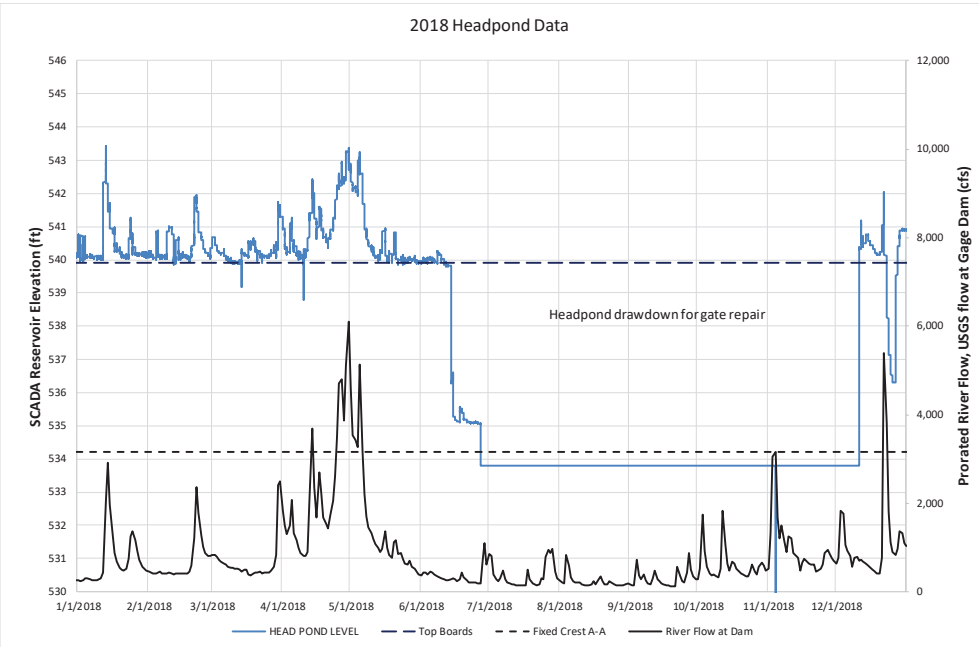


Figure 5-6. 2018 headpond data and flow data

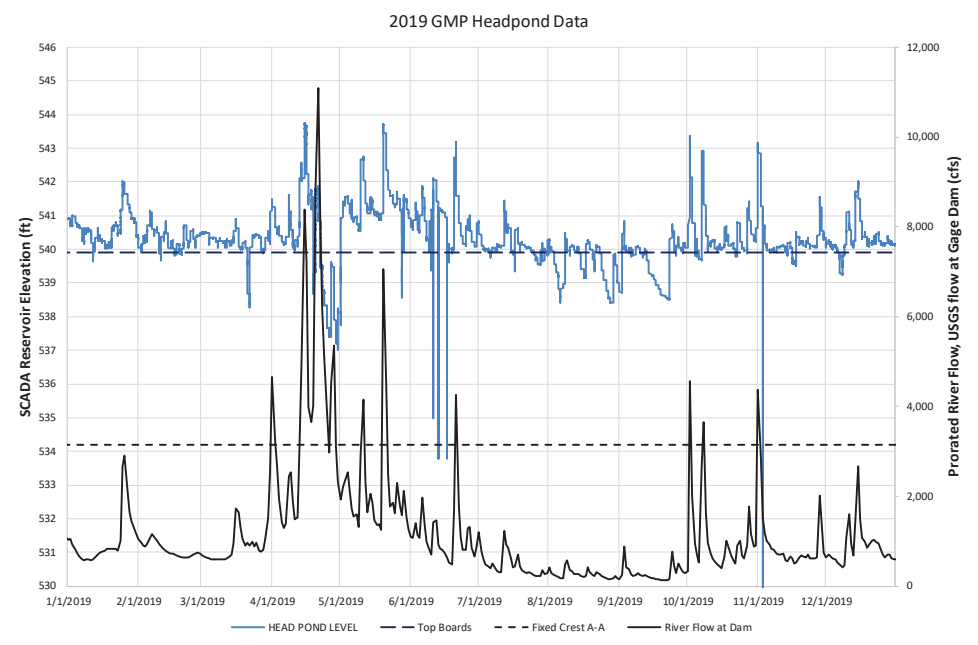


Figure 5-7. 2019 headpond data and flow data

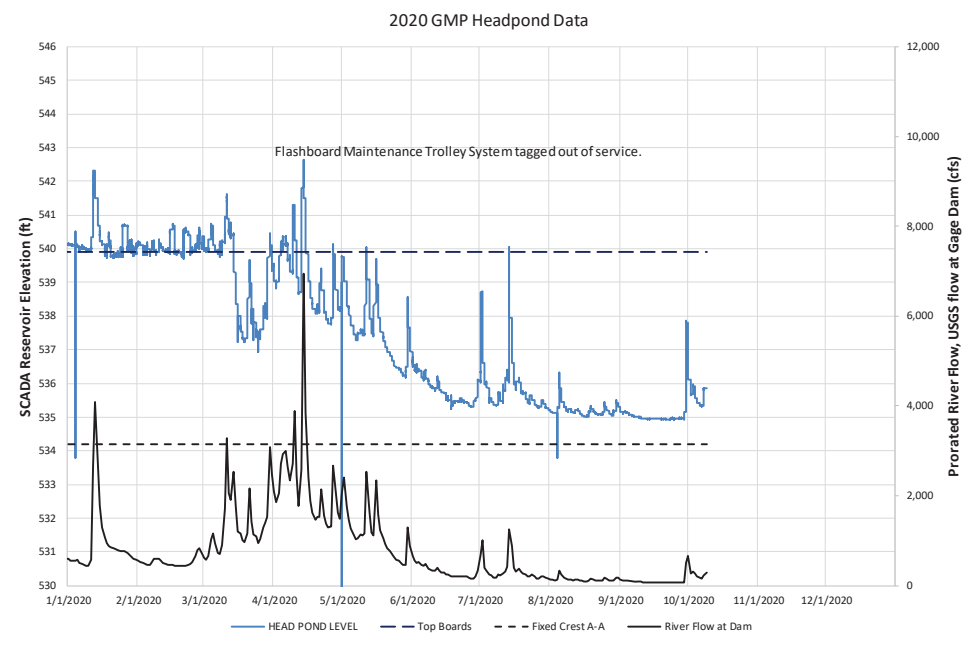


Figure 5-8. 2020 headpond data and flow data

5.3 Incremental Generation Estimates

The existing flashboard maintenance operation is effective at maintaining the headpond and reduces station shutdowns due to reduced operating head. As a result of this effective operation, there will be small incremental energy gains attributable to alternative headpond operation, with a potential gain of 150,000 kWh per year based on

observations of 2015-2020 operation. These incremental gains/losses do not include comparison of labor/materials costs for the existing flashboard maintenance.

6 Flashboard Operating System Alternatives Evaluation

6.1 Opinion of Probable Construction Cost

HDR developed Class 4 cost estimates for each alternative based on the Association for the Advancement of Cost Engineering (AACE) methodology, with the expected accuracy range for these estimates to be -30 percent of the estimated cost at the low end, and +50 percent of the estimated cost at the high end.

Appendix A includes the cost estimates developed by HDR and the Vendor quotes received from SkyTrans and Obermeyer. The SkyTrans quote dated July 25, 2020, was the primary basis for the estimated costs for Alternative 1A and 1B. The Obermeyer quote dated November 4, 2020, consisted primarily of equipment costs. HDR developed the associated constructions costs for the estimate.

These cost estimates are intended to provide a general indication of costs associated with implementation of the various alternatives studied for the purposes of informing GMP's consideration of Project alternatives. These estimates are not intended to be used for reliance for securing financing.

Table 6-1. Opinion of Probable Costs

Alternative	Total Estimated Cost (-30%)	Total Estimated Cost (+50%)
Alternative 1A – Rehabilitation of Existing Tramway and Trolley Systems	$420,000	$900,000
Alternative 1B – Replacement of Existing Tramway and Trolley Systems	$1,190,000	$2,550,000
Alternative 2A – Construct 1 New Bridge and Rehabilitate Existing Tramway and Trolley Systems	$ 2,310,000	$4,950,000
Alternative 2B – Construct 2 New Bridges and Rehabilitate Existing Tramway and Trolley Systems	$2,590,000	$5,550,000
Alternative 3A – New Obermeyer Crest Gates	$1,328,000	$2,846,000
Alternative 3B – New Rubber Dam	$1,362,000	$2,918,000
Alternative 4 – Decommissioning of the Project	$385,000	$4,425,000

6.2 Annual Cost to Manually Reset Existing Flashboards

Based on prior maintenance history, it was assumed that 15 manhours are required for prepping the wooden struts for the hinged flashboards and 24 manhours are required for resetting the hinged flashboards annually. Based on these manhours, the estimated annual labor cost is approximately $5,000 a year.

An additional $1,000 a year is required for materials to reset the existing hinged flashboards, which includes 50 4x4 wooden struts, 10 sheets of plywood, and 14 rolls of burlap.

It is assumed that $6,000 is typically spent every year manually resetting the hinged flashboards.

6.3 Opinion of Probable Energy Generation Revenue

HDR had intended to provide an estimate of incremental energy generation for each alternative to aid in the evaluation of flashboard system alternatives. However, the Project headpond rating curve, tailwater rating curve, and turbine and generator efficiency curves were not available and, therefore, an energy generation estimate was not able to be completed. GMP was able to provide SCADA data which supported the evaluation of historical headpond operation and helped identify the effects of flashboard operation on energy generation.

HDR's review of the SCADA data determined that the flashboard maintenance operation with the existing tramway and trolley systems is effective at maintaining the headpond and minimizing station shutdowns due to reduced operating head. With a continuation of this effective operation in the future, it is expected that there would be small incremental energy gains attributable to alternative headpond operation, with a potential gain of 150,000 kWh based on observations of 2015-2020 operation. These potential incremental gains do not include labor/materials costs for the flashboard maintenance.

The finding of the possibility of only small incremental energy gains reduces economic benefits anticipated from the inflatable dam Alternative 3 from potentially maximizing the headpond level throughout the year with full automation.

6.4 Safety

A major safety concern with the current tramway and trolley systems is that the work basket cannot be lowered or raised remotely by the operator on land. The work basket currently is lowered and raised manually by the workers inside the work basket using a chain fall. If a situation arose where the workers inside the work basket became incapacitated, there may not be a way to safely rescue the workers by bringing them back to land. However, it appears there are options to mitigate this risk and still make the rehabilitation or replacement of the tramway and trolley systems a viable alternative. One option would be to motorize the hoist that raises and lowers the work basket and also add the ability for the motor to be remotely operated from land. This would allow for the operator on land to have full control of the work basket and be able to bring the work basket back to land in an emergency.

The bridge alternative would likely provide safer access to the flashboards than the current tramway and trolley systems, but there would still be risk associated with fall hazards and slips, trips, and falls. Also, due to the requirement to have the bridge 1-foot above the 100-year-flood levels, the new bridge deck would be located approximately 12 feet above the permanent crest of the spillway and access to the flashboards would require a movable access platform on the side of the bridge that workers would have to manipulate into position, which could have associated hazards.

The inflatable dam alternative has the possibility of reducing the greatest amount of risk from a safety standpoint since it eliminates the need to send workers out over, or on, the spillway to manually reset flashboards since an Obermeyer gate system would be fully automated.

While the decommissioning option would eliminate safety hazards with respect to operating the hinged flashboards, there still could be safety issues to the public depending on if the spillways were left in place, or partially removed. Partially removed dams can create flow patterns that can dramatically increase the drowning hazard around the structure.

6.5 Schedule

The estimated schedule for completion of each alternative is provided in Table 6-2 below. The schedules provided include uncertainties that the current Covid-19 pandemic has introduced, but there is still the potential for schedules to be impacted further.

Table 6-2. Estimated Schedule for Alternatives

Alternative	Estimated Schedule
Alternative 1A – Rehabilitation of Existing Tramway and Trolley Systems	30 weeks
Alternative 1B – Replacement of Existing Tramway and Trolley Systems	50 weeks
Alternative 2A – Construct 1 New Bridge and Rehabilitate Existing Tramway and Trolley Systems	20 weeks
Alternative 2B – Construct 2 New Bridges and Rehabilitate Existing Tramway and Trolley Systems	25 weeks
Alternative 3A – New Obermeyer Crest Gates	18 weeks
Alternative 3B – New Rubber Dam	30 weeks
Alternative 4 – Decommissioning of the Project	24 to 60 weeks

7 Conclusions

Alternative 1A – Rehabilitation of Existing Tramway and Trolley Systems – had a low-end estimated cost of $420,000 and had the lowest high-end estimated cost of $900,000. In its current state, the tramway system appears to pose the greatest safety hazards with respect to operating the hinged flashboards at Gage Dam. However, with the appropriate inspections, analyses, repairs, and upgrades, it seems that the risks associated with the implementation of this Alternative could be mitigated significantly. Furthermore, this system has a performance history that indicates it is capable of efficiently maintaining the headpond at Gage Dam.

However, there is the potential that inspections and analyses for the existing tramway and trolley systems may determine more significant repairs and upgrades are required in order to bring the system into conformance with the requirements of VOSHA, the Vermont Tramway Board, National Fire Protection Association standards, ANSI B77.1-2017, Vermont Department of Labor Passenger Tramway Board, and Green Mountain Power. Because of this, it would likely be conservative to use the estimated costs for Alternative 1B for planning purposes. Before going forward with Alternative 1A or 1B, it may be prudent to schedule a joint meeting with SkyTrans, HDR, GMP, and VOSHA in order to verify that all concerns regarding the tramway will be addressed and that the tramway will receive regulatory approval once rehabilitated or replaced.

Alternative 2 – Construct 1 (or 2) New Bridge(s) – Both bridge options were determined to have the highest low-end estimated costs and the highest high-end estimated costs. The bridge options do significantly reduce potential safety hazards compared to Alternative 1.

Alternative 3A – New Obermeyer Crest Gates – Eliminates potential safety hazards associated with workers operating the existing hinged flashboards. The estimated construction costs range from $1,328,000 to $2,846,000. Obermeyer crest gates can be prone to icing since they are constructed with steel gate panels. Ice can form on the upstream side of the gates, on the downstream side of the gates and bladders, and at the abutment plates. Icing of the abutment plates can be mitigated by installing heaters behind the abutment plates or installing HDPE abutment plates instead of metal plates. Icing of the upstream side of the gates can be mitigated by using ice eaters, which circulate the typically warmer water up from the bottom of the reservoir (may not be effective with shallow reservoirs), or by installing a bubbler system (was not included in the estimated cost). Regularly spilling small amounts of water (~1-inch) can help to prevent the formation of ice on the upstream side of the gate and can also help to thaw ice on the downstream side of the gate and bladder.

Alternative 3B – New Rubber Dam – Eliminates potential safety hazards associated with workers operating the existing hinged flashboards. The estimated construction costs range from $1,362,000 to $2,918,000. This alternative has limited ability to modulate spillway flows, compared to the Obermeyer crest gates. Approximately 20 percent of the total height of the rubber dam is adjustable, which is 1.2 feet for a 6-foot-tall rubber dam. Ideally this means that the rubber dam could be partially deflated 1.2 feet to pass flows before it would have to be fully deflated to pass larger flows. However, the rubber dam representative did not recommend that the rubber dam typically be partially deflated.

Furthermore, the exhibit drawings indicate that the height of the existing north spillway section varies from 3 feet to 13 feet. Based on the field photo in Figure 4-4 above, the shortest section may be located at the right abutment. With the shorter sections, there is a potential that the rubber dam, when deflated, would rub against the foundation at the toe of the spillway. Lastly, this alternative would require significantly more concrete work, such as the construction of a concrete corbel on the upstream face of the spillway for the main anchor line, and extensive overlays on the crest and the downstream face in order for the rubber bladder to lay appropriately.

Alternative 4 – Decommissioning of the Project – An estimated range of construction cost of $385,000 to $4,425,000. The low-end cost is based on the possibility that no modifications or breaches of the dam would be required for the decommissioning. It may be unconservative to assume this would be the case, especially since the motives of potential stakeholders is unknown and there are unknowns regarding consultation and potential studies that could be required.

8 References

Kleinschmidt Associates (KA). Gage Station Flashboard Study. March 1999.

Appendix A. Opinion of Probable Costs

Alternative 1

Tramway and Trolley System

Cost Estimate

Project:	GMP GAGE DAM	Computed:	SJK	Date:	12/11/2020
Subject:	COST ESTIMATE	Checked:	TAF	Date:	12/21/2020
Task:	TRAMWAY	Page:	1	of:	1
Job #:	1025540-1.0	No:			

Option A - Rehabilitation of Existing Tramway		UNIT PRICE	COST
Pre-Construction Design			
HDR	1 EA	$20,000	$20,000
SkyTrans	1 EA	$47,500	$47,500
Tram Upgrades	1 EA	$475,000	$475,000
			$542,500

TOTAL	**$600,000**
-30%	**$420,000**
+50%	**$900,000**

Option B - Replacement of Existing Tramway, foundations and achors with new Tramway		UNIT PRICE	COST
Pre-Construction Design			
HDR	1 EA	$20,000	$20,000
SkyTrans	1 EA	$47,500	$47,500
Tram Replacement	1 EA	$1,600,000	$1,600,000
			$1,667,500

TOTAL	**$1,700,000**
-30%	**$1,190,000**
+50%	**$2,550,000**

SkyTrans Manufacturing LLC

PO Box 216 ● 106 Burnham Intervale Road ● Contoocook, NH 03229
Phone: (603) 746-4446 ● Fax: (603) 746-4447
sales@skytrans-mfg.com

July 25, 2020 Proposal #: Q20-667.r1

Jason L. Gallant, PE
Associate, New England Structures Section Manager
HDR
99 High Street
Boston, MA 02110-2378
D 617.357.7756 **M** 207.400.6448

SkyTrans Proposal Q20-667.r1 with Level 5 Cost Estimates for Rehabilitation & Replacement of Maintenance Tram at GMP Gage Dam in St. Johnsbury, VT

Option A: Rehabilitation of existing tramway.

- Minimum = $522,500 - 20% = $418,000
- Maximum = $522,500 +30% = $679,250

Note: $522,500 = $47,500 + $475,000 from proposal Q20-667.

Option B: Replacement of existing tramway, foundations, anchors with new Tramway.

- Minimum = $1.6 million - 20% = $1,200,000
- Maximum = $1.6 million + 30% = $2,080,000

Both options will meet all requirements of VOSHA, VDOL Tramway Board, and ANSI B77.1-2017.

If you have any questions or comments, or if we can be off any assistance to you on this or other projects, please feel free to call me on my cell phone or e-mail me at any time.

Best Regards,
Rich Combs
General Manager
SkyTrans Manufacturing LLC
M: 603-545-7616

cc. Dan Pendleton, Mike Rich, Sue Brooks, John Pendleton

Alternative 2

New Bridge Augmented by Rehabilitated Tramway and Trolley System

Cost Estimate

Project:	GMP GAGE DAM	Computed:	SJK	Date:	12/11/2020
Subject:	COST ESTIMATE	Checked:	TAF	Date:	12/21/2020
Task:	NEW BRIDGE	Page:	1	of:	1
Job #:	1025540-1.0	No:			

190 FT. BRIDGE

ITEM			UNIT PRICE	COST
HPC B	124	CY	$950	$117,800
Level III Reinf.	11800	LB	$2.00	$23,600
Porous Backfill	53	CY	$50.00	$2,650
Erection Cost (2 cranes)	1	LS	$200,000	$200,000
Crew Cost (1 foreman & 6 laborers)	10	DAY	$5,200	$52,000
Pre-Fabricated Bridge (FOB - 220')	1	EA	$400,000	$400,000
				$796,050

80 FT. BRIDGE

ITEM	QUANTITY		UNIT PRICE	COST
HPC B	40	CY	$900	$36,000
Level III Reinf.	3800	LB	$2	$7,600
Access Stairs	1	EA	$24,000	$24,000
Erection Cost (1 crane)	1	LS	$75,000	$75,000
Crew Cost (1 foreman & 6 laborers)	15	DAY	$5,200	$78,000
Pre-Fabricated Bridge (FOB)	1	EA	$58,000	$58,000
				$278,600

MISC. COSTS				COST
Access Road Improvement	1	LS	$150,000	$150,000
Trestle	1	LS	$600,000	$600,000
Crew Cost (1 foreman & 6 laborers)	1	DAY	$5,500	$5,500
Rehabilitation of existing concrete foundation (190 ft. North End)	1	LS	$250,000	$250,000
Flagman	1	LS	$55,000	$55,000
Access platform to flashboards from bridge	1	LS	$20,000	$20,000
Walkway (Between 80' and 190' bridges - depending on location of 80' bridge)	1	EA.	$15,000	$15,000
Tram Rehabilitation (portion of Alternative 1A)	1	EA	$400,000	$400,000
				$1,495,500

Alternative 2B (2 Bridges)		**SubTotal**	**$2,600,000**
Pre-Construction Design (8%)	$208,000		$208,000
Contigency (20%)	$520,000		$520,000
Mobilization	$186,000		$186,000
Design Services During Construction	$130,000		$130,000

Alternative 2B (2 Bridges)	**TOTAL**	**$3,700,000**
	-30%	**$2,590,000**
	+50%	**$5,550,000**

Alternative 2A (1 Bridge)		**SubTotal**	**$2,300,000**
Pre-Construction Design (8%)	$184,000		$184,000
Contigency (20%)	$460,000		$460,000
Mobilization	$168,000		$168,000
Design Services During Construction	$115,000		$115,000

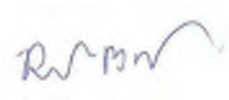
Alternative 2A (1 Bridge)	**TOTAL**	**$3,300,000**
	-30%	**$2,310,000**
	+50%	**$4,950,000**

Alternative 3

New Inflatable Dam

Cost Estimate

Calculation Cover Sheet

Client:	**GMP**		
Project:	**Gage Dam Flashboard Study**		
Project No:	10255140	Rev:	1
Calculation No:	STR-001	Page:	1 of 26
Title:	Inflatable Dam Cost Estimate		
Purpose:	Develop an engineer's opinion of probable construction cost for a new inflatable dam for the full length of the north spillway at Gage Dam. Rev 1: Added cost estimate for Rubber Dam Alternative.		
Originator:	Warren Zubrick 	Date:	2/4/2021
Checked by:	Robert Reed 	Date:	2/4/2021
QC Review by:		Date:	
Approved by:		Date:	
Supersedes Calculation No:			
Superseded by Calculation No:			

Computed: WJZ
Date: 12/11/20
Checked: RBR
Date: 12/11/2020

Engineer's Opinion of Probable Construction Cost

Gage Dam
Green Mountain Power

Obermeyer Crest Gates Alternative - Full Length of North Spillway Section (175 feet)

Category	Item	Quantity	Material Unit	Price	Total	Quantity	Labor Unit	Rate	Total	Total	Comments
Environmental	Environmental Mitigations/ Permits				$ -	1	LS	$ 50,000.00	$ 50,000.00	$ 50,000.00	
Construction Management	GMP & Construction Field Management				$ -	1	LS	$ 50,000.00	$ 50,000.00	$ 50,000.00	
Construction	New Abutment Concrete	10	CY	$ 500.00	$ 5,000.00					$ 5,000.00	Concrete price includes labor and transport
	New Additional Crest Concrete	1320	SF	$ 150.00	$ 198,000.00					$ 198,000.00	New concrete to embed air piping. Concrete resurfacing price traditionally much higher than formed concrete.
	Obermeyer System	1	LS	$ 546,100.00	$ 547,000.00					$ 547,000.00	gate panels, bladder, controls, air supply, etc
	Obermeyer Installation					1	LS	$ 202,000.00	$ 202,000.00	$ 202,000.00	demo existing panels, drill anchor holes, install obermeyer (includes barge and crane)
	Obermeyer Support					1	LS	$ 17,500.00	$ 18,000.00	$ 18,000.00	10-days infield installation support (includes travel and incidentals)
	Blower Building	1	LS	$ 31,000.00	$ 31,000.00	1	LS	$ 16,000.00	$ 16,000.00	$ 47,000.00	20' x 20' masonry building
	Water Diversion					1	LS	$ 100,000.00	$ 100,000.00	$ 100,000.00	Assumed - possibly create big enough notch in spillway and repair after, or cofferdam and pump
									TOTAL	$ 1,217,000.00	
Additional Costs	**Item**										
	Mobilization/Demobilization									$ 122,000.00	Assume 10% of total
	Engineering									$ 161,000.00	Assume 12% of total (incl. mob/demob)
	Sales Tax for Materials									$ 63,000.00	Material costs @ 8% (conc, obermeyer system, blower building)
	Contingency									$ 305,000.00	25% of total for AACE Class 4
	Bond & Insurance									$ 29,000.00	1.5% of total (incl. mob/demob, eng, tax, cont)
	GRAND TOTAL								**GRAND TOTAL**	$ 1,897,000.00	

Estimate Accuracy Range -30%	**$ 1,327,900**
Estimate Accuracy Range +50%	**$ 2,845,500**

Computed: WJZ
Date: 12/11/20
Checked: RBR
Date: 12/11/2020

Obermeyer Crest Gates Alternative - Full Length of North Spillway Section (175 feet)

Materials and Labor

Assumptions:

1) reservoir will be drawn down enough that a cofferdam will not be needed.
2) No geotechnical Investigation or report.

Obermeyer Install (labor)	Amount	2021 Rate ($/hr)	Geography Factor	Cost/hr ($/hr)	# of hr	Total Cost ($)	Assumption
Construction Supervisor	1	$ 120.00	1	$ 120.00	280	$ 33,600.00	demo existing boards (1 wk); drill anchor holes - 175 main anchors, 40 restraining strap anchors (2 wk); Install obermeyer system (4 wk)
Laborer	4	$ 70.00	1	$ 280.00	280	$ 78,400.00	
Pipe Layer	1	$ 80.00	1	$ 80.00	120	$ 9,600.00	
Pipe Layer - Helper	1	$ 50.00	1	$ 50.00	120	$ 6,000.00	
Electrician	1	$ 90.00	1	$ 90.00	120	$ 10,800.00	
Electrician - Helper	1	$ 60.00	1	$ 60.00	120	$ 7,200.00	
Work Barge	1	$ 20.00	1	$ 20.00	280	$ 5,600.00	
Crane	1	$ 180.00	1	$ 180.00	280	$ 50,400.00	Includes operator
					Total ($)	$ 202,000.00	

New Concrete (material)	Width (ft)	Length (ft)	Shape	Area (ft2)	Assumption
C1	7.5	175	1	1312.5	additional crest conc.
			Total (ft^2)	1320	

New Concrete (material)	Area (ft^2)	Length (ft)	Shape	Volume (ft^3)	Volume (yd^3)	Assumption
C2	41.6	2.5	2	208	10.00	abutment conc.
				Total (yd^3)	10	

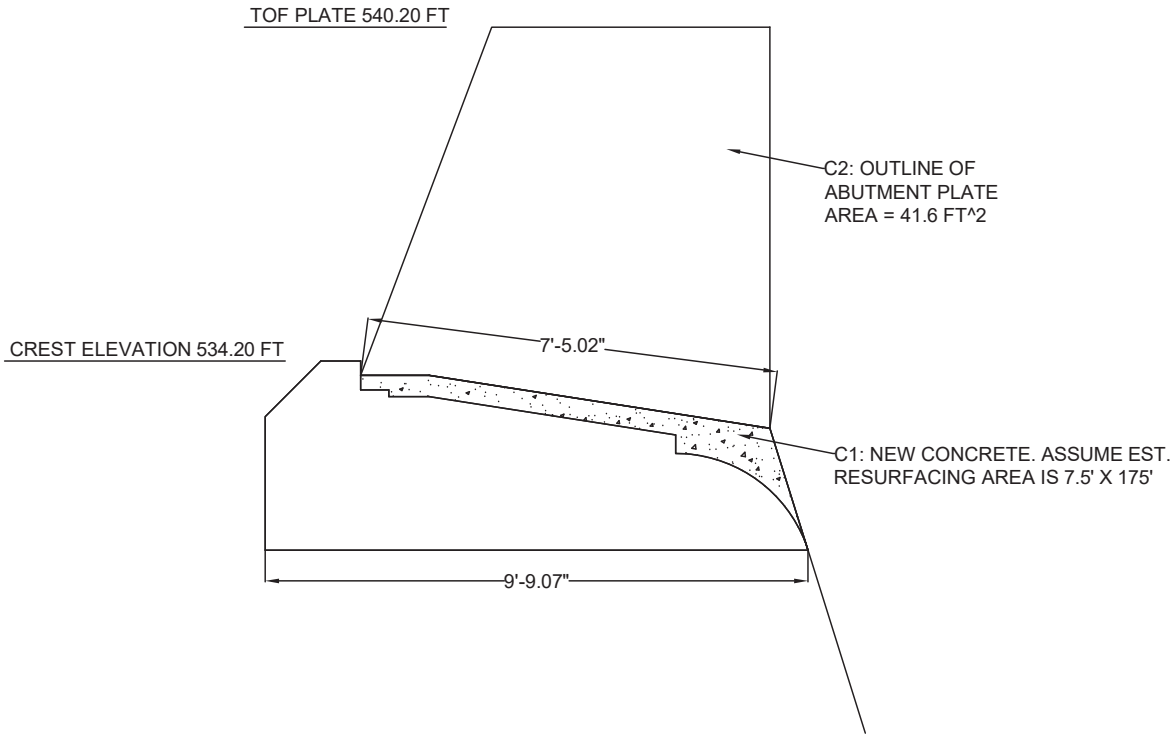
Blower Building (material)	Quantity	Material Unit	Price	Total Cost ($)
Concrete	30.00	CY	$ 400.00	$ 12,000.00
Masonry	960	SF	$ 15.00	$ 14,400.00
Roof	400	SF	$ 10.00	$ 4,000.00
			Total ($)	$ 31,000.00

Blower Building (labor)	Amount	2021 Rate ($/hr)	Geography Factor	Cost/hr ($/hr)	# of hr	Total Cost ($)	Assumption
Block Mason	3	$ 80.00	1	$ 240.00	40	$ 9,600.00	Walls
Carpenter	2	$ 80.00	1	$ 160.00	40	$ 6,400.00	Roof and Doorways
					Total ($)	$ 16,000.00	

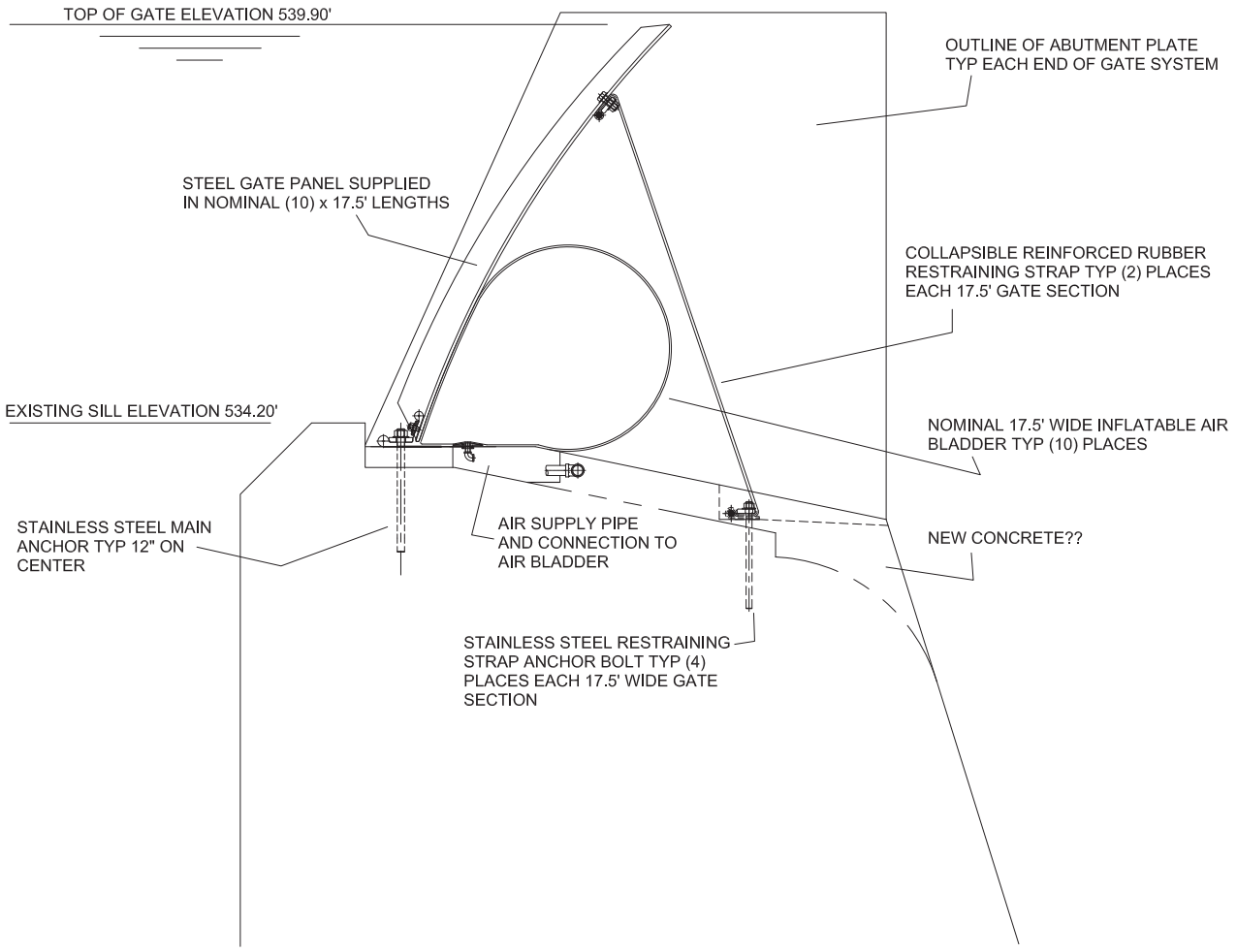
May 2019 State Occupational Employment and Wage Estimates, Vermont

U.S. Bureau of Labor Statistics (https://www.bls.gov/oes/current/oes_vt.htm)

Occupation code	Occupation title (click on the occupation title to view its profile)	Level	Employment	Employment RSE	Employment per 1,000 jobs	Location quotient	Median hourly wage	Mean hourly wage	Annual mean wage	Mean wage RSE	Escalated 2021 Mean Hourly Wage	2021 Rounded Burdened Hourly Wage (3.25 multiplier)
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	detail	1,490	6.00%	4.851	1.14	$30.19	$32.39	$67,370	1.90%	$34.36	$120.00
47-2061	Construction Laborers	detail	1,730	10.40%	5.649	0.81	$17.66	$18.20	$37,850	1.90%	$19.31	$70.00
47-2051	Cement Masons and Concrete Finishers	detail	230	20.10%	0.759	0.57	$20.32	$22.60	$47,010	8.00%	$23.98	$80.00
47-2151	Pipelayers	detail	100	39.80%	0.334	1.35	$19.23	$21.32	$44,340	4.90%	$22.62	$80.00
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	detail	-8	-8	-8	-8	$13.93	$14.09	$29,310	5.50%	$14.95	$50.00
47-2021	Brickmasons and Blockmasons	detail	80	20.00%	0.276	0.67	$23.05	$23.77	$49,440	5.80%	$25.22	$90.00
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	detail	110	33.50%	0.375	2.34	$17.04	$17.32	$36,030	5.10%	$18.37	$60.00
47-2031	Carpenters	detail	2,620	7.90%	8.562	1.71	$21.59	$22.15	$46,070	2.50%	$23.50	$80.00
47-3012	Helpers--Carpenters	detail	250	22.20%	0.804	3.59	$16.25	$15.82	$32,890	3.50%	$16.78	$60.00
47-2181	Roofers	detail	370	17.30%	1.2	1.36	$17.75	$18.42	$38,310	3.10%	$19.54	$70.00
47-2111	Electricians	detail	1,130	7.80%	3.689	0.79	$25.21	$25.51	$53,060	3.30%	$27.06	$90.00
47-3013	Helpers--Electricians	detail	70	44.80%	0.221	0.41	$15.46	$16.96	$35,270	7.30%	$17.99	$60.00



OBERMEYER CREST GATE
CONCRETE QUANTITIES ESTIMATE



NO	REVISION DESCRIPTION	DATE APR'D	APR'D	DRAWN
1	PRELIMINARY	NOV 4, 2020		RDE
2				
3				
4				
5				
6				
7				

OBERMEYER HYDRO, INC.
ideas that hold water™

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DRAWING DESCRIPTION
SECTION ELEVATION

SHEETS	SCALE
1 of 1	NO SCALE

JOB
GAGE STATION

DRAWING
20-2410-001

© OBERMEYER HYDRO, INC., 2012

Computed: WJZ
Date: 02/4/21
Checked: RBR
Date: 02/04/21

Engineer's Opinion of Probable Construction Cost

Gage Dam
Green Mountain Power

Rubber Dam Alternative - Full Length of North Spillway Section (175 feet)

Category	Item	Quantity	Material Unit	Price	Total	Quantity	Labor Unit	Rate	Total	Total	Comments
Environmental	Environmental Mitigations/ Permits				$ -	1	LS	$ 50,000.00	$ 50,000.00	$ 50,000.00	
Construction Management	GMP & Construction Field Management				$ -	1	LS	$ 50,000.00	$ 50,000.00	$ 50,000.00	
Construction	New U/S Corbel and Abutment Concrete	40	CY	$ 500.00	$ 20,000.00					$ 20,000.00	Concrete price includes labor and transport
	New Additional Crest Concrete	2540	SF	$ 150.00	$ 381,000.00					$ 381,000.00	New concrete overlay (cost traditionally much higher than formed concrete)
	Rubber Dam System	1	LS	$ 350,000.00	$ 350,000.00					$ 350,000.00	bladder, controls, air supply, etc
	Rubber Dam Installation					1	LS	$ 202,000.00	$ 202,000.00	$ 202,000.00	demo existing panels, drill anchor holes, install rubber dam (includes barge and crane)
	Rubber Dam Support						LS	$ -	$ -	$ -	Included in Rubber Dam System Cost: 10-days of installation supervision, including travel, by Dyrhoff engineer or technician.
	Blower Building	1	LS	$ 31,000.00	$ 31,000.00	1	LS	$ 16,000.00	$ 16,000.00	$ 47,000.00	20' x 20' masonry building
	Water Diversion					1	LS	$ 150,000.00	$ 150,000.00	$ 150,000.00	Assumed - possibly create big enough notch in spillway and repair after, or cofferdam and pump
									TOTAL	$ 1,250,000.00	
Additional Costs	**Item**										
	Mobilization/Demobilization									$ 125,000.00	Assume 10% of total
	Engineering									$ 165,000.00	Assume 12% of total (incl. mob/demob)
	Sales Tax for Materials									$ 63,000.00	Material costs @ 8% (conc, obermeyer system, blower building)
	Contingency									$ 313,000.00	25% of total for AACE Class 4
	Bond & Insurance									$ 29,000.00	1.5% of total (incl. mob/demob, eng, tax, cont)
	GRAND TOTAL								**GRAND TOTAL**	$ 1,945,000.00	

Estimate Accuracy Range -30%	**$ 1,361,500**
Estimate Accuracy Range +50%	**$ 2,917,500**

Computed: WJZ
Date: 12/11/20
Checked: RBR
Date: 02/04/21

Rubber Dam Alternative - Full Length of North Spillway Section (175 feet)

Materials and Labor

Assumptions:

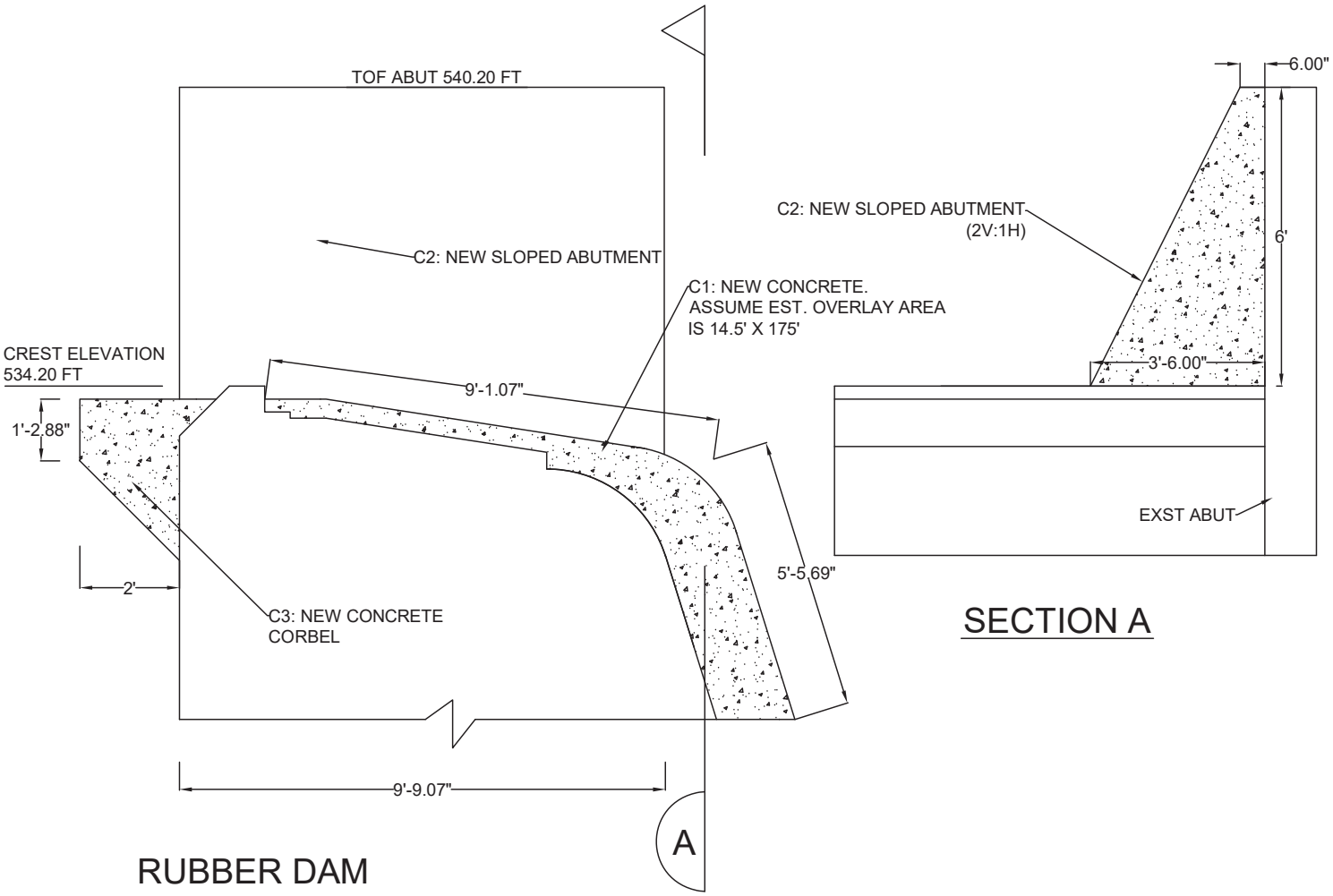
1) reservoir will be drawn down enough that a cofferdam will not be needed.
2) No geotechnical Investigation or report.

New Concrete (material)	Area (ft^2)	Length (ft)	Shape	Volume (ft^3)	Volume (yd^3)	Assumption
C2	13.5	9.75	2	263.25	10.00	abutment conc.
C3	4.5	175	1	787.5	30.00	U/S corbel

Total (yd^3)	40

New Concrete (material)	Width (ft)	Length (ft)	Shape	Area (ft2)	Assumption
C1	14.5	175	1	2537.5	additional crest conc.

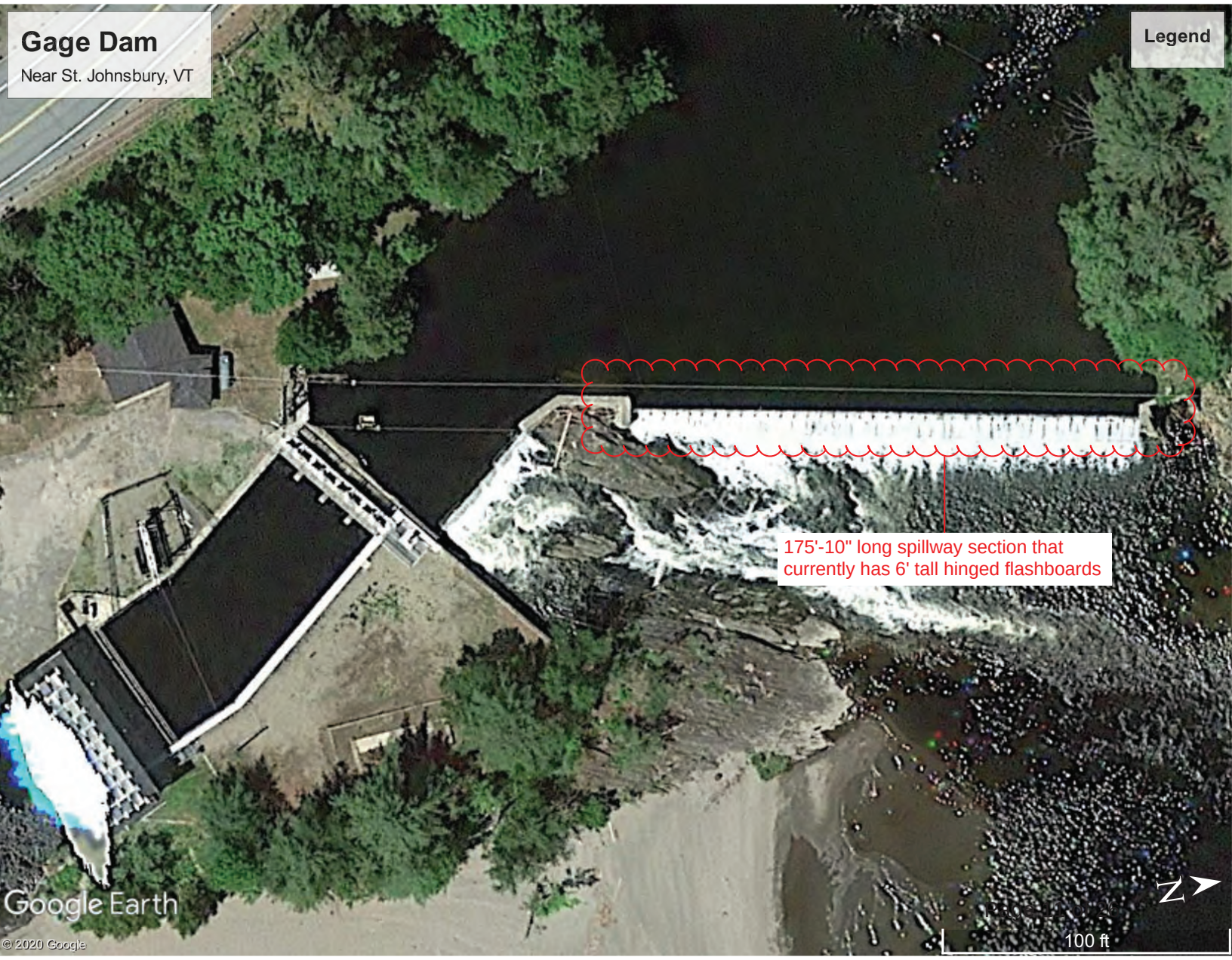
Total (ft^2)	2540

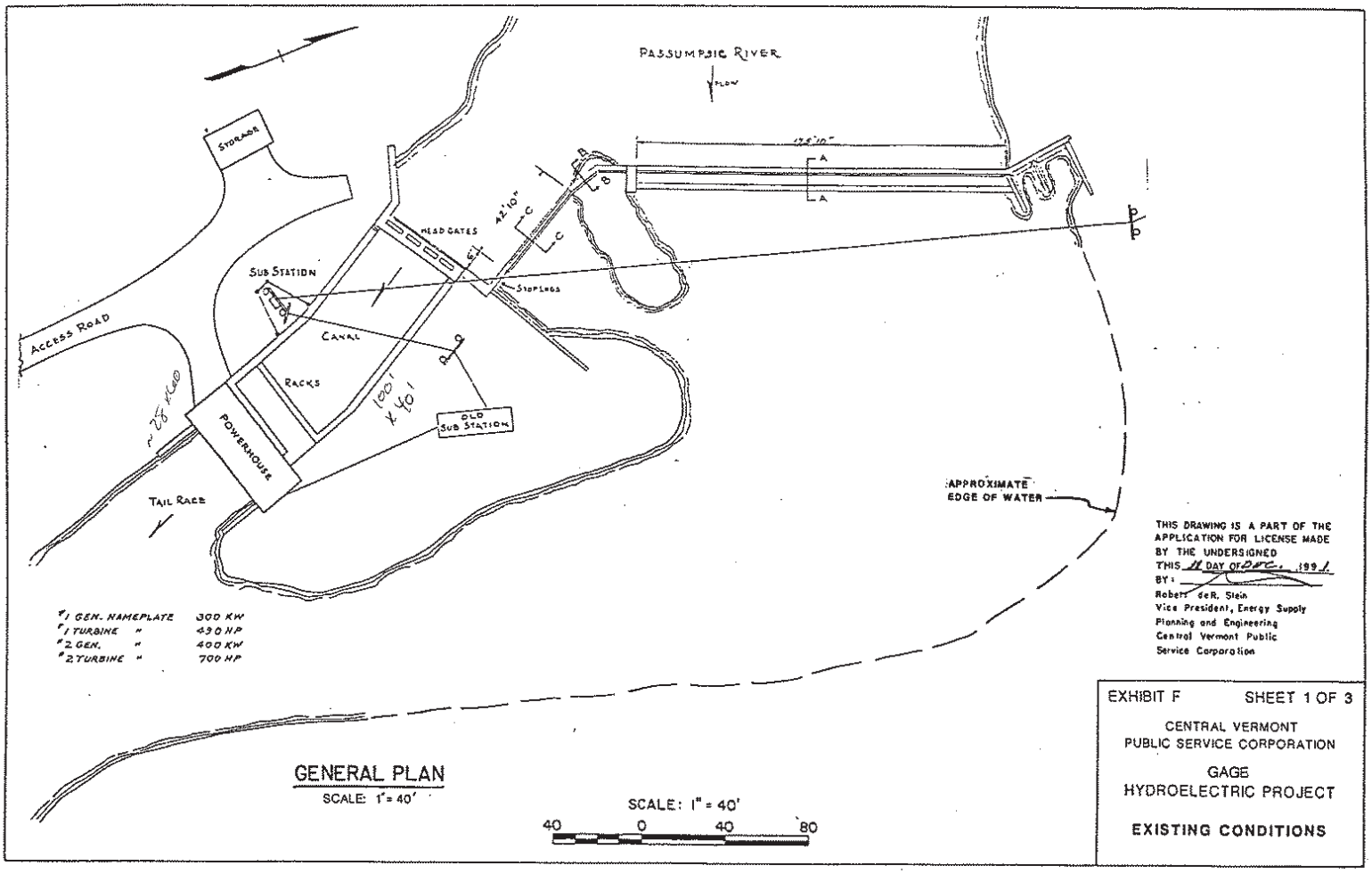


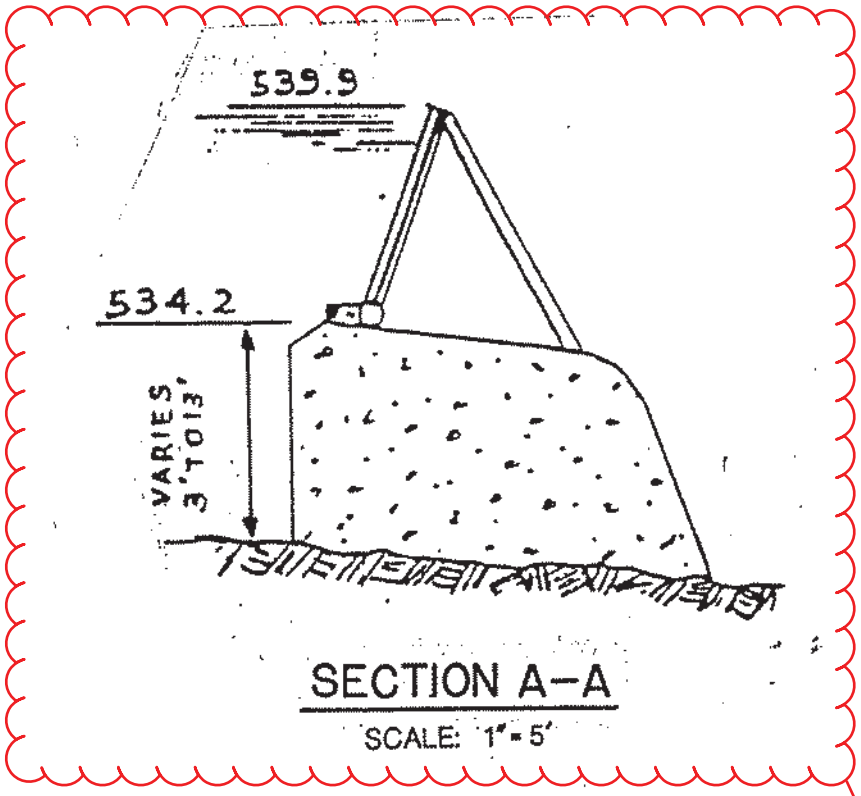
SECTION A

RUBBER DAM
CONCRETE QUANTITIES ESTIMATE

Information Sent to Obermeyer and Atlantic Fluid Technology


Gage Dam
Near St. Johnsbury, VT
Legend
175'-10" long spillway section that currently has 6' tall hinged flashboards
Google Earth
© 2020 Google
N
100 ft

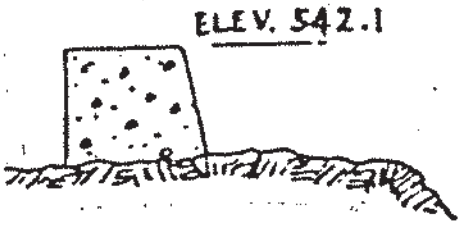

PASSUMPSIC RIVER
FLOW
STORAGE
ACCESS ROAD
SUB STATION
HEAD GATES
42'10"
STOP LOGS
CANAL
RACKS
100' X 40'
POWERHOUSE
OLD SUB STATION
TAIL RACE
APPROXIMATE EDGE OF WATER
126'10"
A
B
C
D
#1 GEN. NAMEPLATE 300 KW
#1 TURBINE " 430 HP
#2 GEN. " 400 KW
#2 TURBINE " 700 HP
THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 11 DAY OF Dec. 1991
BY:
Robert deR. Stein
Vice President, Energy Supply
Planning and Engineering
Central Vermont Public Service Corporation
GENERAL PLAN
SCALE: 1" = 40'
SCALE: 1" = 40'
40 0 40 80
EXHIBIT F SHEET 1 OF 3
CENTRAL VERMONT PUBLIC SERVICE CORPORATION
GAGE HYDROELECTRIC PROJECT
EXISTING CONDITIONS



SECTION A–A

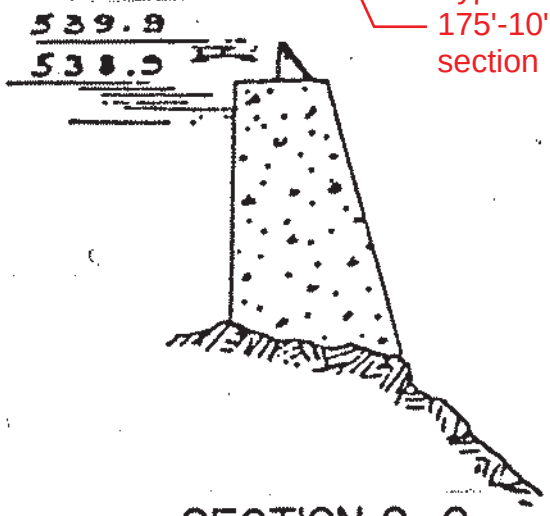
SCALE: 1"=5'

Typical section for 175'-10" spillway section



SECTION B–B

SCALE: 1"=5'



SECTION C–C

SCALE: 1"=5'

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 11 DAY OF DEC. 1991.

BY: _____

Robert deR. Stein
Vice President, Energy Supply
Planning and Engineering
Central Vermont Public
Service Corporation

5' 0 5' 10'

SCALE: 1" = 5'

EXHIBIT F SHEET 3 OF 3

CENTRAL VERMONT
PUBLIC SERVICE CORPORATION

GAGE
HYDROELECTRIC PROJECT

EXISTING CONDITIONS

Spillway Crest Detail

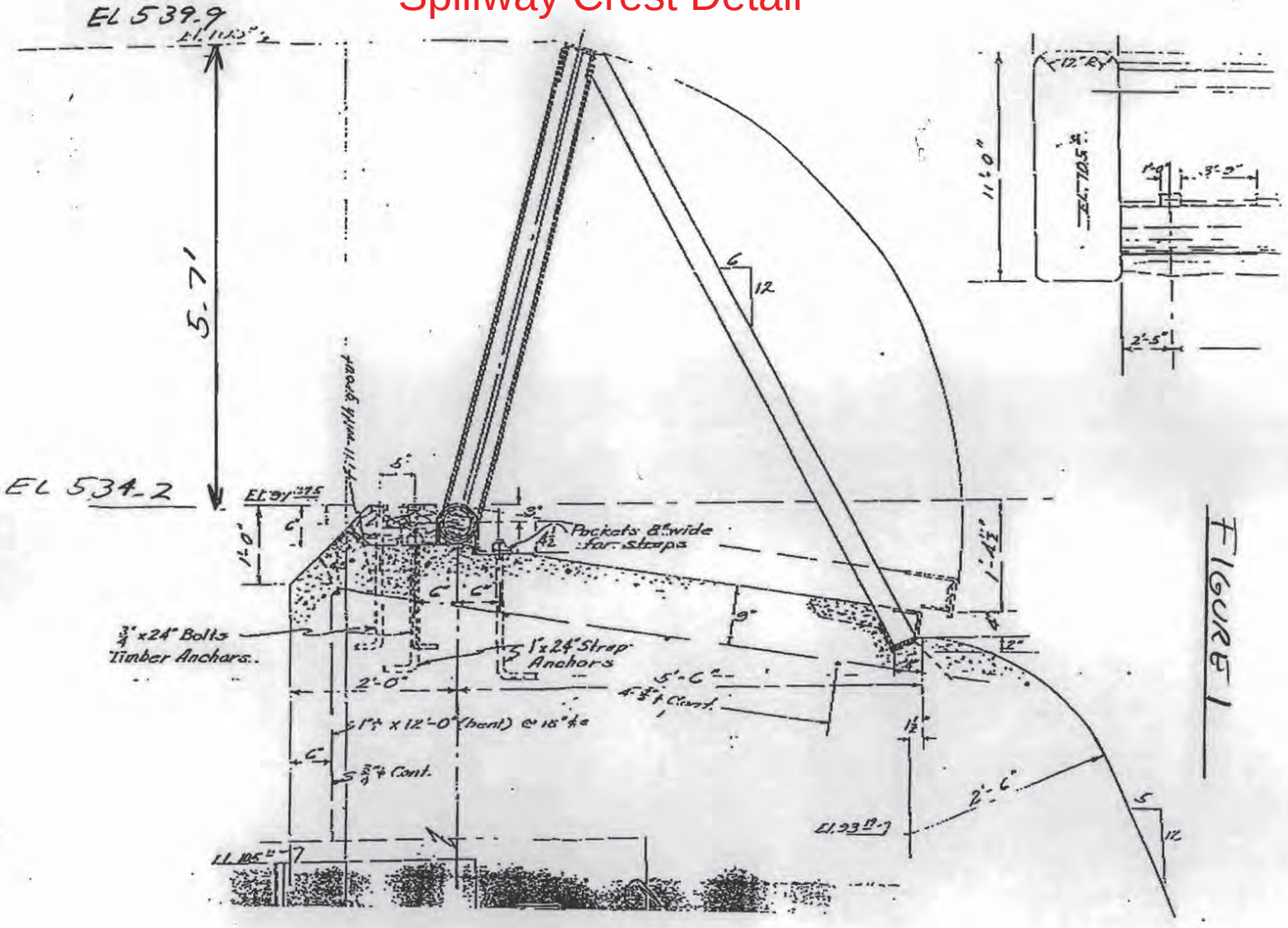


FIGURE 1

Cost Estimate from Obermeyer

OBERMEYER HYDRO, INC.
P.O. BOX 668 FT. COLLINS, COLORADO 80522 USA TEL 970-568-9844 FAX 970-568-9845
E-mail: hydro@obermeyerhydro.com WWW: http://www.obermeyerhydro.com

November 4, 2020

Project Quotation Sheet
Project: Gage Dam
Client: Green Mountain Power and HDR Engineering
Gate Size: 5.7' high x 175' long (2-operating zones)

Obermeyer Hydro, Inc. is pleased to issue this proposal for the supply of Obermeyer Water Control Gates for the Gate Dam Project in Vermont. Obermeyer Hydro will supply the following components for this project:

Steel Package:	175 linear feet of gate panel. Gate panels packaged complete with clamp bars, hinge retainers, web retainers, splitters, restraining strap clamps, and stainless-steel abutment plates. Gate panels to be fabricated from ASTM A572 grade 50 carbon steel and will be sand blasted and coated with CeramKote 54 epoxy paint. Peripheral steel parts and clamp bars shall be manufactured from A36 steel and shall be sand blasted and hot dip galvanized.
Bladder Package:	175 linear feet of two-ply polyester reinforced air bladders. Each 17.5' air bladder shipped complete with air bladder connection assembly for connecting air bladder to contractor supplied air piping.
Control System:	One OHI model 10-3-2 automatic water level control system. Control system to utilize a Schneider Electric M340 PLC to measure and maintain a user input upstream water elevation System complete with KPSI submersible depth transmitter, gate position sensors (4), and other mechanical components required for controlling three sections of independent sections of gate. PLC/electrical equipment to be factory assembled in a Nema 4 rated electrical enclosure. Inflate/deflate solenoid valves and other mechanical control equipment to be factory assembled on a back-panel/frame suitable for wall mounting.
Air Supply:	Dual Ingersoll Rand 15-hp air compressors packaged with desiccant air dryers, filters, and receiver tank. Each compressor shall supply 56 ACFM at 125 psig to the control system and shall be packaged complete with air-cooled after cooler, full voltage starter, automatic start/stop function, low sound enclosure, and 8000-hour rated coolant. System also includes a 400-gallon dry

receiver tank with automatic tank drain and pressure relief valve. PLC to automatically control lead/lag compressor operation.

Misc. Package: Stainless steel main anchor bolts, main anchor bolt drill template, stainless steel abutment and restraining strap anchor bolts, interpanel seals, abutment seals, and restraining straps.

Engineering: Electronic submittal of engineering drawings and calculations, O & M manual, installation manual, and commissioning (performance) manual.

Obermeyer Hydro is pleased to offer this complete package FOB project lay-down area for the sum-total of USD 546,100.00. Price is valid until December 15, 2020.

The above price specifically excludes the following items:

1. Interconnecting wiring or piping.
2. Building for housing compressor and controls.
3. Installation except for any purchased supervision and training.
4. Any needed anchor bolt epoxy.
5. Bid, supply, or performance bond.
6. Federal, state, GST, or any local taxes.

In addition to the above equipment supply package, OHI is pleased to provide 10-days of infield installation support and supervision for $17,500.00. Price includes all travel related and incidental expense. For planning purposes, the program is based on the following:

Purpose	Days
Pre-construction meeting	1
Gate installation	4
Control and mechanical installation	2
Commissioning, testing, and owner training	2
Follow up gate inspection and owner training (scheduled 9-12 months after initial start-up)	1

Any additional requested field time will be $1750.00 per day plus the actual cost of any additional air fare between Denver, Colorado and Burlington, Vermont.

I hope this provides adequate information to get started. Please let me know if you have any questions or required any additional information.

Sincerely,
Obermeyer Hydro, Inc.
Robert Eckman
Vice President

OBERMEYER HYDRO, INC.

SALES AGREEMENT

NOTICES - All notices required by the contract will be sent to:

PURCHASER

COMPANY

Obermeyer Hydro, Inc
P.O. Box 668
Fort Collins, CO 80522
TEL: 970-568-9844
FAX: 970-568-9845

WARRANTY - Company warrants title to the product (s) and also warrants the product (s) on date of delivery to purchaser to be of the kind and quality described herein, merchantable, and free of defects in workmanship and material.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THOSE EXPRESSLY STATED IN THIS CONTRACT.

If within five years from the date of initial operation, but not more than five years and six months from the date of shipment by Company of any item of the product (s), Purchaser discovers that such item was not as warranted and promptly notified Company in writing thereof, Company shall remedy such non-conformance by, at Company's option, adjustment or repair or replacement of the item or any affected part of the product (s). Purchaser shall assume all responsibility and expense for removal, reinstallation, and freight in connection with the foregoing remedies. The same obligations and conditions shall extend to replacement parts furnished by Company thereunder. Company shall have the right of disposal of parts replaced by it. The Company shall not be liable for any repairs, replacements, or adjustments to the Product (s) or any costs of labor performed by the Purchaser or others without the Company's prior written approval.

The purchaser shall not operate the Product (s) which is considered to be defective, without first notifying the Company in writing of its intention to do so. Any such use of the Product (s) will be at the Purchaser's sole risk and liability unless Company gives Purchaser approval to operate the Product (s). Such approval will not be unreasonably withheld.

The effects of corrosion, erosion and normal wear and tear are specifically excluded from the Company's warranty.

Company's liability to Purchaser relating to the product (s) whether in contract or in tort arising out of warranties, representations, instructions, installations, or defects from any cause, shall be limited exclusively to correcting the product (s) and under the conditions as aforesaid.

Any separately listed item of the product (s) which is not manufactured by the Company shall be covered only by the express warranty of the manufacturer thereof.

PATENTS - Company shall pay costs and damages finally awarded in any suit against Purchaser or its vendees to the extent based on a finding that the design or construction of the product (s) as furnished infringes a United States patent (except infringement occurring as a result of incorporating a design or modification at Purchaser's request) provided that Purchaser promptly notifies Company of any charge of such infringement, and Company is given the right at its expense to settle such charge and to defend or control the defense of any suit based upon such charge. This paragraph sets forth Company's exclusive liability with respect to patents.

DELAYS - If company suffers delay in performance due to any cause beyond its control, such as Acts of God, war, act of government, act or omission of Purchaser, fire, flood, strike or labor trouble, sabotage, delay in obtaining from others suitable services, materials, components, equipment, or transportation, the time of

performance shall be extended a period of time equal to the period of the delay and its consequences. Company will give Purchaser notice in writing within a reasonable time after Company becomes aware of any such delay.

DELIVERY - Timely delivery at the designated point is contingent upon Purchaser's supplying to Company, when needed, all required technical information, including drawing approval, and all required commercial documentation. Company may make partial shipments. Company shall select method of transportation and route, unless terms are FOB point of shipment without freight allowed and Purchaser specifies the method and route. When delivery terms are FOB destination or freight allowed to destination, "destination" means common carrier delivery point (within the continental United States, excluding Alaska and Hawaii), nearest the final destination. For shipments outside the United States Company shall arrange for inland shipment to port of exit and shall cooperate with Purchaser's agents in making necessary arrangements for overseas shipment and preparing necessary shipping documents.

LIQUIDATED DAMAGES - The Purchasers sole remedy for the Company's failure to deliver in a timely manner shall be Liquidated Damages in the amount of 0.1% of the contract price per day.

STORAGE - Any item of the product (s) on which manufacture or delivery is delayed by causes within the Purchaser's control or causes which affect Purchaser's ability to receive, the product (s) may be placed in storage by Company for Purchaser's account and risk.

TITLE AND INSURANCE - Title to the product (s) and risk of loss or damage shall pass to Purchaser upon tender of delivery, except that a security interest in the product (s) or any replacement shall remain in Company, regardless of mode of attachment to realty or other property, until the full price has been paid in cash. Purchaser agrees to do all acts necessary to perfect and maintain said security interest, and to protect the Company's interest by adequately insuring the product (s) against loss or damage from any external cause with Company named as insured or co-insured.

TAXES AND LICENSES - The price does not include any Federal, State or local property, license, privilege, sales, use, excise, gross receipts or other like taxes which may be nor or hereafter applicable to, measured by, or imposed upon this transaction, the Product (s) its sale, its value or its sue, or any services performed in connection therewith. Such taxes will be itemized separately to Purchaser, who shall make payment to the Company. The company will accept a valid exemption certificate from the Purchaser if applicable. If such exemption certificate is not recognized by the governmental taxing authority, Purchaser agrees to assume responsibility for payment of any taxes covered by such exemption certificate.

The Purchaser shall obtain all construction and other permits, licenses, inspections as may be required for the erection, construction and operation of the Purchaser's facilities.

SPECIAL SHIPPING DEVICES - The value of each special shipping device (oil barrel, reel, tarpaulin, cradle, crib and the like) used by Company to contain or protect the product (s) in shipment will be invoiced to the Purchaser as a separately stated addition to the contract price. If the Company's Proposal or quotation or other contract documents stipulate the return of any such device, it shall be returned by the Purchaser in good condition for credit, FOB Purchaser's plant, freight collect, within thirty (30) days after receipt by Purchaser.

Return of any such device as to which there is no stipulation but which has been separately invoiced is at the option of the Purchaser. If returned promptly in useable condition, FOB destination, freight prepaid, Company will grant purchaser a credit with the invoiced amount (except oil barrels, as to which arrangements for return and refund mush be made by the Purchaser with the refiner).

The foregoing provisions as to special shipping devices shall not apply to any such device shipped outside the continental United States and Canada.

GENERAL - Company will comply with all laws applicable to Company. Installation, erection or servicing of the product (s) by Company, if specified or requested by Purchaser, shall be governed by the terms and conditions of Company(s) service agreement.

This document and the other documents specifically referred to as being a part hereof, constitute the entire contract on the subject matter, and shall not be modified except in writing signed by both parties. Assignment may be made only with written consent of the other party.

TERMINATION - The Company may terminate this agreement upon thirty (30) days prior written notice to Purchaser for any material breach of this contract by Purchaser. In the event of such termination, Purchaser shall pay out reasonable and proper termination charges as set out in a) and b) below.

a) Purchaser has it full remedies at law for a material breach of contract by the Company and damages, if any, will be recoverable as states in the contract. All payments due will be suspended until Purchaser has had a reasonable opportunity to complete the project. For all other stipulations Purchaser may terminate this contract upon thirty (30) days prior written notice to the Company and payment of reasonable and proper termination charges. Such charges will include a portion of the Purchase Order Price, adjusted as necessary reflecting the amount of work completed, man hours expended and materials acquired at the time of termination plus the expenses associated with the termination, including, but not limited to, any additional expenses incurred by reason of termination or cancellation of the Company's agreement with its suppliers and any applicable costs plus pro rata profits calculated on the full contract price.

b) All termination charges shall be due and payable within thirty (30) days after the date of the Company's invoice.

SUSPENSION - Purchaser may, by written notice to the Company, suspend the Company's performance, in whole or in part, or extend the work for reason of force majeure, inability to obtain local state or federal government licensing or approvals, or for any other reason, except that such right of suspension or extension with respect to any portion of the Product (s) which has been released by the Company for procurement or manufacture shall require the mutual agreement of the parties.

In the event of any suspension or extension, other provisions of this contract, such as the price of the Product (s) and Services, shall be equitably adjusted to reflect the time of suspension, and any additional cost or expenses which may be occasioned to the Company hereby. At any time after suspension (s) ordered by the Purchaser has extended for a cumulative period of ninety (90) days, except to the extent that the Company may have previously consented to a suspension in excess of ninety (90) days, the Company may, upon giving Purchaser at

least thirty (30) days prior written notice, terminate the contract and Purchaser shall pay reasonable and proper termination charges as set out in the Termination section a) and b).

TERMS - Terms for material supply shall be per those outlines on attached proposal. Terms for any purchased installation supervision shall be net 15-days after conclusion of said supervision.

SCOPE OF SUPPLY - The Company's Scope of Supply is listed on the November 4, 2020 price proposal that is hereby incorporated by reference.

PRICE - The price for this equipment and listed installation supervision is USD _____FOB project site.

GOVERNING LAW - The interpretation of this contract shall be governed by the laws of Colorado, USA.

OBERMEYER HYDRO, INC
P.O. BOX 668, FORT COLLINS, CO 80522

By _____

ROBERT ECKMAN
VICE PRESIDENT

PURCHASER'S ACCEPTANCE

The foregoing Proposal is hereby accepted

By _____

Title _____

Date _____

Cost Estimate from Dyrhoff

Zubrick, Warren

From: Mike <mike@aftinc.com>
Sent: Wednesday, February 3, 2021 3:39 PM
To: Zubrick, Warren
Cc: Moji; Jones, Adam
Subject: RE: Gage Dam - Rubber Bladder for 176' Spillway

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Warren,

See below for a rough estimate. I think there will be a fair amount of concrete work required at that short spillway side particularly as well. Let me know if this will work for you for your deliverable.

Design, manufacture and supply of an air-inflated rubber dam system - 6ft high x 176ft wide x 1 span

- EPDM rubber outer layer
- ≥2 layers of nylon fabric
- Thickness: ½ in approx.
- Clamp plates: ductile iron grade EN-GJS 500/7 hot dipped galvanized.
- Anchor bolts: carbon steel, galvanized
- Special pipe connection flanges: stainless steel AISI grade 304

Manufacture and supply of inflation equipment and control system:

- Control system to be fully automatic with manual override. Rubber dam to be automatically deflated as upstream water level rises. Rubber dam inner pressure will be maintained within a defined range.
- Control panel: wall-mounted with Allen Bradley Micro 850 (or equivalent) PLC, colour touch screen HMI, push buttons and selector switches.
- Inflation equipment: regenerative packaged air blower system (two units) giving inflation time of ≤ 60 minutes.
- Valves and sensors: all necessary valves (manual and electric), sensors, switches and gauges for a fully self-contained operating system
- Mechanical safety devices: High water level deflation system: float type

Transport/shipping to project site
Installation supervision by Dyrhoff engineer or technician

- Total 10 days, including travel
- Installation by others

TOTAL BUDGET PRICE: $350,000

Best Regards,
Mike Migliori, P.E.

ATLANTIC FLUID TECHNOLOGY
354 West Boylston Street, Suite 114
West Boylston, MA 01583

Direct: (508) 854-1676 | **Cell: (978) 609-5600** | Office (Main): (508) 755-0440

Alternative 4

Decommissioning of the Project

Cost Estimate

Estimated Range of Permitting and Construction Costs for License Surrender and Decommissioning of the Gage Project

Task Description	Estimated Cost	Schedule[1]	Comments
Permitting Costs			
Consultation with stakeholders	$25,000	6 months	
Consultation with SHPO/NPS	$25,000	3 months	Determination of steps required to decommission the project.
Develop and submit other federal and state permit applications, as required	$175,000	12 months	Assumes up to $100,000 for field studies (such as wetland delineation, forebay bathymetric survey, sediment analysis, and hydraulic and hydrology analyses) in support of permit applications.
Develop and file with FERC Application for License Surrender and receive FERC approval	$100,000	12 months	Assumes up to $50,000 for field studies in addition to those required for other federal and state permits and consensus on decommissioning is achieved with stakeholders.
Complete HABS/HAER per SHPO/NPS requirements	$50,000	6 months	Dependent on scope of decommissioning and SHPO/NPS requirements (can be performed concurrent with other tasks).
Develop and file with FERC NYRO, dam safety-related documents for project decommissioning and removal	$75,000	3 months	Assumes submittal of QCIP, TCEAP, Blasting Plan, Disposal Plan, and drawings and specifications showing current and proposed conditions and details.
Total Estimated Permitting Cost	$450,000	Applicable to all Decommissioning Options	
Class V Estimate	$315,000 to $675,000	Total estimated permitting cost with -30% to +50%	
Construction Costs			
Decommissioning (Lite)	$100,000	3 months	Assumes decommissioning is limited to shutting down the power operations.

Task Description	Estimated Cost	Schedule[1]	Comments
	$550,000	Includes permitting and construction costs	
	$385,000 to $825,000	Total estimated permitting and construction cost with -30% to +50%	
Decommissioning (Medium)	$1,000,000	9 months	Assumes decommissioning is limited to shutting down the power operations, breaching the dam and removing the Project's headgate not inclusive of sediment removal/disposal.
	$1,450,000	Includes permitting and construction costs	
	$1,015,000 to $2,175,000	Total estimated permitting and construction cost with -30% to +50%	
Decommissioning (Full)	$2,500,000	12 months	Assumes full removal of all project facilities and restoration of the site inclusive of contractor coordination
	$2,950,000	Includes permitting and construction costs	
	$2,065,000 to $4,425,000	Total estimated permitting and construction cost with -30% to +50%	
TOTAL	**$385,000 to $4,425,000**	**2 to 5 years**	Low and High Range including -30% to +50% variation.

[1]Schedules for permitting tasks may be performed concurrently and depict timeline for performance of studies and development of permit applications but does not reflect timeline associated with agency review and approval after submittal of applications.

Appendix B. SkyTrans Evaluation Report

SkyTrans Manufacturing LLC

PO Box 216 ● 106 Burnham Intervale Road ● Contoocook, NH 03229
Phone: (603) 746-4446 ● Fax: (603) 746-4447
sales@skytrans-mfg.com

December 14, 2020

Thomas A. French, PE
Associate, Senior Project Manager / Office Leader
HDR Engineering, Inc
250 Commercial Street, Suite 3007
Manchester, NH 03101
Office: 603-391-0856
Cell: 603-306-3691

Evaluation of Maintenance Tram at Green Mountain Power's Gage Dam Facility

This report is based on my observations of the maintenance tram on Friday, July 17, 2020 at Green Mountain Power's Gage Dam in St. Johnsbury, VT. Attending on behalf of HDR Engineering was Jason Gallant.

This report is not intended to supersede in part or in whole SkyTrans' proposal Q20-667 dated July 22, 2020, or SkyTrans proposal Q20-667.r1 dated July 25, 2020, copies of which are attached to the e-mail with this report. Rather, its purpose is to document our findings and a plan for moving forward when the project moves forward.

Overview

The maintenance tram is located at Green Mountain Power's (GMP) Gage Dam Hydroelectric Facility located on the Passumpsic River in St. Johnsbury, VT. The tram spans the river, passing over the dam. A series of weirs are attached with hinges to the top of the concrete dam to raise the or lower the water level in the river upstream of the dam. When needed, maintenance personnel will ride in the work basket over the dam, to attach a winch to each weir that needs to be adjusted. The winch has a large hook on it, and is positioned on a trolley that moves on a dedicated track rope that is separate from the track rope for the work basket. As the weirs are raised by the winch, a person in the basket will adjust support boards to hold the weir at the proper height above the dam.

The work basket is raised or lowered by chain winches that are operated by the person or persons in the work basket. The work basket and trolley move back and forth on their respective track ropes by means of cable winches located in building on the west bank of the river. Those winches are electric and are operated by a person who communicating with the persons in the work basket by radio where possible, however when the basket is over the dam the water flow is often so loud that hand signals are required.

The tram operation failed it's last inspection by VOSHA. It would be very helpful to have a copy of VOSHA's report, and it should be reviewed in detail before making any changes to the tram. However, it was obvious during our visit that the tram has serious deficiencies that must be addressed.


DANGER

Evaluation and Recommendations

For this report, the evaluation is categorized by these key areas of the tram – foundations, towers, wire ropes, winch trolley, work basket trolly, and drive system.

For all, in-depth engineering reviews and as needed, load calculations will be performed by SkyTrans to ensure that the existing tram design meets or exceeds the requirements specified by VOSHA, the Vermont Department of Labor Passenger Tramway Board, and ANSI B77.1-2017 American National Standard for Passenger Ropeways – Aerial Tramways, Aerial Lifts, Surface Lifts, Tows and Conveyors – Safety Standard. Where requirements differ between the agencies, we will follow the most stringent requirements to ensure compliance with all agencies and standards.

Foundations

Inspection and repair of the foundations will be done by HDR Engineering and their recommended concrete contractors. During our visit on July 17, the tower foundation on the west bank showed obvious deterioration, but it appeared to be in overall good condition.

West Bank Foundation

We did not travel to the east bank but photos taken from the west bank showed the foundation on the east bank to have a similar amount of visible deterioration.

The first step in the restoration or replacement of the tram must be to address the foundations. Its recommended that inspection of the foundations be done with GPR (Ground Penetrating Radar).

As previously noted, structural calculations will need to be done to determine if the size and design of the foundations as indicated by the GPR meet current industry standards.

If the concrete foundations and the anchor rods are found to be beyond repair or will not meet current industry standards, temporary removal of the tram will be required. The upside is that while the towers are down, they can be inspected and refurbished at ground level either on site or at our shop while the foundations are being repaired or replaced.

East Bank Foundation and Towers

Towers

Considering the age of the tram (built in 1929) the towers appear to be in very good condition. The towers have some patina on them, but no major corrosion was observed. Like the concrete foundations, load calculations and an in-depth review will be performed to determine if the towers meet current industry standards.

If the towers need to be replaced, they will be replaced with new towers. If they need to be modified, repaired or refurbished, work will be done on an as-needed basis.

A set of tower drawings will be created and provided by SkyTrans as part of our deliverables. The drawings will show either the current tower design, modified tower design, or a new tower design depending on the results of our evaluation.

Wire Ropes

There are multiple wire ropes on the maintenance tram. There are two track ropes - one for the work basket trolley, and one for the winch trolley. Both of these are galvanized and appear to be in good condition. The plan for refurbishing the tram includes magnetic resonance testing of the track ropes to ensure they meet industry safety standards.

On each side of the river, the track ropes are kept in tension by bare steel wire ropes reeved in a block and tackle to concrete anchors embedded in the ground. Like the tower foundations, these anchors will need to be inspected by GPR to determine their size and condition. All corroded members of the block and tackle – the wire rope, clamps, turn-buckles, should be replaced with new galvanized parts sized to meet a 4.5 to 1 safety factor

Both trolleys are pulled back and forth along their respective track ropes by smaller diameter haul ropes. The haul ropes pass through a series of sheave wheels on their way to the drive room, where they are spooled and unspooled from their respective winches. Due to the level of corrosion on them, lack of lubrication, and the absence of a recent inspection, they should be replaced. The sheave wheels should be removed, sandblasted clean, mag particle inspected, and then painted or galvanized. The bushings or bearings int them will be removed and replaced with new parts as part of their refurbishment.

Winch and Trolley Assembly

The winch trolley will be removed and sent to SkyTrans for inspection and refurbishing, or replacement if it fails to meet industry standards.

Work Basket and Trolley Assembly

The work basket was purchased by GMP in November 2015. Its actual installation date is unknown. It measures 36” W X 60” L X 44” H. It will need to be reviewed for compliance to current industry standards before a determination can be made about its fitness for use.

Like the trolley for the winch, the trolley for the work basket will be removed and sent to SkyTrans for inspection and refurbishing, or replacement if it fails to meet industry standards.

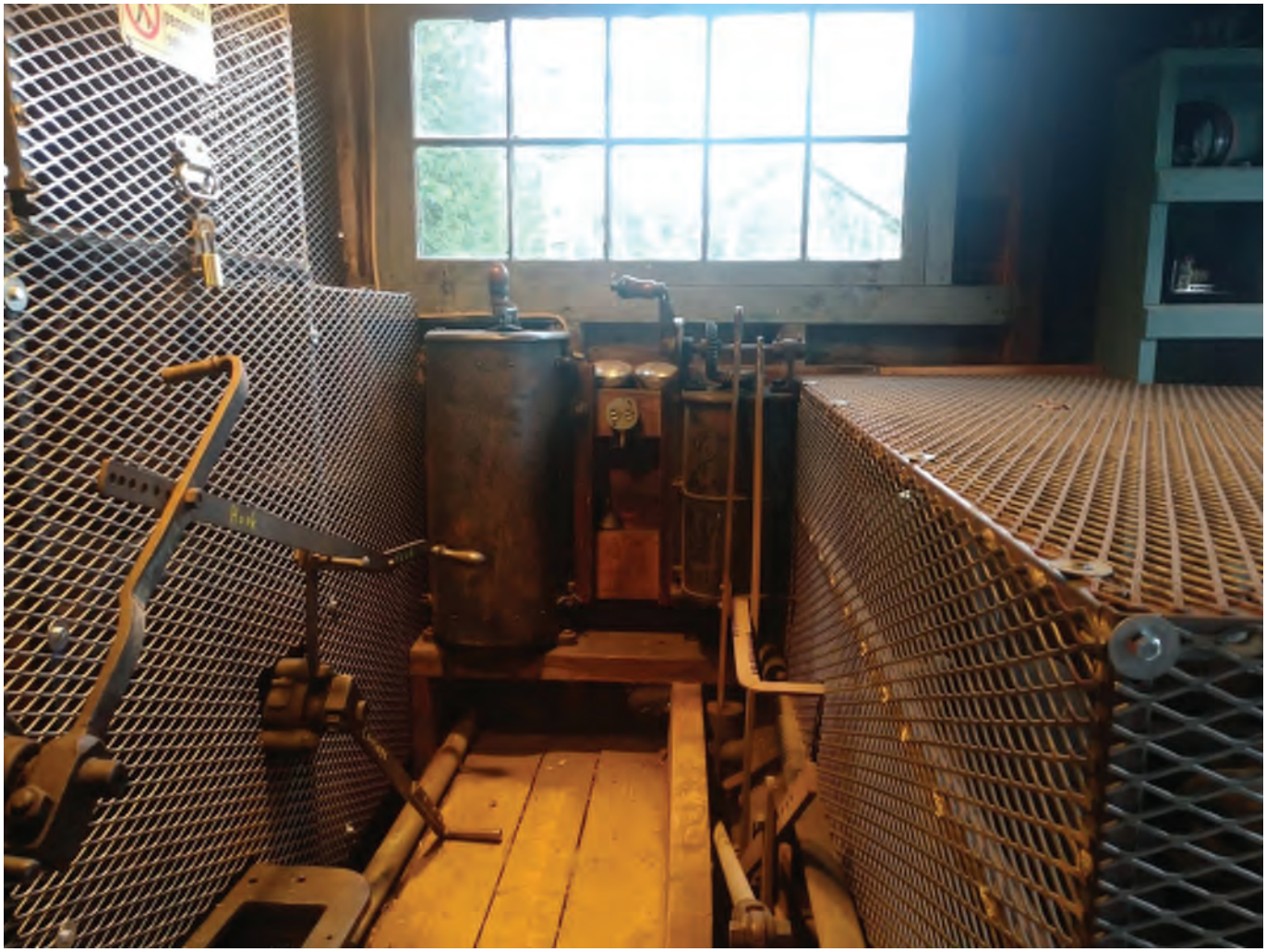
One of the major safety issues with this tram is the use of two manually operated chain falls or winches to raise and lower the work basket. In the event of an accident or medical emergency, the people in the basket may not be able to raise or lower it, putting their lives at risk. At the very least, manually lowering and raising the basket makes the job of adjusting the weirs more difficult and less efficient than it needs to be.

We propose that as part of the drive system required for the tram, that the drive operator has the ability to raise and lower the basket from a main operator’s pedestal located outside with a clear view of the tram. Furthermore, a remote control for the maintenance personnel in the work basket would be a very beneficial feature to make their jobs safer and easier.

This remote-control radio controlled and attached to the one of the people in the basket by a waste belt similar to those used by boom truck operators, or it could be hardwired to the main operator’s pedestal and supported by a festoon out to the basket. More analyses are required to determine which option is best.

Drive System

The drive system for the tram is antiquated, and may be the original system. It is a remarkable that it is still in operation in terms of its longevity. Improvements have been made over the years to modernize the electrical service and to install guards around all of the machinery. However, the equipment takes up a lot of space, spare parts have to be largely custom built, and the location of the drive does not allow the operator to have a clear view of the tram.



Our recommendation is to scrap or donate to a local museum all of the drive mechanical components. In their place, SkyTrans will provide a modern drive system with winches driven by gear motors and controlled through programmable VFD motor controls and a low voltage, 24 V control system.

An operator's panel will be mounted on the wall inside the building near the motor control cabinet for maintenance purposes only. Main operation of the tram will be from a portable pedestal that is kept in the building when the tram is not in use. When needed, it is rolled or carried to an outside location that is both closer and in direct view of the entire tram. This location could be a small shelter with a roof to keep rain and snow off the operator. Quick disconnects to a multi-conductor SOOW cord would tie the panel to the 24-volt circuits that control all motorized movement of the tram as well as monitoring of all safety circuits.

All products and services provided by SkyTrans for this project will meet or exceed the most stringent requirements of VOSHA, the Vermont Tramway Board, and ANSI B77.1-2017. This applies to all items in this evaluation as well as other items not specifically stated by covered by a Statement of Work in the contract to be agreed upon prior to the start of the project.

If you have any questions or comments, or if we can be of further assistance on this or other projects, please feel free to call me on my cell phone or e-mail me at any time.

Best Regards,

Rich Combs

General Manager

SkyTrans Manufacturing LLC

106 Burnham Intervale Road
Contoocook, NH 03229
T: 603-746-4446
F: 603-746-4447
M: 603-545-7616

cc. Teresa Poussard -HDR
Dan Pendleton, Mike Rich, Sue Brooks, John Pendleton - SkyTrans

Appendix C. Supporting Schedule Information

Zubrick, Warren

From: Mike <mike@aftinc.com>
Sent: Wednesday, February 3, 2021 4:29 PM
To: Zubrick, Warren
Cc: Moji; Jones, Adam
Subject: RE: Gage Dam - Rubber Bladder for 176' Spillway

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Warren,

You're welcome. Good question – it is usually 4-6 weeks for submittal drawings, and fabrication is about 20-24 weeks after approval of the drawings.

Best Regards,
Mike Migliori, P.E.

ATLANTIC FLUID TECHNOLOGY
354 West Boylston Street, Suite 114
West Boylston, MA 01583

Direct: (508) 854-1676 | **Cell: (978) 609-5600** | Office (Main): (508) 755-0440
mike@aftinc.com | aftinc.com

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From: Zubrick, Warren <Warren.Zubrick@hdrinc.com>
Sent: Wednesday, February 3, 2021 4:16 PM
To: Mike <mike@aftinc.com>
Cc: Moji <moji@aftinc.com>; Jones, Adam <Adam.Jones@hdrinc.com>
Subject: RE: Gage Dam - Rubber Bladder for 176' Spillway

Hello Mike,

Sorry one more question. How long would it take to design, manufacture, and ship the dam and the inflation system to the site?

Thanks,

Warren J. Zubrick, PE (ME, NH, CT)
Civil/Structural Engineer

HDR

Zubrick, Warren

From: Karpinski, Stanley
Sent: Friday, February 5, 2021 2:00 PM
To: Zubrick, Warren
Cc: Poussard, Teresa; French, Thomas
Subject: RE: GMP - Gage Flashboard Study

Warren,

After coming up with numbers and running them by another engineer in the office, these are what I came up with:

- Alternative 2A – Construct 1 New Bridge – 20 weeks
- Alternative 2B – Construct 2 New Bridges – 25 weeks

Both options include 2 weeks contingency, which I don't know if you want to consider too much or not. Also, the 2 new bridge option has each bridge being constructed separately with 1 crew working. If they have 2 crews working, construction on both bridges can be performed simultaneously and could be done in the 20 weeks. It is also possible to have 2 crews for the entire job which would reduce the time by possibly 2-3 weeks depending on crew size.

If there were 2 crews and no contingency, the single bridge option could possibly be constructed in 15 weeks if everything went perfectly.

Stan

Stanley Karpinski, PE (NH, VA, NC)
D 603-391-0862 **M** 757.708.6727

hdrinc.com/follow-us

From: Zubrick, Warren <Warren.Zubrick@hdrinc.com>
Sent: Friday, February 5, 2021 11:25 AM
To: Karpinski, Stanley <Stanley.Karpinski@hdrinc.com>
Cc: Poussard, Teresa <Teresa.Poussard@hdrinc.com>; French, Thomas <Thomas.French@hdrinc.com>
Subject: RE: GMP - Gage Flashboard Study

Okay sounds good. Thank you,

Warren J. Zubrick, PE (ME, NH, CT)
Civil/Structural Engineer

HDR
970 Baxter Boulevard, Suite 301
Portland, ME 04103-5345
D 207.239.3793 **M** 207.551.4158
Warren.Zubrick@hdrinc.com

hdrinc.com/follow-us

From: Karpinski, Stanley <Stanley.Karpinski@hdrinc.com>
Sent: Friday, February 5, 2021 11:25 AM

Zubrick, Warren

From: richc skytrans-mfg.com <richc@skytrans-mfg.com>
Sent: Wednesday, February 3, 2021 4:53 PM
To: Zubrick, Warren
Cc: Poussard, Teresa; French, Thomas
Subject: RE: SkyTrans Evaluation of Maintenance Tram at GMP Gage Dam in St. Johnsbury, VT

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Hi Waren,

We estimated 10 weeks for the inspection and evaluation of the existing tram. Inspection of the foundations (for which HDR is responsible) would be done within the same 10 weeks.
The upgrade of the tram is estimated at 20 weeks after the inspection and evaluation phase is complete, or 30 weeks total. A new tram would be approximately 50 weeks.

Please note that the lead times are dependent on the workload at SkyTrans at the time of the order. Weather can also be a factor with regards to the schedule of work on site.

Best Regards,

Rich Combs
General Manager
SkyTrans Manufacturing LLC
106 Burnham Intervale Road
Contoocook, NH 03229
T: 603-746-4446
F: 603-746-4447
M: 603-545-7616

From: Zubrick, Warren <Warren.Zubrick@hdrinc.com>
Sent: Wednesday, February 3, 2021 11:12 AM
To: richc skytrans-mfg.com <richc@skytrans-mfg.com>
Cc: Poussard, Teresa <Teresa.Poussard@hdrinc.com>; French, Thomas <Thomas.French@hdrinc.com>
Subject: RE: SkyTrans Evaluation of Maintenance Tram at GMP Gage Dam in St. Johnsbury, VT

Hello Rich,

I am reaching out to see if you could provide an estimated schedule for the two options listed in your cost estimate for Gage Dam (see below). GMP is essentially looking for how long it would take for each option to get implemented so that they can get the project back up and running.

1. Option A: Rehabilitation of existing tramway
2. Option B: Replacement of existing tramway, foundations, anchors with new tramway

We owe the final report for the flashboard study to GMP by the end of the day tomorrow so that they can update budgeting information as needed. Would you be able to provide estimated schedules today or tomorrow?