May 14, 2021

Mr. David Stack
Town Manager
Town of Bow
10 Grandview Road
Bow, NH 03304

Re: Opinion of Probable Construction Costs for 30% Design
Bow Junction/Bow Mills Area Water System Expansion

Dear Mr. Stack,

Per your request to Chuck Goodling, we are writing to provide you an updated Opinion of Probable Construction Costs (OPCC) and overall Project Costs Summary for the Bow Junction/Bow Mills Area Water System Expansion. The water system extension is designed to serve the TIF District on the north end of Town as shown on the attached General Plan for Water System Extension.

The following materials are attached for your review:

- General Plan for Water System Extension;
- OPCC based on the current stage of the 30% design;
- Overall Project Costs Summary including the construction costs and related cost considerations such as land acquisition, legal fees, and engineering; and
- Draft design plans showing the water system extension, which are work-in-progress plans as noted below.

D&K will continue to develop the water system design plans and submit them to the Town in later May or the first week in June along with an updated OPCC and the Basis of Design Report.

D&K has requested access from the Bureau of Turnpikes to the preferred water storage tank site location on Heather Lane. Currently, topographic survey, soil borings, and ledge probes have not been completed at the tank site; therefore, the site preparation costs at the tank site have not been developed in any detail and a placeholder cost is included in the OPCC. D&K will develop preliminary site work costs for the water storage tank site and update them when the updated topographic survey and subsurface investigation work is completed. In addition, we are interested in the Town's opinion as to whether a neighborhood meeting or other type of outreach would be appropriate at this stage to solicit public input on the proposed tank site location.

The proposed water storage tank size (400,000 gallons) is based on an assumption that the maximum daily demand for the expanded water system will be roughly equivalent to current maximum daily demand in the existing water system (roughly 125,000 gallons per day), and that required fire flows in the

proposed service area will be 1,500 to 2,000 gallons per minute. These design assumptions will be further evaluated with input from Town officials.

Following is a summary of some notable differences in the current site design from previous conceptual plans that were developed as part of the MtBE study:

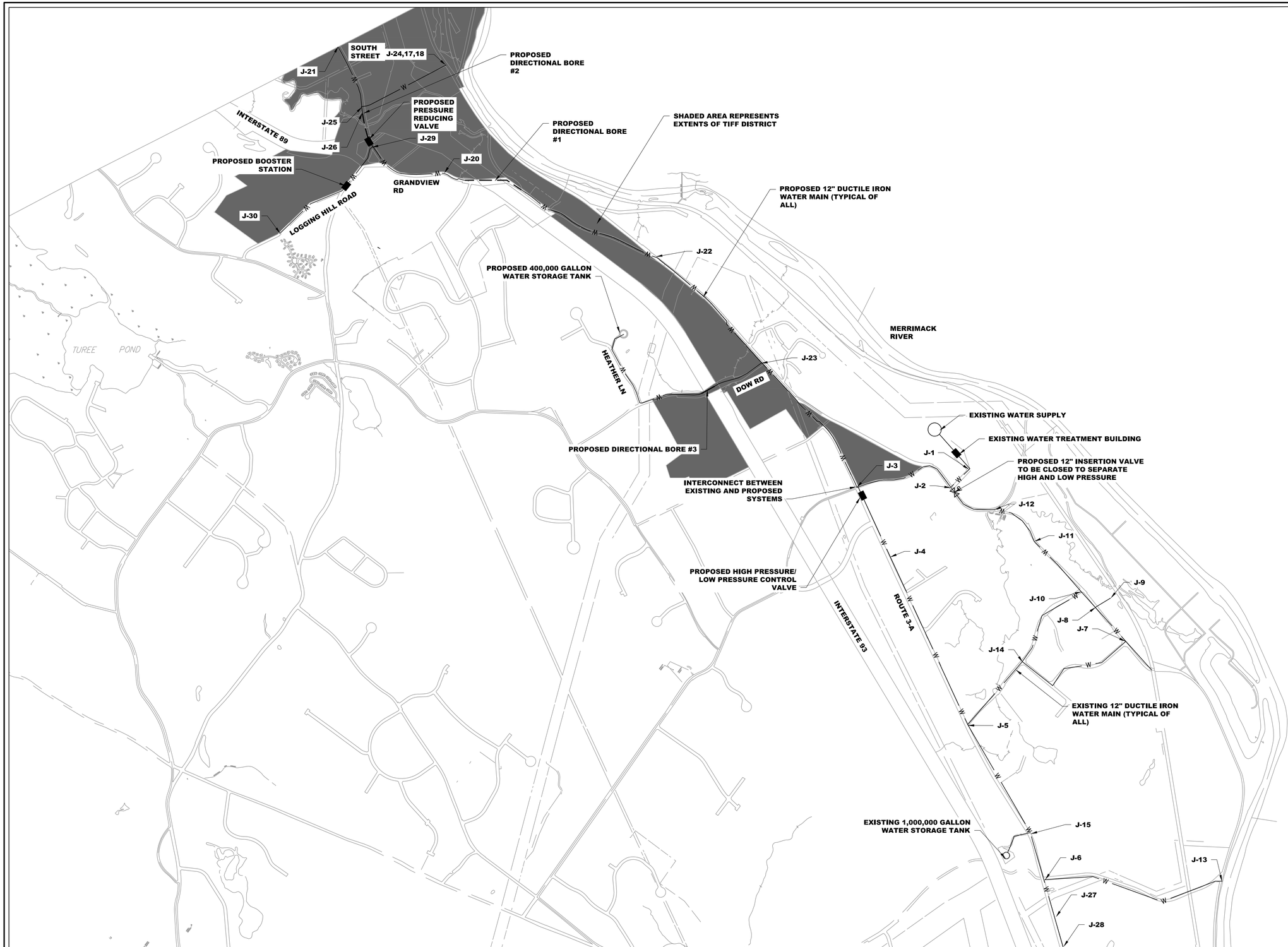
- Serving the portions of the TIF district along Logging Hill Road was not included in the previous conceptual plans or cost opinions. At this stage of the design, it appears that this may require a booster pumping station, so that is included in the attached cost opinions. We will continue to review this area as the design is further developed to evaluate potential alternatives to avoid the need for a booster station.
- Portions of the water main alignments have been coordinated with the future I89/I93 reconstruction project.
- An allowance has been included for water treatment improvements to address manganese concentrations based on a new Maximum Contaminant Level being proposed by the New Hampshire Department of Environmental Services (NHDES).
- The anticipated water storage tank size has increased based on the assumptions described above.

Please feel free to contact us with questions.

Sincerely,

Jonathan B. Ashley, PE
Director, Public Works Division

Nick Sceggell, PE
Project Manager



DuBois & King inc.
ENGINEERING • PLANNING • MANAGEMENT • DEVELOPMENT
28 NORTH MAIN ST.
RANDOLPH, VT 05060
TEL: (802) 728-3376
FAX: (802) 783-7101
www.dubois-king.com
SO. BURLINGTON, VT
SPRINGFIELD, VT
BRANDON, VT
BEDFORD, NH LACONIA, NH

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION 30% DESIGN DRAWINGS

NO.	DATE	DESCRIPTION	BY	CK'D

TOWN OF BOW

10 GRANDVIEW ROAD
BOW
NEW HAMPSHIRE
03304

TOWN OF BOW NH.

WATER SYSTEM EXPANSION

TO THE BOW JUNCTION/BOW MILLS AREA

SHEET TITLE

GENERAL PLAN FOR WATER SYSTEM EXTENSION

DRAWN BY	DATE
TMV	MAR 2021
CHECKED BY	D&K PROJECT #
NJS	226837
PROJ. ENG.	D&K ARCHIVE #
JAL	

SHEET NUMBER

C1

SHEET 1 OF 1

I:\2\226837 Bow Junction Bow Mills Preliminary Design Water System Expansion\Drawings\Civil\DWG\226837-WaterCAD.dwg 5/14/2021 1:33 PM

Bow NH
Water System Expansion To The Bow Junction/Bow Mills Area
Project Number: 226837
30% Opinion of Probable Construction Cost
Submittal To Town Of Bow 5-14-21
Prepared By: JWR
Checked By: JBA

DuBois & King inc.
ENGINEERING ● PLANNING ● MANAGEMENT ● DEVELOPMENT

Item	TOTAL QTY	Unit	Unit Cost	Source of Unit Cost	ENR Index At Time of Bid	Projected ENR Index at Time of Construction (Summer 2022)	Total
12" DI Pipe 0-8' Bury	19417	LF	$96.00	Hooksett Bid Tab	11,268.48	12,090.08	$1,999,900
12" DI Pipe 8'-12' Bury	3464	LF	$144.00	Hooksett Bid Tab w/ (150% factor)	11,268.48	12,090.08	$535,200
Tee Fitting	1	EA	$900.00	Hooksett Bid Tab	11,268.48	12,090.08	$1,000
Hydrant Assembly	46	EA	$3,000.00	Hooksett Bid Tab	11,268.48	12,090.08	$148,100
Valve Assembly	7	EA	$5,000.00	Hooksett Bid Tab	11,268.48	12,090.08	$37,600
Air Release Assembly	8	EA	$1,000.00	Hooksett Bid Tab	11,268.48	12,090.08	$8,600
Storm Drain Crossing	31	EA	$3,000.00	Placeholder from Engineer			$3,000
Pavement Replacement	2524.8	TON	$150.00	Marlborough Bid Tab	11,455.26	12,090.08	$399,700
Rock Excavation	500	CY	$250.00	Marlborough Bid Tab	11,455.26	12,090.08	$131,900
Exploratory Excavation	1000	CY	$25.00	Placeholder from Engineer			$25,000
Sand	500	CY	$20.00	Marlborough Bid Tab	11,455.26	12,090.08	$10,600
Bank Run Gravel	500	CY	$25.00	Marlborough Bid Tab	11,455.26	12,090.08	$13,200
Screened Gravel	500	CY	$35.00	Marlborough Bid Tab	11,455.26	12,090.08	$18,500
Crushed Gravel	500	CY	$35.00	Marlborough Bid Tab	11,455.26	12,090.08	$18,500
Crushed Stone	500	CY	$45.00	Marlborough Bid Tab	11,455.26	12,090.08	$23,700
Interconnect to Existing System	1	EA	$10,000.00	Hooksett Bid Tab	11,268.48	12,090.08	$10,700
Interconnect Control Valve Vault	1	EA	$195,800.00	Proctor Bid Tab	9,681.11	12,090.08	$244,500
Pressure Reducing Valve Vault	1	EA	$48,295.00	Peacham Bid Tab	11,124.49	12,090.08	$52,500
Water Storage Tank Site	1	EA	$845,000.00	Proctor Bid Tab	9,795.92	12,090.08	$1,042,900
Water Storage Tank	1	EA	$645,000.00	Proctor Bid Tab	9,795.92	12,090.08	$796,100
Booster Station	1	EA	$665,912.00	Proctor Bid Tab	10,242.09	12,090.08	$786,100
Directional Bore #1	1000	LF	$900.00	DBU Construction Inc. 30% Estimate			$900,000
Directional Bore #2	340	LF	$500.00	DBU Construction Inc. 30% Estimate			$170,000
Directional Bore #3	340	LF	$500.00	DBU Construction Inc. 30% Estimate			$170,000
Corporation Stop	108	EA	$500.00	SAFD2 Bid Tab	9,688.86	12,090.08	$67,400
Curb Stop	108	EA	$500.00	SAFD2 Bid Tab	9,688.86	12,090.08	$67,400
Water Treatment Improvements	1	LS	$1,204,000.00	Fairlee Bid Tab	11,496.31	12,090.08	$1,266,200
Mob/Demob	1	LS	$761,527.00	10% Project Cost			$761,500
Traffic Control	1	LS	$200,000.00	Placeholder from Engineer			$200,000
EPSC	1	LS	$152,294.00	2% Project Cost			$152,300
Contingency	1	LS	$1,522,940.00	20% Project Cost			$1,522,900
Opinion of Probable Construction Cost							$11,585,000

NOTE: In providing opinions of probable construction costs, the Client understands that DuBois & King, Inc. has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's methods of pricing, and that our Opinion of Probable Construction Costs are made on the basis of our professional judgment and experience. DuBois & King, Inc. makes no warranty, expressed or implied, that the bids or the negotiated costs of the Work will not vary from the Opinion of Probable Construction Cost provided herein.

Bow NH
Water System Expansion To The Bow Junction/Bow Mills Area
Project Number: 226837
30% Opinion of Probable Construction Cost
Submittal To Town Of Bow 5-14-21
Prepared By: JWR
Checked By: JBA

ENGINEERING ● PLANNING ● MANAGEMENT ● DEVELOPMENT

Water System Project Costs	Cost
Preliminary Engineering	$ 173,800
Final Design	$ 801,300
Permit Application Fees (Allowance) (see note 1)	$ 10,000
Constuction Phase Engineering and Support	$ 1,469,100
Construction Costs (See Note 2)	$ 11,585,000
Acquisition of Permanent Easement or Land Purchase (See Note 4)	
Legal/Administrative (Allowance)	$ 20,000
SUBTOTAL PROJECT COSTS	**$14,059,200**

Notes:
1. Placeholder Number For 30% Estimate
2. See Opinion of Probable Construction Costs
3. Engineering Fees are best on Engineering Fee Allowances for similar public works project provided by the State of Vermont
4. Land acquisition costs are unknown at this stage and are not included

NOTE: In providing opinions of probable construction costs, the Client understands that DuBois & King, Inc. has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's methods of pricing, and that our Opinion of Probable Construction Costs are made on the basis of our professional judgment and experience. DuBois & King, Inc. makes no warranty, expressed or implied, that the bids or the negotiated costs of the Work will not vary from the Opinion of Probable Construction Cost provided herein.