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100 GROVE ST. | WORCESTER, MA 01605

April 12, 2018

**PLANNING BOARD
GRAFTON, MA**

Joseph Laydon
Town Planner
Grafton Municipal Center
30 Providence Road
Grafton, MA 01519

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**Subject: Brookmeadow Village – Phases 4A, 4B and 4C
Updated Engineer’s Opinion Construction Cost Estimates**

Dear Joe:

Per the request of the Grafton Planning Board and the applicant, Graves Engineering, Inc. (GEI) generated updated engineer’s opinion construction cost estimates for Phases 4A, 4B and 4C of the Brookmeadow Village residential subdivision. The estimates are based upon site visits performed by GEI through February 26, 2018.

These estimates supersede our previous Phase 4A, Phase 4B and Phase 4C estimates dated December 14, 2017.

Please find attached the point-by-point totals of the cost estimates based upon the following:

- The estimates are for the proposed work within the right-of-way and grading, etc. associated with road and utility construction only. The estimates do not include any of the proposed work associated with lot development.
- The estimates are based upon a definitive plan entitled “Brookmeadow Village” dated July 20, 2005 and last revised April 23, 2007, prepared by Guerriere & Halnon, Inc.
- The estimates contain two sections: the total cost of the project and the cost of work remaining as of our last site visit.
- Phase 4A consists of Brookmeadow Lane station 22+50 to station 27+00. Phase 4A is the southwestern portion of “Phase 4” shown on Sheet 42 of the definitive plan.
- Phase 4B consists of Brookmeadow Lane station 27+00 to station 33+50 and the entire length of Klondike Road. Phase 4B is the portion of Phase 4 between the middle of Lot 18 and the lot line separating Lots 24 and 25 plus all of Klondike Road as shown on Sheet 42 of the definitive plan.
- Phase 4C consists of Brookmeadow Lane station 33+50 to the cul-de-sac ending at station 37+30. Phase 4C is the portion of Phase 4 from near the intersection of Brookmeadow Lane and Klondike Road to the end of the cul-de-sac as shown on Sheet 42 of the definitive plan.

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- Acceptance plans, as-built plans and draft legal descriptions were prepared and peer review of said documents by GEI has recently been completed. GEI understands that a formal construction completeness walk-through in advance of the "Determination of Completeness" process for Phases 4A, 4B and 4C is to be performed.
- There has been a 20% administration and contingency added to the estimate total for inspections, contract administration and inflation.

The purpose of our construction estimates is to provide the Grafton Planning Board with an "engineer's opinion" of the possible construction value for the project. Our estimates are based upon typical municipally-bid public works projects subject to state wage rates. We use state wage rates as the municipality will be required to pay prevailing state wage rates should they ultimately become responsible for completing the project. The rates indicated within this estimate reflect current market conditions.

In addition, the construction estimates should not be construed to be a final list of items that are not complete. At each drawdown requested by the developer, individual line items will be evaluated for completeness, unit prices may be revised to reflect the current cost of work and additional items may be added to or deleted from the estimates if needed. Streets and applicable amenities are not considered approved until they are accepted by Town vote as public streets or until the final release by the Planning Board for private streets.

If you have any questions or comments concerning these estimates, please feel free to contact our office.

Very truly yours,
Graves Engineering, Inc.



Jeffrey M. Walsh, P.E.
Vice President

Attachments (3)

cc: W. Greg Burrill; W.G.B Construction

SITE DEVELOPMENT/SUBDIVISION CONSTRUCTION BUDGET							
PROJECT: BROOKMEADOW VILLAGE - PHASE 4A BROOKMEADOW LANE, STATION 22+50 TO 27+00 DATE: April 12, 2018 Budget of work to be completed.							
The following construction budget is based upon the Definitive Plan last revised: 04/23/07 This estimate is based upon site visits performed through: 02/26/18							
			100% COST ESTIMATE		CONSTRUCTION		
	UNITS	\$/UNIT	QUANTITY	VALUE	REMAIN'G - 04/12/18	QUANTITY	VALUE
RIGHT OF WAY							
Clear & Grub	Acres	\$8,000.00	0.5	\$4,000.00	0		\$0.00
Earth Excavation	Cu. Yds.	\$6.00	1,100	\$6,600.00	0		\$0.00
Common Fill	Cu. Yds.	\$8.00	840	\$6,720.00	0		\$0.00
Finish Grading (Grass plots only)	Sq. Yds.	\$1.50	1,000	\$1,500.00	0		\$0.00
Loam and Seeding	Sq. Yds.	\$5.00	1,000	\$5,000.00	0		\$0.00
Trees	Each	\$400.00	23	\$9,200.00	0		\$0.00
ROADWAY							
Prep Subgrade	Sq. Yds.	\$1.50	1,400	\$2,100.00	0		\$0.00
Gravel Base	Cu. Yds.	\$30.00	470	\$14,100.00	0		\$0.00
Fine Grade & Roll	Sq. Yds.	\$3.00	1,400	\$4,200.00	0		\$0.00
Binder Course (2.75" Compacted Thk'ness)	Tons	\$90.00	190	\$17,100.00	0		\$0.00
Top Course (1.5" Compacted Thk'ness)	Tons	\$90.00	110	\$9,900.00	0		\$0.00
Top Course (1.5" Compacted Thk'ness)	Tons	\$110.00	0	\$0.00	0		\$0.00
Granite Curb Inlets	Each	\$300.00	4	\$1,200.00	0		\$0.00
Sloped Granite Edging	Lin. Ft.	\$20.00	750	\$15,000.00	0		\$0.00
Granite Transition Pieces	Each	\$250.00	8	\$2,000.00	0		\$0.00
Grade Roadside Swales	Sq. Yds.	\$2.00	270	\$540.00	0		\$0.00
Raise Structures (Sewers, Drains, etc.)	Each	\$300.00	8	\$2,400.00	0		\$0.00
SITE WORK							
Clear & Grub (slopes outside ROW)	Acres	\$8,000.00	0.2	\$1,600.00	0		\$0.00
Earth Excavation (slopes outside ROW)	Cu. Yds.	\$6.00	200	\$1,200.00	0		\$0.00
Common Fill (slopes outside ROW)	Cu. Yds.	\$8.00	160	\$1,280.00	0		\$0.00
Finish Grading (slopes outside ROW)	Sq. Yds.	\$1.50	510	\$765.00	0		\$0.00
Loam & Seeding (slopes outside ROW)	Sq. Yds.	\$5.00	510	\$2,550.00	0		\$0.00
SIDEWALK							
Prep Subgrade	Sq. Yds.	\$1.50	200	\$300.00	0		\$0.00
Gravel Base (6")	Cu. Yds.	\$30.00	40	\$1,200.00	0		\$0.00
Fine Grade & Roll	Sq. Yds.	\$3.00	200	\$600.00	0		\$0.00
Concrete (4")	Cu. Yds.	\$150.00	25	\$3,750.00	0		\$0.00
DRAINAGE							
12" Reinforced Concrete Pipe	Lin. Ft.	\$50.00	72	\$3,600.00	0		\$0.00
18" Reinforced Concrete Pipe	Lin. Ft.	\$57.00	320	\$18,240.00	0		\$0.00
24" Reinforced Concrete Pipe	Lin. Ft.	\$80.00	150	\$12,000.00	0		\$0.00
Subdrains	Lin. Ft.	\$28.00	400	\$11,200.00	0		\$0.00

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	UNITS	\$/UNIT	100% COST ESTIMATE		CONSTRUCTION	
			QUANTITY	VALUE	REMAIN'G - 04/12/18	QUANTITY
Drain Manholes	Each	\$2,400.00	2	\$4,800.00	0	\$0.00
Drain Invert (Concrete or Brick)	Each	\$250.00	2	\$500.00	0	\$0.00
Catch Basins	Each	\$2,300.00	4	\$9,200.00	0	\$0.00
Drop Inlets	Each	\$2,100.00	1	\$2,100.00	0	\$0.00
Catch Basin Frame & Grate	Each	\$600.00	5	\$3,000.00	0	\$0.00
Drain Manhole Rim & Cover	Each	\$550.00	2	\$1,100.00	0	\$0.00
WATER						
8" DI Pipe	Lin. Ft	\$70.00	450	\$31,500.00	0	\$0.00
Hydrants	Each	\$3,700.00	1	\$3,700.00	0	\$0.00
Water Service	Each	\$350.00	8	\$2,800.00	0	\$0.00
SEWER						
8" SDR 35 Sewer	Lin. Ft	\$45.00	450	\$20,250.00	0	\$0.00
Manholes	Each	\$3,000.00	2	\$6,000.00	0	\$0.00
Laterals: 6" SDR 35 PVC	Each	\$700.00	8	\$5,600.00	0	\$0.00
Sewer Brick Invert	Each	\$250.00	2	\$500.00	0	\$0.00
ELECTRIC COMMUNICATIONS						
Electrical/CATV/Tel Conduit	Lin.Ft.	\$45.00	550	\$24,750.00	0	\$0.00
MISCELLANEOUS						
Bounds, Granite	Each	\$315.00	2	\$630.00	0	\$0.00
Acceptance Plans	Sheet	\$1,000.00	1	\$1,000.00	0	\$0.00
As Built Plans	Sheet	\$1,900.00	1	\$1,900.00	0	\$0.00
				Subtotal:		\$0.00
				20% Contingency/Inflation:		\$0.00
PROJECT: BROOKMEADOW VILLAGE - PHASE 4A		TOTAL:	*	\$335,010.00	*	\$0.00
* This estimate was prepared to assist the Planning Board in establishing the amount of surety for this project. In accordance with Grafton Subdivision Rules and Regulations, the surety value established by the Board may vary from this estimate.						

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SITE DEVELOPMENT/SUBDIVISION CONSTRUCTION BUDGET						
PROJECT: BROOKMEADOW VILLAGE - PHASE 4B						
BROOKMEADOW LANE, STATION 27+00 TO 33+50 & KLONDIKE ROAD STATION 0+00 TO 12+50						
DATE: April 12, 2018						
Budgets of work for entire phase and for work yet to be completed.						
The following construction budget is based upon the Definitive Plan last revised:					04/23/07	
This estimate is based upon site visits performed through:					02/26/18	
	UNITS	\$/UNIT	100% COST ESTIMATE		CONSTRUCTION	
			QUANTITY	VALUE	REMAIN'G - 04/12/18	VALUE
RIGHT OF WAY						
Clear & Grub	Acres	\$8,000.00	2.1	\$16,800.00	0	\$0.00
Earth Excavation	Cu. Yds.	\$6.00	14,300	\$85,800.00	0	\$0.00
Common Fill	Cu. Yds.	\$8.00	7,400	\$59,200.00	0	\$0.00
Finish Grading (Grass plots only)	Sq. Yds.	\$3.00	3,900	\$11,700.00	0	\$0.00
Loam and Seeding	Sq. Yds.	\$5.00	3,900	\$19,500.00	0	\$0.00
Trees	Each	\$400.00	92	\$36,800.00	0	\$0.00
ROADWAY						
Prep Subgrade	Sq. Yds.	\$3.00	5,500	\$16,500.00	0	\$0.00
Gravel Base (12")	Cu. Yds.	\$30.00	1,800	\$54,000.00	0	\$0.00
Fine Grade & Roll	Sq. Yds.	\$3.50	5,500	\$19,250.00	0	\$0.00
Binder Course (2.75" Compacted Thk'ness)	Tons	\$110.00	820	\$90,200.00	0	\$0.00
Top Course (1.5" Compacted Thk'ness)	Tons	\$110.00	450	\$49,500.00	0	\$0.00
Granite Curb Inlets	Each	\$300.00	12	\$3,600.00	0	\$0.00
Vertical Granite Curb	Lin. Ft.	\$40.00	200	\$8,000.00	0	\$0.00
Sloped Granite Edging	Lin. Ft.	\$25.00	3,440	\$86,000.00	0	\$0.00
Granite Transition Pieces	Each	\$250.00	26	\$6,500.00	0	\$0.00
Street Lights	Each	\$2,000.00	3	\$6,000.00	0	\$0.00
Raise Structures (Sewers, Drains, etc.)	Each	\$300.00	35	\$10,500.00	0	\$0.00
Traffic Signage (Street Name, Stop)	Each	\$175.00	4	\$700.00	0	\$0.00
SITE WORK						
Clear & Grub (slopes outside ROW)	Acres	\$8,000.00	1.0	\$8,000.00	0	\$0.00
Earth Excavation (slopes outside ROW)	Cu. Yds.	\$6.00	4,200	\$25,200.00	0	\$0.00
Common Fill (slopes outside ROW)	Cu. Yds.	\$8.00	3,100	\$24,800.00	0	\$0.00
Finish Grading (slopes outside ROW)	Sq. Yds.	\$3.00	4,800	\$14,400.00	0	\$0.00
Loam & Seeding (slopes outside ROW)	Sq. Yds.	\$5.00	4,800	\$24,000.00	0	\$0.00
SIDEWALK						
Prep Subgrade	Sq. Yds.	\$3.00	840	\$2,520.00	0	\$0.00
Gravel Base (6")	Cu. Yds.	\$30.00	140	\$4,200.00	0	\$0.00
Fine Grade & Roll	Sq. Yds.	\$3.50	840	\$2,940.00	0	\$0.00
Concrete (4")	Cu. Yds.	\$175.00	93	\$16,275.00	0	\$0.00
DRAINAGE						
12" Reinforced Concrete Pipe	Lin. Ft.	\$50.00	1,000	\$50,000.00	0	\$0.00
18" Reinforced Concrete Pipe	Lin. Ft.	\$57.00	705	\$40,185.00	0	\$0.00
Drain Manholes	Each	\$2,400.00	12	\$28,800.00	0	\$0.00
Drain Invert (Concrete or Brick)	Each	\$250.00	12	\$3,000.00	0	\$0.00
Catch Basins	Each	\$2,300.00	12	\$27,600.00	0	\$0.00
Drop Inlets	Each	\$2,300.00	3	\$6,900.00	0	\$0.00

	UNITS	\$/UNIT	100% COST ESTIMATE		CONSTRUCTION	
			QUANTITY	VALUE	REMAIN'G - 04/12/18	QUANTITY
Catch Basin Frame & Grate	Each	\$700.00	15	\$10,500.00	0	\$0.00
Drain Manhole Rim & Cover	Each	\$600.00	12	\$7,200.00	0	\$0.00
WATER						
8" DI Pipe	Lin. Ft	\$70.00	1,870	\$130,900.00	0	\$0.00
8" Valves	Each	\$1,400.00	3	\$4,200.00	0	\$0.00
Hydrants	Each	\$3,700.00	3	\$11,100.00	0	\$0.00
Water Service	Each	\$350.00	22	\$7,700.00	0	\$0.00
SEWER						
8" D.I. Sewer	Lin. Ft	\$70.00	350	\$24,500.00	0	\$0.00
8" SDR 35 Sewer	Lin. Ft	\$52.00	1,220	\$63,440.00	0	\$0.00
Manholes	Each	\$3,000.00	11	\$33,000.00	0	\$0.00
Laterals: 6" SDR 35 PVC	Each	\$700.00	21	\$14,700.00	0	\$0.00
Sewer Brick Invert	Each	\$250.00	11	\$2,750.00	0	\$0.00
Sewer Manhole Rim & Cover	Each	\$750.00	11	\$8,250.00	0	\$0.00
ELECTRIC COMMUNICATIONS						
Electrical/CATV/Tel Conduit	Lin.Ft.	\$45.00	1,920	\$86,400.00	0	\$0.00
MISCELLANEOUS						
Bounds, Granite (Roadway)	Each	\$315.00	26	\$8,190.00	0	\$0.00
Bounds, Granite (Open Space)	Each	\$315.00	33	\$10,395.00	0	\$0.00
Acceptance Plans	Sheet	\$1,000.00	3	\$3,000.00	0	\$0.00
As Built Plans	Sheet	\$1,900.00	4	\$7,600.00	0	\$0.00
				Subtotal:		\$0.00
				20% Contingency/Inflation:		\$0.00
PROJECT: BROOKMEADOW VILLAGE - PHASE 4B				TOTAL:		\$0.00
				TOTAL (Rounded):	*	\$0.00
				20% of "100% COST ESTIMATE" (Rounded):	*	\$259,000.00
<p>* This estimate was prepared to assist the Planning Board in establishing the amount of surety for this project. In accordance with Grafton Subdivision Rules and Regulations, the surety value established by the Board may vary from this estimate.</p>						



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SITE DEVELOPMENT/SUBDIVISION CONSTRUCTION BUDGET						
PROJECT: BROOKMEADOW VILLAGE - PHASE 4C BROOKMEADOW LANE, STATION 33+50 TO 37+30						
DATE: April 12, 2018						
Budgets of work for entire phase and for work yet to be completed.						
The following construction budget is based upon the Definitive Plan last revised:					04/23/07	
This estimate is based upon site visits performed through:					02/26/18	
	UNITS	\$/UNIT	100% COST ESTIMATE QUANTITY	100% COST ESTIMATE VALUE	CONSTRUCTION REMAIN'G QUANTITY	CONSTRUCTION 04/12/18 VALUE
RIGHT OF WAY						
Clear & Grub	Acres	\$8,000.00	0.5	\$4,000.00	0	\$0.00
Earth Excavation	Cu. Yds.	\$6.00	8,100	\$48,600.00	0	\$0.00
Finish Grading (Grass plots only)	Sq. Yds.	\$3.00	930	\$2,790.00	0	\$0.00
Loam and Seeding	Sq. Yds.	\$5.00	930	\$4,650.00	0	\$0.00
Trees	Each	\$400.00	20	\$8,000.00	0	\$0.00
ROADWAY						
Prep Subgrade	Sq. Yds.	\$3.00	1,310	\$3,930.00	0	\$0.00
Gravel Base (12")	Cu. Yds.	\$30.00	440	\$13,200.00	0	\$0.00
Fine Grade & Roll	Sq. Yds.	\$3.50	1,310	\$4,585.00	0	\$0.00
Binder Course (2.75" Compacted Thk'ness)	Tons	\$110.00	200	\$22,000.00	0	\$0.00
Top Course (1.5" Compacted Thk'ness)	Tons	\$110.00	110	\$12,100.00	0	\$0.00
Granite Curb Inlets	Each	\$300.00	4	\$1,200.00	0	\$0.00
Vertical Granite Curb	Lin. Ft.	\$40.00	240	\$9,600.00	0	\$0.00
Sloped Granite Edging	Lin. Ft.	\$25.00	420	\$10,500.00	0	\$0.00
Granite Transition Pieces	Each	\$250.00	10	\$2,500.00	0	\$0.00
Street Lights	Each	\$2,000.00	1	\$2,000.00	0	\$0.00
Raise Structures (Sewers, Drains, etc.)	Each	\$300.00	10	\$3,000.00	0	\$0.00
SITE WORK						
Clear & Grub (slopes outside ROW)	Acres	\$8,000.00	0.4	\$3,200.00	0	\$0.00
Earth Excavation (slopes outside ROW)	Cu. Yds.	\$6.00	3,200	\$19,200.00	0	\$0.00
Finish Grading (slopes outside ROW)	Sq. Yds.	\$3.00	2,000	\$6,000.00	0	\$0.00
Loam & Seeding (slopes outside ROW)	Sq. Yds.	\$5.00	2,000	\$10,000.00	0	\$0.00
SIDEWALK						
Prep Subgrade	Sq. Yds.	\$3.00	180	\$540.00	0	\$0.00
Gravel Base (6")	Cu. Yds.	\$30.00	30	\$900.00	0	\$0.00
Fine Grade & Roll	Sq. Yds.	\$3.50	180	\$630.00	0	\$0.00
Concrete (4")	Cu. Yds.	\$350.00	20	\$7,000.00	0	\$0.00
DRAINAGE						
12" Reinforced Concrete Pipe	Lin. Ft.	\$50.00	300	\$15,000.00	0	\$0.00
Drain Manholes	Each	\$2,400.00	3	\$7,200.00	0	\$0.00
Drain Invert (Concrete or Brick)	Each	\$250.00	3	\$750.00	0	\$0.00
Catch Basins	Each	\$2,300.00	4	\$9,200.00	0	\$0.00
Catch Basin Frame & Grate	Each	\$700.00	4	\$2,800.00	0	\$0.00
Drain Manhole Rim & Cover	Each	\$600.00	3	\$1,800.00	0	\$0.00

			100% COST ESTIMATE		CONSTRUCTION	
	UNITS	\$/UNIT	QUANTITY	VALUE	REMAIN'G QUANTITY	04/12/18 VALUE
WATER						
8" DI Pipe	Lin. Ft	\$70.00	420	\$29,400.00	0	\$0.00
Hydrants	Each	\$3,700.00	1	\$3,700.00	0	\$0.00
Water Service	Each	\$350.00	6	\$2,100.00	0	\$0.00
SEWER						
8" SDR 35 Sewer	Lin. Ft	\$52.00	300	\$15,600.00	0	\$0.00
Manholes	Each	\$3,000.00	3	\$9,000.00	0	\$0.00
Laterals: 6" SDR 35 PVC	Each	\$700.00	6	\$4,200.00	0	\$0.00
Sewer Brick Invert	Each	\$250.00	3	\$750.00	0	\$0.00
Sewer Manhole Rim & Cover	Each	\$750.00	3	\$2,250.00	0	\$0.00
ELECTRIC COMMUNICATIONS						
Electrical/CATV/Tel Conduit	Lin.Ft.	\$45.00	420	\$18,900.00	0	\$0.00
MISCELLANEOUS						
Bounds, Granite (Roadway)	Each	\$315.00	8	\$2,520.00	0	\$0.00
Acceptance Plans	Sheet	\$1,000.00	1	\$1,000.00	0	\$0.00
As Built Plans	Sheet	\$1,900.00	1	\$1,900.00	0	\$0.00
				Subtotal:		\$0.00
				20% Contingency/Inflation:		\$0.00
PROJECT: BROOKMEADOW VILLAGE - PHASE 4C				TOTAL:		\$0.00
				TOTAL (Rounded):	*	\$0.00
				20% of "100% COST ESTIMATE" (Rounded):	*	\$66,000.00
<p>* This estimate was prepared to assist the Planning Board in establishing the amount of surety for this project. In accordance with Grafton Subdivision Rules and Regulations, the surety value established by the Board may vary from this estimate.</p>						