

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item Number	Quantity	Unit	Description	Unit Price	Total
100.01	1	LS	Schedule Of Operations - Fixed Price \$67,500	\$67,500.00	\$ 67,500.00
101.	15.7	A	Clearing And Grubbing	\$15,250.00	\$ 239,425.00
102.51	50	EA	Individual Tree Protection	\$200.00	\$ 10,000.00
102.52	6,000	FT	Temporary Tree Protection Fence	\$10.00	\$ 60,000.00
120.1	14,000	CY	Unclassified Excavation	\$27.00	\$ 378,000.00
123.	2,720	CY	Muck Excavation	\$24.00	\$ 65,280.00
127.12	42	CY	Substructure Demolition	\$800.00	\$ 33,600.00
129.	1,300	SY	Pavement Milling	\$18.00	\$ 23,400.00
129.5	23,000	FT	Track Excavation	\$25.00	\$ 575,000.00
140.	258	CY	Bridge Excavation	\$40.00	\$ 10,320.00
141.	250	CY	Class A Trench Excavation	\$25.00	\$ 6,250.00
141.1	50	CY	Test Pit For Exploration	\$75.00	\$ 3,750.00
144.	50	CY	Class B Rock Excavation	\$110.00	\$ 5,500.00
150.	10	CY	Ordinary Borrow	\$25.00	\$ 250.00
150.1	500	CY	Special Borrow	\$35.00	\$ 17,500.00
151.	15,000	CY	Gravel Borrow	\$25.00	\$ 375,000.00
151.2	30	CY	Gravel Borrow For Backfilling Structures And Pipes	\$40.00	\$ 1,200.00
156.	5	TON	Crushed Stone	\$40.00	\$ 200.00
156.1	200	TON	Crushed Stone For Bridge Foundations	\$69.00	\$ 13,800.00
170.	55,000	SY	Fine Grading And Compacting	\$3.00	\$ 165,000.00
180.1	1	LS	Health And Safety Plan	\$4,500.00	\$ 4,500.00
180.2	80	HR	Implementation Of Health And Safety Plan	\$80.00	\$ 6,400.00
180.3	80	HR	Personnel Protection Level C Upgrade	\$18.00	\$ 1,440.00
180.4	400	CY	Monitoring/Handling And Stockpiling Of Contaminated Soils	\$85.00	\$ 34,000.00
180.5	120	HR	Licensed Site Professional	\$110.00	\$ 13,200.00
180.6	25	EA	Miscellaneous Soils Testing	\$1,000.00	\$ 25,000.00
181.11	400	TON	Disposal Of Unregulated Soil	\$35.00	\$ 14,000.00
181.12	175	TON	Disposal Of Regulated Soil - In-State Facility	\$150.00	\$ 26,250.00
181.13	100	TON	Disposal Of Regulated Soil - Out-Of-State Facility	\$275.00	\$ 27,500.00
181.14	1	TON	Disposal Of Hazardous Waste	\$650.00	\$ 650.00
181.2	10	EA	Battery Well And Signal Box Remove And Discard	\$1,000.00	\$ 10,000.00
183.1	1,000	GAL	Treatment Of Contaminated Groundwater	\$1.00	\$ 1,000.00
183.2	200	LB	Disposal Of Granular Activated Carbon	\$4.00	\$ 800.00
184.1	1,320	TON	Disposal Of Treated Wood Products	\$200.00	\$ 264,000.00
189.2	1	LS	Abandonment Of Septic System	\$7,500.00	\$ 7,500.00
202.	1	EA	Manhole	\$2,800.00	\$ 2,800.00
205.	3	EA	Leaching Basin	\$4,000.00	\$ 12,000.00
238.06	90	FT	6 Inch Ductile Iron Pipe	\$115.00	\$ 10,350.00
238.10	270	FT	10 Inch Ductile Iron Pipe	\$120.00	\$ 32,400.00
238.12	75	FT	12 Inch Ductile Iron Pipe	\$100.00	\$ 7,500.00
241.12	10	FT	12 Inch Reinforced Concrete Pipe	\$50.00	\$ 500.00
243.15	12	FT	15 Inch Reinforced Concrete Pipe Class Iv	\$65.00	\$ 780.00
252.08	5	FT	8 Inch Corrugated Plastic (Polyethylene) Pipe	\$75.00	\$ 375.00
252.12	35	FT	12 Inch Corrugated Plastic (Polyethylene) Pipe	\$50.00	\$ 1,750.00
252.15	40	FT	15 Inch Corrugated Plastic (Polyethylene) Pipe	\$52.00	\$ 2,080.00
258.	45	SY	Stone For Pipe Ends	\$45.00	\$ 2,025.00
302.16	110	FT	16 Inch Ductile Iron Water Pipe (Rubber Gasket)	\$210.00	\$ 23,100.00
309.	1,500	LB	Ductile Iron Fittings For Water Pipe	\$5.50	\$ 8,250.00
402.	200	CY	Dense Graded Crushed Stone For Sub-Base	\$55.00	\$ 11,000.00
431.1	10	CY	High Early Strength Cement Concrete Base Course	\$220.00	\$ 2,200.00
440.	83,000	LB	Calcium Chloride For Roadway Dust Control	\$0.30	\$ 24,900.00
443.	170	MGL	Water For Roadway Dust Control	\$55.00	\$ 9,350.00
450.90	8,800	TON	Contractor Quality Control	\$5.00	\$ 44,000.00
451.	20	TON	HMA For Patching	\$168.00	\$ 3,360.00

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Item Number	Quantity	Unit	Description	Unit Price	Total
452.	2,000	GAL	Asphalt Emulsion For Tack Coat	\$8.50	\$ 17,000.00
453.	3,000	FT	HMA Joint Sealant	\$1.00	\$ 3,000.00
455.23	3,100	TON	Superpave Surface Course - 12.5 (SSC - 12.5)	\$96.00	\$ 297,600.00
455.31	400	TON	Superpave Intermediate Course - 12.5 (SIC - 12.5)	\$121.00	\$ 48,400.00
455.32	4,800	TON	Superpave Intermediate Course - 19.0 (SIC - 19.0)	\$93.00	\$ 446,400.00
455.42	200	TON	Superpave Base Course - 37.5 (SBC - 37.5)	\$103.00	\$ 20,600.00
455.61	37	TON	Superpave Bridge Surface Course - 12.5 (SSC-B - 12.5)	\$160.00	\$ 5,920.00
455.71	49	TON	Superpave Bridge Protective Course . 12.5 (SPC-B - 12.5)	\$160.00	\$ 7,840.00
482.31	192	FT	Sawing & Sealing Joints In Asphalt Pavement At Bridges	\$25.00	\$ 4,800.00
506.	10	FT	Granite Curb Type VB - Straight	\$33.00	\$ 330.00
506.1	80	FT	Granite Curb Type VB - Curved	\$43.00	\$ 3,440.00
509.	20	FT	Granite Transition Curb For Wheelchair Ramps - Straight	\$41.00	\$ 820.00
509.1	10	FT	Granite Transition Curb For Wheelchair Ramps - Curved	\$46.00	\$ 460.00
511.1	310	FT	Granite Edging Type SB - Straight	\$20.00	\$ 6,200.00
512.1	100	FT	Granite Edging Type SB (Radius 10 Feet Or Less)	\$37.00	\$ 3,700.00
570.3	400	FT	Hot Mix Asphalt Curb Type 3	\$10.00	\$ 4,000.00
594.	50	FT	Curb Removed And Discarded	\$6.00	\$ 300.00
620.2	800	FT	Steel W Beam Highway Guard (Single Faced) - Rub Rail	\$30.00	\$ 24,000.00
627.1	8	EA	Steel W Beam Terminal Section (Single Faced)	\$50.00	\$ 400.00
639.	2,950	FT	Privacy Screen	\$10.00	\$ 29,500.00
645.196	1,250	FT	96 Inch Chain Link Fence (PTR) Vinyl Coated (Line Post Opt.)	\$40.00	\$ 50,000.00
655.01	16,000	FT	Timber Rail Fence	\$16.00	\$ 256,000.00
655.02	668	FT	Timber Rail Fence On Bridge	\$25.00	\$ 16,700.00
655.03	830	EA	Timber Rail Post - 54" Tall	\$25.00	\$ 20,750.00
656.	1	LS	Remove and Reset Electric Gate and Equipment	\$7,500.00	\$ 7,500.00
660.010	450	FT	Railings	\$100.00	\$ 45,000.00
665.	600	FT	Chain Link Fence Removed And Stacked	\$3.00	\$ 1,800.00
665.3	150	FT	72 Inch Stockade Fence	\$40.00	\$ 6,000.00
667.	2	EA	Chain Link Fence Gate W/Gate Posts Removed & Stacked	\$275.00	\$ 550.00
668.	1	EA	Chain Link Fence Gate W/Gate Posts Removed & Reset	\$1,000.00	\$ 1,000.00
669.	350	FT	Fence Removed And Stacked	\$5.00	\$ 1,750.00
670.	100	FT	Fence Removed And Reset	\$21.00	\$ 2,100.00
673.	1	EA	Steel Pipe Access Gate	\$4,000.00	\$ 4,000.00
685.	250	CY	Stone Masonry Wall In Cement Mortar	\$550.00	\$ 137,500.00
690.1	16	CY	Stone Masonry Wall Removed And Rebuilt Dry	\$600.00	\$ 9,600.00
690.2	12	EA	Granite Headwall Removed and Rebuilt in Cement Mortar	\$5,000.00	\$ 60,000.00
690.3	1	LS	Granite Slab Culvert Removed and Rebuilt in Cement Mortar	\$5,000.00	\$ 5,000.00
691.01	40	EA	Landscape Boulder	\$500.00	\$ 20,000.00
691.1	20	EA	Landscape Boulder Removed and Reset	\$300.00	\$ 6,000.00
699.	800	SY	Filter Strip	\$27.00	\$ 21,600.00
701.	200	SY	Cement Concrete Sidewalk	\$45.00	\$ 9,000.00
701.1	20	SY	Cement Concrete Sidewalk At Driveways	\$54.00	\$ 1,080.00
701.2	100	SY	Cement Concrete Wheelchair Ramp	\$70.00	\$ 7,000.00
701.3	60	SY	Stamped Cement Concrete Island	\$75.00	\$ 4,500.00
702.	5	TON	Hot Mix Asphalt Walk Surface	\$170.00	\$ 850.00
703.	275	TON	Hot Mix Asphalt Driveway	\$140.00	\$ 38,500.00
704.2	2,800	TON	Stone Dust	\$80.00	\$ 224,000.00
706.38	2	EA	Granite Pier	\$7,000.00	\$ 14,000.00
707.1	10	EA	Park Bench	\$1,750.00	\$ 17,500.00
707.15	6	EA	Park Bench Removed And Reset	\$500.00	\$ 3,000.00
707.7	4	EA	Display Board	\$500.00	\$ 2,000.00
707.81	4	EA	Removable Bollard	\$2,000.00	\$ 8,000.00
707.9	1	EA	Bicycle Rack	\$1,250.00	\$ 1,250.00

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Item Number	Quantity	Unit	Description	Unit Price	Total
710.8	16	EA	Granite Marker	\$1,000.00	\$ 16,000.00
714.2	2	EA	Mile Marker Removed and Reset	\$500.00	\$ 1,000.00
714.3	7	EA	Railroad Signal Pole Removed and Reset	\$750.00	\$ 5,250.00
714.4	3	EA	Whistle Post Removed and Reset	\$500.00	\$ 1,500.00
719.	1	EA	Track Switch Removed and Reset	\$2,500.00	\$ 2,500.00
734.2	1	EA	Sign - Interpretive - NPS Standard	\$2,000.00	\$ 2,000.00
740.	26	MO	Engineers Field Office And Equipment (Type A)	\$2,550.00	\$ 66,300.00
748.	1	LS	Mobilization	\$250,245.41	\$ 250,245.41
751.7	1,100	CY	Compost Topsoil	\$30.00	\$ 33,000.00
754.2	1	LS	Turtle Protection Plan	\$50,000.00	\$ 50,000.00
755.3	1	LS	Non-Tidal Wetland Mitigation Areas	\$50,000.00	\$ 50,000.00
755.7	40	HR	Wetland Specialist	\$200.00	\$ 8,000.00
756.	1	LS	NPDES Stormwater Pollution Prevention Plan	\$3,760.00	\$ 3,760.00
765.	10,000	SY	Seeding	\$1.50	\$ 15,000.00
765.15	5,500	SY	Seeding - Steep Slope Mix	\$2.00	\$ 11,000.00
765.4	4,500	SY	NHESP Restoration Area Seed Mix	\$2.00	\$ 9,000.00
765.5	225	SY	Bioswale Seed Mix	\$2.00	\$ 450.00
767.12	22,000	FT	Compost Filter Tubes	\$2.00	\$ 44,000.00
767.2	400	SY	Hay Mulch	\$1.00	\$ 400.00
767.9	5,500	SY	Matting For Erosion Control	\$5.20	\$ 28,600.00
769.	800	FT	Pavement Milling Mulch Under Guard Rail	\$7.00	\$ 5,600.00
772.366	7	EA	Fir - Canaan 8-10 Feet	\$500.00	\$ 3,500.00
773.438	3	EA	Pine - White 8-10 Feet	\$500.00	\$ 1,500.00
776.551	7	EA	Maple - Red - 'October Glory' 3-3.5 Inch Caliper	\$650.00	\$ 4,550.00
782.538	6	EA	Redbud - Eastern 8-10 Feet Multi-stem	\$500.00	\$ 3,000.00
783.05	4	EA	Robin Hill Serviceberry 3-3.5 Inch Caliper	\$500.00	\$ 2,000.00
783.541	7	EA	Yellowwood 3-3.5 Inch Caliper	\$500.00	\$ 3,500.00
785.183	258	EA	Boxwood - Common 3-4 Feet	\$250.00	\$ 64,500.00
785.733	30	EA	Inkberry - Compact 24-30 Inch	\$66.00	\$ 1,980.00
786.671	35	EA	Mountain Laurel 24-30 Inch	\$105.00	\$ 3,675.00
789.8	33	EA	Chokeberry - Red 3-4 Feet	\$100.00	\$ 3,300.00
790.133	31	EA	Coralberry Shrub-Chenault 2-3 Feet	\$100.00	\$ 3,100.00
791.313	33	EA	Fothergilla - Dwarf 18-24 Inch Spread	\$60.00	\$ 1,980.00
794.322	32	EA	Sumac Shrub - Fragrant 18-24 Inch	\$50.00	\$ 1,600.00
794.731	36	EA	Summersweet Shrub 18-24 Inch	\$31.00	\$ 1,116.00
795.053	18	EA	Viburnum - Highbush Cranberry 3-4 Feet	\$95.00	\$ 1,710.00
795.153	1	EA	Winterberry - Male 24-30 Inch	\$50.00	\$ 50.00
795.157	5	EA	Winterberry - Female 24-30 Inch	\$50.00	\$ 250.00
804.3	410	FT	3 Inch Electrical Conduit Type NM - Plastic -(UL)	\$29.00	\$ 11,890.00
811.31	7	EA	Pull Box 12 X 12 Inches - Sd2.031	\$470.00	\$ 3,290.00
816.01	1	LS	Traffic Signal Reconstruction Location No. 1	\$82,250.00	\$ 82,250.00
816.80	1	LS	Traffic Control Signal Removed And Stacked	\$900.00	\$ 900.00
824.01	1	LS	Rectangular Rapid-Flash Beacons, Location No. 1	\$15,000.00	\$ 15,000.00
824.02	1	LS	Rectangular Rapid-Flash Beacons, Location No. 2	\$15,000.00	\$ 15,000.00
824.03	1	LS	Rectangular Rapid-Flash Beacons, Location No. 3	\$15,000.00	\$ 15,000.00
824.04	1	LS	Rectangular Rapid-Flash Beacons, Location No. 4	\$15,000.00	\$ 15,000.00
824.05	1	LS	Rectangular Rapid-Flash Beacons, Location No. 5	\$15,000.00	\$ 15,000.00
832.	640	SF	Warning-Regulatory And Route Marker - Alum. Panel (Type A)	\$12.00	\$ 7,680.00
832.1	5	SF	Trail Rules Sign	\$500.00	\$ 2,500.00
832.2	2	SF	NARA Park Rules Sign	\$500.00	\$ 1,000.00
833.5	15	EA	Demountable ReflectORIZED Delineator - Guard Rail	\$5.00	\$ 75.00
833.7	10	EA	Delineation For Guard Rail Termini	\$30.00	\$ 300.00
847.1	180	EA	Sign Sup (N/Guide)+Rte Mkr W/1 Brkway Post Assembly - Steel	\$90.00	\$ 16,200.00

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Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
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Item Number	Quantity	Unit	Description	Unit Price	Total
850.41	100	HR	Roadway Flagger	\$50.00	\$ 5,000.00
852.	660	SF	Safety Signing For Traffic Management	\$21.00	\$ 13,860.00
853.1	4	EA	Portable Breakaway Barricade Type III	\$125.00	\$ 500.00
854.016	500	FT	Temporary Paving Markings - 6 Inch (Painted)	\$0.40	\$ 200.00
854.1	250	SF	Pavement Marking Removal	\$1.15	\$ 287.50
856.	10	DAY	Arrow Board	\$10.00	\$ 100.00
859.	730	DAY	Reflectorized Drum	\$0.25	\$ 182.50
860.12	100	FT	12 Inch Reflectorized White Line (Painted)	\$0.50	\$ 50.00
861.04	3,400	FT	4 Inch Reflectorized Yellow Line (Painted)	\$1.00	\$ 3,400.00
864.04	1,050	SF	Pavement Arrows And Legends Refl. White (Thermoplastic)	\$4.40	\$ 4,620.00
865.1	1,650	SF	Cross Walks And Stop Lines Refl. White (Thermoplastic)	\$2.00	\$ 3,300.00
866.04	1,550	FT	4 Inch Reflectorized White Line (Thermoplastic)	\$0.70	\$ 1,085.00
866.06	550	FT	6 Inch Reflectorized White Line (Thermoplastic)	\$1.00	\$ 550.00
866.12	650	FT	12 Inch Reflectorized White Line (Thermoplastic)	\$2.00	\$ 1,300.00
867.04	100	FT	4 Inch Reflectorized Yellow Line (Thermoplastic)	\$1.00	\$ 100.00
867.06	400	FT	6 Inch Reflectorized Yellow Line (Thermoplastic)	\$1.00	\$ 400.00
874.	5	EA	Street Name Sign	\$80.00	\$ 400.00
874.45	20	EA	Traffic Sign Removed and Discarded	\$50.00	\$ 1,000.00
874.75	2	EA	Miscellaneous Sign Removed And Reset	\$100.00	\$ 200.00
880.1	1	LS	Relocation of Powers Gallery Electrical Outlet	\$1,000	\$ 1,000.00
901.	41	CY	4000 Psi, 1.5 In., 565 Cement Concrete	\$910.00	\$ 37,310.00
903.	10	CY	3000 Psi, 1.5 In., 470 Cement Concrete	\$300.00	\$ 3,000.00
904.4	120	CY	4000 Psi, 3/4 In., 585 Hp Cement Concrete	\$2,000.00	\$ 240,000.00
910.	35,005	LB	Steel Reinforcement For Structures	\$2.50	\$ 87,512.50
945.103	66	FT	Drilled Shaft Excavation 4.0 Foot Diameter	\$340.00	\$ 22,440.00
945.202	20	FT	Rock Socket Excavation 3.5 Foot Diameter	\$2,230.00	\$ 44,600.00
945.303	15	FT	Obstruction Excavation 4.0 Foot Diameter	\$750.00	\$ 11,250.00
945.502	20	FT	Drilled Shaft 3.5 Foot Diameter	\$400.00	\$ 8,000.00
945.503	70	FT	Drilled Shaft 4.0 Foot Diameter	\$500.00	\$ 35,000.00
945.71	85	FT	Cross Hole Sonic Testing Access Pipes	\$11.00	\$ 935.00
945.72	2	EA	Cross Hole Sonic Test	\$1,340.00	\$ 2,680.00
950.1	1	LS	Temporary Shoring	\$100,000.00	\$ 100,000.00
960.1	8,200	LB	Structural Steel - Coated Steel	\$4.75	\$ 38,950.00
965.	404	SY	Membrane Waterproofing For Bridge Decks	\$30.00	\$ 12,120.00
991.1	1	LS	Control Of Water - Structure No. _____	\$20,000.00	\$ 20,000.00
995.01	1	LS	Bridge Structure, Bridge No. A-02-014 (A5T)	\$900,000.00	\$ 900,000.00
995.011	1	LS	Culvert Structure, Culvert No. _____	\$40,000.00	\$ 40,000.00
996.31	2,430	SY	Mechanically Stabilized Earth Wall	\$500.00	\$ 1,215,000.00
996.330	30	DAY	MSE Wall Manufacturer's Representative	\$350.00	\$ 10,500.00
996.4	3,150	SF	Prefabricated Concrete Modular Gravity Wall	\$65.00	\$ 204,750.00
			TOTAL		\$8,591,758.91
			Plus 5% Construction Engineering (MassDOT)		\$429,587.95
			Plus 10% Construction Contingency (MassDOT)		\$859,175.89
			Plus Traffic Police		\$10,000.00
			Plus Utility Relocation Reimbursement (Estimated)		\$100,000
			Estimate		\$9,990,522.74

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Item Number	Description
100.01	Schedule Of Operations - Fixed Price \$67,500
101.	Clearing And Grubbing
102.51	Individual Tree Protection
102.52	Temporary Tree Protection Fence
120.1	Unclassified Excavation
123.	Muck Excavation
127.12	Substructure Demolition
129.	Pavement Milling
129.5	Track Excavation
140.	Bridge Excavation
141.	Class A Trench Excavation
141.1	Test Pit For Exploration
144.	Class B Rock Excavation
150.	Ordinary Borrow
150.1	Special Borrow
151.	Gravel Borrow
151.2	Gravel Borrow For Backfilling Structures And Pipes
156.	Crushed Stone
156.1	Crushed Stone For Bridge Foundations
170.	Fine Grading And Compacting
180.1	Health And Safety Plan
180.2	Implementation Of Health And Safety Plan
180.3	Personnel Protection Level C Upgrade
180.4	Monitoring/Handling And Stockpiling Of Contaminated Soils
180.5	Licensed Site Professional
180.6	Miscellaneous Soils Testing
181.11	Disposal Of Unregulated Soil
181.12	Disposal Of Regulated Soil - In-State Facility
181.13	Disposal Of Regulated Soil - Out-Of-State Facility
181.14	Disposal Of Hazardous Waste
181.2	Battery Well And Signal Box Remove And Discard
183.1	Treatment Of Contaminated Groundwater
183.2	Disposal Of Granular Activated Carbon
184.1	Disposal Of Treated Wood Products
189.2	Abandonment Of Septic System
202.	Manhole
205.	Leaching Basin
238.06	6 Inch Ductile Iron Pipe
238.1	10 Inch Ductile Iron Pipe
238.12	12 Inch Ductile Iron Pipe
241.12	12 Inch Reinforced Concrete Pipe
243.15	15 Inch Reinforced Concrete Pipe Class Iv
252.08	8 Inch Corrugated Plastic (Polyethylene) Pipe
252.12	12 Inch Corrugated Plastic (Polyethylene) Pipe
252.15	15 Inch Corrugated Plastic (Polyethylene) Pipe
258.	Stone For Pipe Ends
302.16	16 Inch Ductile Iron Water Pipe (Rubber Gasket)
309.	Ductile Iron Fittings For Water Pipe
402.	Dense Graded Crushed Stone For Sub-Base
431.1	High Early Strength Cement Concrete Base Course
440.	Calcium Chloride For Roadway Dust Control
443.	Water For Roadway Dust Control
450.9	Contractor Quality Control
451.	HMA For Patching
452.	Asphalt Emulsion For Tack Coat

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453.	HMA Joint Sealant
455.23	Superpave Surface Course - 12.5 (SSC - 12.5)
455.31	Superpave Intermediate Course - 12.5 (SIC - 12.5)
455.32	Superpave Intermediate Course - 19.0 (SIC - 19.0)
455.42	Superpave Base Course - 37.5 (SBC - 37.5)
455.61	Superpave Bridge Surface Course - 12.5 (SSC-B - 12.5)
455.71	Superpave Bridge Protective Course . 12.5 (SPC-B - 12.5)
482.31	Sawing & Sealing Joints In Asphalt Pavement At Bridges
506.	Granite Curb Type VB - Straight
506.1	Granite Curb Type VB - Curved
509.	Granite Transition Curb For Wheelchair Ramps - Straight
509.1	Granite Transition Curb For Wheelchair Ramps - Curved
511.1	Granite Edging Type SB - Straight
512.1	Granite Edging Type SB (Radius 10 Feet Or Less)
570.3	Hot Mix Asphalt Curb Type 3
594.	Curb Removed And Discarded
620.2	Steel W Beam Highway Guard (Single Faced) - Rub Rail
627.1	Steel W Beam Terminal Section (Single Faced)
639.	Privacy Screen
645.196	96 Inch Chain Link Fence (PTR) Vinyl Coated (Line Post Opt.)
655.01	Timber Rail Fence
655.02	Timber Rail Fence On Bridge
655.03	Timber Rail Post - 54" Tall
656.	Remove and Reset Electric Gate and Equipment
660.01	Railings
665.	Chain Link Fence Removed And Stacked
665.3	72 Inch Stockade Fence
667.	Chain Link Fence Gate W/Gate Posts Removed & Stacked
668.	Chain Link Fence Gate W/Gate Posts Removed & Reset
669.	Fence Removed And Stacked
670.	Fence Removed And Reset
673.	Steel Pipe Access Gate
685.	Stone Masonry Wall In Cement Mortar
690.1	Stone Masonry Wall Removed And Rebuilt Dry
690.2	Granite Headwall Removed and Rebuilt in Cement Mortar
690.3	Granite Slab Culvert Removed and Rebuilt in Cement Mortar
691.01	Landscape Boulder
691.1	Landscape Boulder Removed and Reset
699.	Filter Strip
701.	Cement Concrete Sidewalk
701.1	Cement Concrete Sidewalk At Driveways
701.2	Cement Concrete Wheelchair Ramp
701.3	Stamped Cement Concrete Island
702.	Hot Mix Asphalt Walk Surface
703.	Hot Mix Asphalt Driveway
704.2	Stone Dust
706.38	Granite Pier
707.1	Park Bench
707.15	Park Bench Removed And Reset
707.7	Display Board
707.81	Removable Bollard
707.9	Bicycle Rack
710.8	Granite Marker
714.2	Mile Marker Removed and Reset
714.3	Railroad Signal Pole Removed and Reset

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item Number	Description
714.4	Whistle Post Removed and Reset
719.	Track Switch Removed and Reset
734.2	Sign - Interpretive - NPS Standard
740.	Engineers Field Office And Equipment (Type A)
748.	Mobilization
751.7	Compost Topsoil
754.2	Turtle Protection Plan
755.3	Non-Tidal Wetland Mitigation Areas
755.7	Wetland Specialist
756.	NPDES Stormwater Pollution Prevention Plan
765.	Seeding
765.15	Seeding - Steep Slope Mix
765.4	NHESP Restoration Area Seed Mix
765.5	Bioswale Seed Mix
767.12	Compost Filter Tubes
767.2	Hay Mulch
767.9	Matting For Erosion Control
769.	Pavement Milling Mulch Under Guard Rail
772.366	Fir - Canaan 8-10 Feet
773.438	Pine - White 8-10 Feet
776.551	Maple - Red - 'October Glory' 3-3.5 Inch Caliper
782.538	Redbud - Eastern 8-10 Feet Multi-stem
783.05	Robin Hill Serviceberry 3-3.5 Inch Caliper
783.541	Yellowwood 3-3.5 Inch Caliper
785.183	Boxwood - Common 3-4 Feet
785.733	Inkberry - Compact 24-30 Inch
786.671	Mountain Laurel 24-30 Inch
789.8	Chokeberry - Red 3-4 Feet
790.133	Coralberry Shrub-Chenault 2-3 Feet
791.313	Fothergilla - Dwarf 18-24 Inch Spread
794.322	Sumac Shrub - Fragrant 18-24 Inch
794.731	Summersweet Shrub 18-24 Inch
795.053	Viburnum - Highbush Cranberry 3-4 Feet
795.153	Winterberry - Male 24-30 Inch
795.157	Winterberry - Female 24-30 Inch
804.3	3 Inch Electrical Conduit Type NM - Plastic -(UL)
811.31	Pull Box 12 X 12 Inches - Sd2.031
816.01	Traffic Signal Reconstruction Location No. 1
816.8	Traffic Control Signal Removed And Stacked
824.01	Rectangular Rapid-Flash Beacons, Location No. 1
824.02	Rectangular Rapid-Flash Beacons, Location No. 2
824.03	Rectangular Rapid-Flash Beacons, Location No. 3
824.04	Rectangular Rapid-Flash Beacons, Location No. 4
824.05	Rectangular Rapid-Flash Beacons, Location No. 5
832.	Warning-Regulatory And Route Marker - Alum. Panel (Type A)
832.1	Trail Rules Sign
832.2	NARA Park Rules Sign
833.5	Demountable ReflectORIZED Delineator - Guard Rail
833.7	Delineation For Guard Rail Termini
847.1	Sign Sup (N/Guide)+Rte Mkr W/1 Brkway Post Assembly - Steel
850.41	Roadway Flagger
852.	Safety Signing For Traffic Management
853.1	Portable Breakaway Barricade Type III
854.016	Temporary Paving Markings - 6 Inch (Painted)
854.1	Pavement Marking Removal

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item Number	Description
856.	Arrow Board
859.	Reflectorized Drum
860.12	12 Inch Reflectorized White Line (Painted)
861.04	4 Inch Reflectorized Yellow Line (Painted)
864.04	Pavement Arrows And Legends Refl. White (Thermoplastic)
865.1	Cross Walks And Stop Lines Refl. White (Thermoplastic)
866.04	4 Inch Reflectorized White Line (Thermoplastic)
866.06	6 Inch Reflectorized White Line (Thermoplastic)
866.12	12 Inch Reflectorized White Line (Thermoplastic)
867.04	4 Inch Reflectorized Yellow Line (Thermoplastic)
867.06	6 Inch Reflectorized Yellow Line (Thermoplastic)
874.	Street Name Sign
874.45	Traffic Sign Removed and Discarded
874.75	Miscellaneous Sign Removed And Reset
880.1	Relocation of Powers Gallery Electrical Outlet
901.	4000 Psi, 1.5 In., 565 Cement Concrete
903.	3000 Psi, 1.5 In., 470 Cement Concrete
904.4	4000 Psi, 3/4 In., 585 Hp Cement Concrete
910.	Steel Reinforcement For Structures
945.103	Drilled Shaft Excavation 4.0 Foot Diameter
945.202	Rock Socket Excavation 3.5 Foot Diameter
945.303	Obstruction Excavation 4.0 Foot Diameter
945.502	Drilled Shaft 3.5 Foot Diameter
945.503	Drilled Shaft 4.0 Foot Diameter
945.71	Cross Hole Sonic Testing Access Pipes
945.72	Cross Hole Sonic Test
950.1	Temporary Shoring
960.1	Structural Steel - Coated Steel
965.	Membrane Waterproofing For Bridge Decks
991.1	Control Of Water - Structure No. _____
995.01	Bridge Structure, Bridge No. A-02-014 (A5T)
995.011	Culvert Structure, Culvert No. _____
996.31	Mechanically Stabilized Earth Wall
996.33	MSE Wall Manufacturer's Representative
996.4	Prefabricated Concrete Modular Gravity Wall

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
12+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
12+50		0.00			0.00		
	50		3.59	179.25		0.00	0.00
13+00		7.17			0.00		
	50		13.64	682.00		0.00	0.00
13+50		20.11			0.00		
	50		16.74	837.00		0.10	5.00
14+00		13.37			0.20		
	50		17.59	879.50		0.10	5.00
14+50		21.81			0.00		
	50		24.01	1200.25		0.00	0.00
15+00		26.20			0.00		
	50		27.38	1368.75		0.00	0.00
15+50		28.55			0.00		
	50		26.98	1349.00		0.00	0.00
16+00		25.41			0.00		
	50		24.50	1225.00		0.00	0.00
16+50		23.59			0.00		
	50		23.53	1176.25		0.00	0.00
17+00		23.46			0.00		
	50		24.52	1225.75		0.00	0.00
17+50		25.57			0.00		
	50		24.32	1216.00		0.00	0.00
18+00		23.07			0.00		
	50		16.84	842.00		0.08	4.00
18+50		10.61			0.16		
	50		5.44	272.00		3.31	165.50
19+00		0.27			6.46		
	50		0.32	15.75		8.49	424.25
19+50		0.36			10.51		
	50		0.18	9.00		13.03	651.50
20+00		0.00			15.55		
	50		0.00	0.00		12.82	640.75
20+50		0.00			10.08		
	50		0.03	1.50		7.88	394.00
21+00		0.06			5.68		
	50		0.46	23.00		4.96	247.75
21+50		0.86			4.23		
	50		0.96	48.00		3.56	178.00
22+00		1.06			2.89		
	50		2.29	114.50		1.45	72.25
22+50		3.52			0.00		
	50		7.94	396.75		0.00	0.00
23+00		12.35			0.00		
	50		12.68	634.00		0.00	0.00
23+50		13.01			0.00		
	50		12.73	636.50		0.00	0.00

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
24+00		12.45			0.00		
	50		13.95	697.25		0.00	0.00
24+50		15.44			0.00		
	50		16.51	825.50		0.00	0.00
25+00		17.58			0.00		
	50		20.29	1014.25		0.00	0.00
25+50		22.99			0.00		
	50		25.21	1260.25		0.00	0.00
26+00		27.42			0.00		
	50		30.00	1499.75		0.00	0.00
26+50		32.57			0.00		
	50		33.04	1651.75		0.00	0.00
27+00		33.50			0.00		
	50		33.03	1651.50		0.00	0.00
27+50		32.56			0.00		
	50		35.31	1765.50		0.00	0.00
28+00		38.06			0.00		
	50		36.86	1842.75		0.00	0.00
28+50		35.65			0.00		
	50		36.76	1837.75		0.00	0.00
29+00		37.86			0.00		
	50		106.19	5309.25		0.00	0.00
29+50		174.51			0.00		
	50		118.05	5902.50		0.00	0.00
30+00		61.59			0.00		
	50		49.52	2476.00		0.00	0.00
30+50		37.45			0.00		
	50		33.66	1682.75		0.00	0.00
31+00		29.86			0.00		
	50		29.81	1490.25		0.00	0.00
31+50		29.75			0.00		
	50		28.66	1433.00		0.00	0.00
32+00		27.57			0.00		
	50		26.73	1336.25		0.00	0.00
32+50		25.88			0.00		
	50		26.32	1316.00		0.00	0.00
33+00		26.76			0.00		
	50		28.07	1403.50		0.00	0.00
33+50		29.38			0.00		
	50		28.48	1423.75		0.00	0.00
34+00		27.57			0.00		
	50		27.58	1378.75		0.00	0.00
34+50		27.58			0.00		
	50		29.06	1452.75		0.00	0.00
35+00		30.53			0.00		
	50		30.76	1538.00		0.00	0.00
35+50		30.99			0.00		
	50		30.59	1529.50		0.00	0.00
36+00		30.19			0.00		

GPI Calculations

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Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		28.21	1410.50		0.00	0.00
36+50		26.23			0.00		
	50		25.91	1295.50		0.00	0.00
37+00		25.59			0.00		
	50		25.56	1278.00		0.00	0.00
37+50		25.53			0.00		
	50		24.52	1225.75		0.00	0.00
38+00		23.50			0.00		
	50		21.50	1075.00		0.00	0.00
38+50		19.50			0.00		
	50		20.24	1011.75		0.00	0.00
39+00		20.97			0.00		
	50		22.40	1119.75		0.00	0.00
39+50		23.82			0.00		
	50		23.37	1168.50		0.00	0.00
40+00		22.92			0.00		
	50		22.23	1111.25		0.00	0.00
40+50		21.53			0.00		
	50		21.50	1074.75		0.00	0.00
41+00		21.46			0.00		
	50		20.86	1043.00		0.00	0.00
41+50		20.26			0.00		
	50		20.10	1005.00		0.00	0.00
42+00		19.94			0.00		
	50		18.58	928.75		0.00	0.00
42+50		17.21			0.00		
	50		17.62	881.00		0.00	0.00
43+00		18.03			0.00		
	50		20.60	1029.75		0.00	0.00
43+50		23.16			0.00		
	50		24.41	1220.50		0.00	0.00
44+00		25.66			0.00		
	50		32.23	1611.50		0.00	0.00
44+50		38.80			0.00		
	50		49.49	2474.50		0.00	0.00
45+00		60.18			0.00		
	50		52.44	2622.00		0.00	0.00
45+50		44.70			0.00		
	50		39.44	1972.00		0.00	0.00
46+00		34.18			0.00		
	50		30.21	1510.25		0.00	0.00
46+50		26.23			0.00		
	43		37.03	1592.08		1.85	79.34
46+93		47.82			3.69		
	7		49.73	348.08		1.85	12.95
47+00		51.63			0.01		
	50		51.97	2598.25		0.01	0.25
47+50		52.30			0.00		
	1		51.79	51.79		0.00	0.00

GPI Calculations

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BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
47+51		51.27			0.00		
	49		29.32	1436.44		1.50	73.50
48+00		7.36			3.00		
	50		4.08	204.00		7.30	365.00
48+50		0.80			11.60		
	50		0.50	24.75		11.02	551.00
49+00		0.19			10.44		
	50		0.65	32.25		9.15	457.25
49+50		1.10			7.85		
	50		1.25	62.25		4.90	244.75
50+00		1.39			1.94		
	50		5.99	299.50		0.97	48.50
50+50		10.59			0.00		
	50		11.66	582.75		0.00	0.00
51+00		12.72			0.00		
	50		14.96	747.75		0.05	2.50
51+50		17.19			0.10		
	50		18.99	949.25		0.05	2.50
52+00		20.78			0.00		
	50		21.70	1084.75		0.00	0.00
52+50		22.61			0.00		
	50		25.49	1274.25		0.00	0.00
53+00		28.36			0.00		
	50		29.71	1485.50		0.00	0.00
53+50		31.06			0.00		
	50		26.32	1315.75		0.00	0.00
54+00		21.57			0.00		
	50		21.56	1077.75		0.00	0.00
54+50		21.54			0.00		
	50		18.18	908.75		0.00	0.00
55+00		14.81			0.00		
	50		12.79	639.25		0.03	1.25
55+50		10.76			0.05		
	50		9.47	473.50		0.42	20.75
56+00		8.18			0.78		
	50		5.91	295.50		0.62	30.75
56+50		3.64			0.45		
	50		2.89	144.50		0.64	31.75
57+00		2.14			0.82		
	50		1.69	84.25		1.05	52.25
57+50		1.23			1.27		
	50		1.12	55.75		1.41	70.50
58+00		1.00			1.55		
	50		0.70	35.00		3.02	150.75
58+50		0.40			4.48		
	50		0.20	10.00		6.94	346.75
59+00		0.00			9.39		
	50		0.00	0.00		11.12	555.75
59+50		0.00			12.84		

GPI Calculations

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Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		0.00	0.00		12.27	613.25
60+00		0.00			11.69		
	50		0.00	0.00		9.03	451.50
60+50		0.00			6.37		
	50		0.27	13.25		3.41	170.50
61+00		0.53			0.45		
	50		3.35	167.25		0.23	11.25
61+50		6.16			0.00		
	50		10.58	528.75		0.00	0.00
62+00		14.99			0.00		
	50		14.99	749.25		0.00	0.00
62+50		14.98			0.00		
	50		16.16	808.00		0.00	0.00
63+00		17.34			0.00		
	50		17.96	897.75		0.00	0.00
63+50		18.57			0.00		
	50		20.28	1014.00		0.00	0.00
64+00		21.99			0.00		
	50		21.34	1067.00		0.00	0.00
64+50		20.69			0.00		
	50		16.34	817.00		0.00	0.00
65+00		11.99			0.00		
	47		7.97	374.36		3.90	183.30
65+47		3.94			7.80		
	3		1.97	5.91		3.90	11.70
65+50		0.00			0.00		
	24		2.00	48.00		1.69	40.44
65+74		4.00			3.37		
	26		4.93	128.18		1.83	47.45
66+00		5.86			0.28		
	50		8.41	420.25		0.14	7.00
66+50		10.95			0.00		
	50		13.21	660.25		0.00	0.00
67+00		15.46			0.00		
	50		11.38	569.00		0.00	0.00
67+50		7.30			0.00		
	45		23.00	1034.78		0.00	0.00
67+95		38.69			0.00		
	5		38.38	191.88		0.00	0.00
68+00		38.06			0.00		
	17		31.72	539.16		0.00	0.00
68+17		25.37			0.00		
	33		16.42	541.86		2.36	77.72
68+50		7.47			4.71		
	50		5.24	262.00		11.27	563.50
69+00		3.01			17.83		
	50		1.52	75.75		27.34	1367.00
69+50		0.02			36.85		
	50		0.02	1.00		37.49	1874.25

GPI Calculations

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BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
70+00		0.02			38.12		
	50		0.02	0.75		35.19	1759.50
70+50		0.01	0.01	0.25	32.26	29.94	1497.00
	50						
71+00		0.00	0.00	0.00	27.62	24.05	1202.50
	50						
71+50		0.00	0.03	1.25	20.48	17.17	858.50
	50						
72+00		0.05	0.11	5.25	13.86	11.81	590.25
	50						
72+50		0.16	0.43	21.25	9.75	6.68	334.00
	50						
73+00		0.69	2.46	122.75	3.61	1.81	90.25
	50						
73+50		4.22	6.20	309.75	0.00	0.00	0.00
	50						
74+00		8.17	10.77	538.25	0.00	0.00	0.00
	50						
74+50		13.36	12.53	626.50	0.00	0.00	0.00
	50						
75+00		11.70	11.08	554.00	0.00	0.00	0.00
	50						
75+50		10.46	8.27	413.50	0.00	0.07	3.50
	50						
76+00		6.08	5.19	259.25	0.14	0.48	23.75
	50						
76+50		4.29	5.40	269.75	0.81	0.95	47.50
	50						
77+00		6.50	8.63	431.25	1.09	2.67	133.25
	50						
77+50		10.75	12.16	607.75	4.24	3.39	169.25
	50						
78+00		13.56	13.67	683.25	2.53	1.65	82.25
	50						
78+50		13.77	11.08	553.75	0.76	0.38	19.00
	50						
79+00		8.38	7.29	364.50	0.00	3.38	168.75
	50						
79+50		6.20	10.97	548.50	6.75	6.16	307.75
	50						
80+00		15.74	13.52	676.00	5.56	3.44	172.00
	50						
80+50		11.30	10.26	512.75	1.32	0.75	37.50
	50						
81+00		9.21	10.84	542.00	0.18	0.09	4.50
	50						
81+50		12.47	11.63	581.25	0.00	0.00	0.00
	50						
82+00		10.78			0.00		

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		13.08	653.75		0.00	0.00
82+50		15.37			0.00		
	50		17.01	850.25		0.00	0.00
83+00		18.64			0.00		
	50		22.79	1139.50		0.00	0.00
83+50		26.94			0.00		
	50		16.82	841.00		0.32	16.00
84+00		6.70			0.64		
	50		3.35	167.50		4.37	218.50
84+50		0.00			8.10		
	50		0.60	29.75		9.49	474.25
85+00		1.19			10.87		
	50		33.34	1666.75		5.56	277.75
85+50		65.48			0.24		
	50		78.93	3946.25		0.12	6.00
86+00		92.37			0.00		
	50		76.85	3842.25		0.00	0.00
86+50		61.32			0.00		
	50		49.22	2461.00		0.00	0.00
87+00		37.12			0.00		
	50		39.00	1950.00		0.00	0.00
87+50		40.88			0.00		
	50		38.01	1900.25		0.00	0.00
88+00		35.13			0.00		
	50		38.40	1920.00		0.00	0.00
88+50		41.67			0.00		
	50		24.01	1200.25		2.34	117.00
89+00		6.34			4.68		
	50		36.27	1813.25		2.34	117.00
89+50		66.19			0.00		
	50		35.70	1784.75		0.03	1.25
90+00		5.20			0.05		
	50		11.11	555.25		0.03	1.25
90+50		17.01			0.00		
	50		9.61	480.50		12.74	636.75
91+00		2.21			25.47		
	50		26.96	1347.75		15.41	770.25
91+50		51.70			5.34		
	50		62.34	3117.00		3.13	156.50
92+00		72.98			0.92		
	50		42.91	2145.25		0.46	23.00
92+50		12.83			0.00		
	50		33.07	1653.50		0.00	0.00
93+00		53.31			0.00		
	50		29.78	1488.75		8.15	407.25
93+50		6.24			16.29		
	50		3.16	157.75		36.14	1806.75
94+00		0.07			55.98		
	50		5.38	268.75		30.41	1520.25

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
94+50		10.68			4.83		
	50		12.62	630.75		2.42	120.75
95+00		14.55			0.00		
	50		17.47	873.50		0.06	2.75
95+50		20.39			0.11		
	50		17.96	897.75		1.74	87.00
96+00		15.52			3.37		
	50		11.11	555.50		3.45	172.25
96+50		6.70			3.52		
	50		6.66	333.00		2.15	107.25
97+00		6.62			0.77		
	50		7.31	365.25		0.39	19.25
97+50		7.99			0.00		
	50		9.67	483.25		0.00	0.00
98+00		11.34			0.00		
	50		14.51	725.25		0.00	0.00
98+50		17.67			0.00		
	50		11.67	583.50		2.79	139.25
99+00		5.67			5.57		
	50		9.14	457.00		2.80	140.00
99+50		12.61			0.03		
	50		10.50	525.00		2.24	111.75
100+00		8.39			4.44		
	50		10.36	518.00		2.22	111.00
100+50		12.33			0.00		
	50		20.06	1003.00		0.00	0.00
101+00		27.79			0.00		
	50		15.81	790.50		2.41	120.25
101+50		3.83			4.81		
	50		12.94	646.75		2.41	120.25
102+00		22.04			0.00		
	50		80.04	4002.00		0.00	0.00
102+50		138.04			0.00		
	35		105.26	3660.94		0.00	0.00
103+25		72.48			0.00		
	25		42.61	1065.13		0.00	0.00
103+50		12.73			0.00		
	50		13.31	665.25		0.00	0.00
104+00		13.88			0.00		
	50		6.94	347.00		29.48	1474.00
104+50		0.00			58.96		
	50		0.00	0.00		31.98	1599.00
105+00		0.00			5.00		
	50		8.43	421.50		2.50	125.00
105+50		16.86			0.00		
	50		14.99	749.25		0.38	19.00
106+00		13.11			0.76		
	50		15.85	792.50		0.69	34.50
106+50		18.59			0.62		

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		17.29	864.50		0.56	27.75
107+00		15.99			0.49		
	50		21.48	1073.75		0.25	12.25
107+50		26.96			0.00		
	50		30.61	1530.50		0.00	0.00
108+00		34.26			0.00		
	50		35.46	1772.75		0.00	0.00
108+50		36.65			0.00		
	50		40.48	2023.75		0.00	0.00
109+00		44.30			0.00		
	50		41.57	2078.50		0.00	0.00
109+50		38.84			0.00		
	50		30.05	1502.50		0.00	0.00
110+00		21.26			0.00		
	50		16.04	801.75		0.90	44.75
110+50		10.81			1.79		
	50		8.28	413.75		1.47	73.25
111+00		5.74			1.14		
	50		3.92	195.75		1.61	80.50
111+50		2.09			2.08		
	50		3.18	159.00		1.07	53.25
112+00		4.27			0.05		
	50		4.87	243.25		0.03	1.25
112+50		5.46			0.00		
	50		11.17	558.25		0.00	0.00
113+00		16.87			0.00		
	35		13.14	459.73		0.82	28.53
113+35		9.40			1.63		
	15		4.70	70.50		7.44	111.53
113+50		0.00			13.24		
	16		7.81	124.96		6.62	105.92
113+66		15.62			0.00		
	34		12.91	438.77		0.00	0.00
114+00		10.19			0.00		
	50		19.55	977.25		0.13	6.50
114+50		28.90			0.26		
	50		20.67	1033.50		0.33	16.50
115+00		12.44			0.40		
	50		12.08	603.75		0.21	10.50
115+50		11.71			0.02		
	50		13.37	668.25		0.12	6.00
116+00		15.02			0.22		
	50		10.08	503.75		0.42	20.75
116+50		5.13			0.61		
	50		2.67	133.50		3.56	177.75
117+00		0.21			6.50		
	50		0.57	28.25		8.33	416.50
117+50		0.92			10.16		
	50		4.20	210.00		11.60	580.00

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
118+00		7.48			13.04		
	50		4.11	205.25		15.80	789.75
118+50		0.73			18.55		
	50		0.51	25.50		22.22	1110.75
119+00		0.29			25.88		
	50		1.93	96.25		19.50	974.75
119+50		3.56			13.11		
	50		6.05	302.25		11.10	555.00
120+00		8.53			9.09		
	50		4.47	223.50		11.34	567.00
120+50		0.41			13.59		
	50		0.57	28.25		13.02	651.00
121+00		0.72			12.45		
	50		0.62	30.75		11.57	578.25
121+50		0.51			10.68		
	50		0.27	13.50		9.87	493.25
122+00		0.03			9.05		
	50		0.03	1.50		9.23	461.50
122+50		0.03			9.41		
	50		0.02	0.75		9.91	495.50
123+00		0.00			10.41		
	50		0.00	0.00		11.30	564.75
123+50		0.00			12.18		
	50		0.00	0.00		16.05	802.50
124+00		0.00			19.92		
	50		0.00	0.00		22.25	1112.50
124+50		0.00			24.58		
	50		0.00	0.00		25.09	1254.25
125+00		0.00			25.59		
	50		0.10	5.00		23.62	1180.75
125+50		0.20			21.64		
	50		0.20	9.75		20.45	1022.25
126+00		0.19			19.25		
	50		0.19	9.50		17.58	878.75
126+50		0.19			15.90		
	50		0.23	11.50		12.57	628.50
127+00		0.27			9.24		
	50		0.43	21.50		7.38	368.75
127+50		0.59			5.51		
	50		1.09	54.25		4.60	229.75
128+00		1.58			3.68		
	50		2.36	117.75		3.04	152.00
128+50		3.13			2.40		
	50		2.85	142.50		1.81	90.25
129+00		2.57			1.21		
	50		3.62	180.75		1.92	95.75
129+50		4.66			2.62		
	50		3.33	166.25		14.03	701.25
130+00		1.99			25.43		

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		2.27	113.25		18.26	912.75
130+50		2.54			11.08		
	50		2.67	133.50		10.28	513.75
131+00		2.80			9.47		
	50		5.39	269.50		6.19	309.50
131+50		7.98			2.91		
	50		8.73	436.25		1.65	82.25
132+00		9.47			0.38		
	50		13.00	650.00		0.19	9.50
132+50		16.53			0.00		
	50		13.97	698.25		0.23	11.50
133+00		11.40			0.46		
	50		19.35	967.50		0.24	11.75
133+50		27.30			0.01		
	50		20.92	1046.00		0.01	0.25
134+00		14.54			0.00		
	50		17.05	852.50		0.00	0.00
134+50		19.56			0.00		
	50		18.93	946.50		0.03	1.50
135+00		18.30			0.06		
	50		16.43	821.50		1.53	76.25
135+50		14.56			2.99		
	50		12.52	625.75		1.94	97.00
136+00		10.47			0.89		
	50		10.04	502.00		0.84	41.75
136+50		9.61			0.78		
	50		9.27	463.50		0.54	26.75
137+00		8.93			0.29		
	50		9.66	483.00		0.15	7.25
137+50		10.39			0.00		
	50		9.73	486.50		0.47	23.50
138+00		9.07			0.94		
	50		9.26	463.00		2.67	133.25
138+50		9.45			4.39		
	50		16.78	839.00		2.20	109.75
139+00		24.11			0.00		
	50		27.96	1398.00		0.00	0.00
139+50		31.81			0.00		
	50		38.96	1947.75		0.00	0.00
140+00		46.10			0.00		
	50		34.30	1714.75		0.31	15.25
140+50		22.49			0.61		
	50		22.09	1104.50		0.31	15.25
141+00		21.69			0.00		
	50		20.04	1001.75		0.44	22.00
141+50		18.38			0.88		
	50		15.40	770.00		1.56	78.00
142+00		12.42			2.24		
	50		11.34	566.75		3.55	177.50

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
142+50		10.25			4.86		
	50		12.31	615.50		2.43	121.50
143+00		14.37			0.00		
	50		14.73	736.25		0.00	0.00
143+50		15.08			0.00		
	50		13.00	650.00		7.08	354.00
144+00		10.92			14.16		
	50		9.50	474.75		7.08	354.00
144+50		8.07			0.00		
	50		7.15	357.50		0.30	15.00
145+00		6.23			0.60		
	50		4.16	208.00		6.56	328.00
145+50		2.09			12.52		
	50		1.62	81.00		13.30	665.00
146+00		1.15			14.08		
	50		8.46	423.00		9.44	472.00
146+50		15.77			4.80		
	50		15.94	797.00		4.99	249.50
147+00		16.11			5.18		
	50		14.02	701.00		7.83	391.50
147+50		11.93			10.48		
	50		10.30	515.00		10.11	505.50
148+00		8.67			9.74		
	50		6.77	338.25		8.98	449.00
148+50		4.86			8.22		
	50		5.34	266.75		9.15	457.50
149+00		5.81			10.08		
	50		5.55	277.50		7.91	395.25
149+50		5.29			5.73		
	50		7.21	360.50		6.55	327.50
150+00		9.13			7.37		
	50		11.07	553.25		4.44	221.75
150+50		13.00			1.50		
	50		12.49	624.25		2.89	144.25
151+00		11.97			4.27		
	50		10.72	535.75		2.91	145.25
151+50		9.46			1.54		
	50		9.99	499.50		2.29	114.25
152+00		10.52			3.03		
	50		11.06	552.75		4.06	202.75
152+50		11.59			5.08		
	50		12.60	630.00		4.53	226.25
153+00		13.61			3.97		
	50		14.52	726.00		3.74	187.00
153+50		15.43			3.51		
	50		12.98	648.75		3.09	154.25
154+00		10.52			2.66		
	50		9.37	468.50		1.33	66.50
154+50		8.22			0.00		

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		7.32	366.00		0.00	0.00
155+00		6.42			0.00		
	50		4.60	230.00		0.75	37.50
155+50		2.78			1.50		
	50		1.78	88.75		2.45	122.50
156+00		0.77			3.40		
	50		0.42	21.00		4.70	235.00
156+50		0.07			6.00		
	50		0.04	1.75		6.75	337.50
157+00		0.00			7.50		
	50		0.00	0.00		17.87	893.25
157+50		0.00			28.23		
	50		0.00	0.00		30.37	1518.50
158+00		0.00			32.51		
	50		0.00	0.00		33.44	1672.00
158+50		0.00			34.37		
	50		0.00	0.00		32.10	1604.75
159+00		0.00			29.82		
	50		0.00	0.00		24.86	1243.00
159+50		0.00			19.90		
	50		0.12	5.75		17.44	871.75
160+00		0.23			14.97		
	50		0.50	25.00		14.96	747.75
160+50		0.77			14.94		
	50		2.23	111.25		11.47	573.50
161+00		3.68			8.00		
	50		3.52	176.00		6.48	324.00
161+50		3.36			4.96		
	50		4.17	208.25		3.39	169.50
162+00		4.97			1.82		
	50		4.71	235.25		2.39	119.50
162+50		4.44			2.96		
	50		5.85	292.25		1.58	79.00
163+00		7.25			0.20		
	50		11.38	568.75		0.10	5.00
163+50		15.50			0.00		
	50		20.62	1031.00		0.00	0.00
164+00		25.74			0.00		
	50		18.42	920.75		0.00	0.00
164+50		11.09			0.00		
	50		5.62	280.75		9.45	472.25
165+00		0.14			18.89		
	50		0.07	3.50		23.60	1179.75
165+50		0.00			28.30		
	50		0.00	0.00		14.15	707.50
166+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
166+50		0.00			0.00		
	50		0.00	0.00		0.00	0.00

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
167+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
167+50		0.00			0.00		
	43250		0.00	0.00		0.00	0.00
600+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
600+50		0.00			0.00		
	50		0.00	0.00		0.00	0.00
601+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
601+50		0.00			0.00		
	0		0.00	0.00		0.00	0.00
601+50		0.00			0.00		
	50		0.00	0.00		0.00	0.00
602+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
602+50		0.00			0.00		
	50		0.00	0.00		0.00	0.00
603+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
603+50		0.00			0.00		
	50		0.00	0.00		0.00	0.00
604+00		0.00			0.00		
	26		0.00	0.00		270.68	7002.49
172+00		0.00			541.36		
	50		0.00	0.00		486.31	24315.50
172+50		0.00			431.26		
	50		0.00	0.00		368.44	18421.75
173+00		0.00			305.61		
	50		0.00	0.00		254.64	12731.75
173+50		0.00			203.66		
	50		0.00	0.00		163.02	8151.00
174+00		0.00			122.38		
	50		0.00	0.00		94.71	4735.50
174+50		0.00			67.04		
	50		0.00	0.00		51.95	2597.25
175+00		0.00			36.85		
	50		0.00	0.00		31.62	1580.75
175+50		0.00			26.38		
	50		0.00	0.00		22.72	1135.75
176+00		0.00			19.05		
	50		0.00	0.00		16.47	823.25
176+50		0.00			13.88		
	50		0.02	0.75		10.21	510.50
177+00		0.03			6.54		
	50		1.65	82.50		4.17	208.50
177+50		3.27			1.80		
	50		5.22	261.00		0.97	48.25
178+00		7.17			0.13		

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		8.09	404.25		0.07	3.25
178+50		9.00			0.00		
	50		8.76	437.75		0.00	0.00
179+00		8.51			0.00		
	50		10.25	512.25		0.00	0.00
179+50		11.98			0.00		
	50		13.24	662.00		0.05	2.50
180+00		14.50			0.10		
	50		14.84	741.75		0.56	27.75
180+50		15.17			1.01		
	50		17.63	881.50		0.72	35.75
181+00		20.09			0.42		
	50		21.16	1057.75		0.21	10.50
181+50		22.22			0.00		
	50		25.07	1253.25		0.00	0.00
182+00		27.91			0.00		
	50		35.05	1752.50		0.00	0.00
182+50		42.19			0.00		
	50		45.42	2271.00		0.00	0.00
183+00		48.65			0.00		
	50		47.10	2355.00		0.00	0.00
183+50		45.55			0.00		
	50		43.15	2157.50		0.00	0.00
184+00		40.75			0.00		
	50		35.39	1769.50		0.00	0.00
184+50		30.03			0.00		
	50		26.39	1319.25		0.00	0.00
185+00		22.74			0.00		
	50		18.47	923.25		0.00	0.00
185+50		14.19			0.00		
	50		11.75	587.50		0.00	0.00
186+00		9.31			0.00		
	50		6.84	341.75		0.00	0.00
186+50		4.36			0.00		
	50		3.90	194.75		0.10	5.00
187+00		3.43			0.20		
	50		4.74	236.75		0.43	21.50
187+50		6.04			0.66		
	50		9.04	451.75		0.33	16.50
188+00		12.03			0.00		
	37		25.99	961.45		0.00	0.00
188+37		39.94			0.00		
	13		51.18	665.28		0.00	0.00
188+50		62.41			0.00		
	12		53.83	645.96		0.00	0.00
188+62		45.25			0.00		
	38		23.81	904.78		2.29	87.02
189+00		2.37			4.58		
	50		10.51	525.25		2.29	114.50

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
189+50		18.64			0.00		
	50		28.06	1402.75		0.00	0.00
190+00		37.47			0.00		
	50		31.79	1589.25		0.00	0.00
190+50		26.10			0.00		
	50		20.12	1005.75		0.21	10.50
191+00		14.13			0.42		
	47		14.04	659.88		0.21	9.87
191+47		13.95			0.00		
	3		6.98	20.93		0.00	0.00
191+50		0.00			0.00		
	49		4.82	235.94		16.25	796.25
191+99		9.63			32.50		
	1		10.23	10.23		35.18	35.18
192+00		10.82			37.86		
	50		12.02	601.00		18.93	946.50
192+50		13.22			0.00		
	50		15.38	769.00		0.00	0.00
193+00		17.54			0.00		
	50		19.00	950.00		0.00	0.00
193+50		20.46			0.00		
	50		22.02	1101.00		0.00	0.00
194+00		23.58			0.00		
	50		25.94	1296.75		0.00	0.00
194+50		28.29			0.00		
	50		25.23	1261.50		0.00	0.00
195+00		22.17			0.00		
	50		19.43	971.25		0.21	10.50
195+50		16.68			0.42		
	50		13.54	677.00		0.54	27.00
196+00		10.40			0.66		
	50		7.11	355.25		1.19	59.25
196+50		3.81			1.71		
	50		3.01	150.50		1.42	71.00
197+00		2.21			1.13		
	50		2.16	108.00		1.26	62.75
197+50		2.11			1.38		
	50		4.76	237.75		0.71	35.50
198+00		7.40			0.04		
	50		9.27	463.25		0.02	1.00
198+50		11.13			0.00		
	50		11.74	587.00		0.00	0.00
199+00		12.35			0.00		
	50		13.70	684.75		0.04	2.00
199+50		15.04			0.08		
	50		19.94	996.75		0.04	2.00
200+00		24.83			0.00		
	50		27.39	1369.50		0.00	0.00
200+50		29.95			0.00		

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		29.66	1482.75		0.00	0.00
201+00		29.36			0.00		
	50		26.99	1349.50		0.21	10.50
201+50		24.62			0.42		
	50		26.85	1342.25		0.79	39.25
202+00		29.07			1.15		
	50		24.79	1239.50		0.84	41.75
202+50		20.51			0.52		
	50		17.08	854.00		2.54	127.00
203+00		13.65			4.56		
	30		13.32	399.45		8.83	264.90
203+30		12.98			13.10		
	20		6.49	129.80		6.55	131.00
203+50		0.00			0.00		
	19		2.69	51.02		3.08	58.43
203+69		5.37			6.15		
	31		9.11	282.26		3.16	97.96
204+00		12.84			0.17		
	50		17.41	870.25		0.09	4.25
204+50		21.97			0.00		
	50		23.20	1160.00		0.00	0.00
205+00		24.43			0.00		
	50		19.10	955.00		0.00	0.00
205+50		13.77			0.00		
	50		17.09	854.25		0.00	0.00
206+00		20.40			0.00		
	50		21.27	1063.50		0.00	0.00
206+50		22.14			0.00		
	50		20.88	1043.75		0.00	0.00
207+00		19.61			0.00		
	50		20.18	1008.75		0.00	0.00
207+50		20.74			0.00		
	50		21.22	1060.75		0.00	0.00
208+00		21.69			0.00		
	50		20.80	1039.75		0.00	0.00
208+50		19.90			0.00		
	50		20.38	1018.75		0.00	0.00
209+00		20.85			0.00		
	50		23.85	1192.25		0.00	0.00
209+50		26.84			0.00		
	50		26.80	1339.75		0.00	0.00
210+00		26.75			0.00		
	50		25.38	1268.75		0.00	0.00
210+50		24.00			0.00		
	50		19.81	990.25		0.00	0.00
211+00		15.61			0.00		
	50		9.99	499.50		0.02	0.75
211+50		4.37			0.03		
	50		2.19	109.25		2.61	130.25

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
212+00		0.00			5.18		
	50		0.00	0.00		6.47	323.50
212+50		0.00			7.76		
	50		0.16	8.00		6.10	305.00
213+00		0.32			4.44		
	50		1.59	79.25		2.46	123.00
213+50		2.85			0.48		
	50		3.93	196.25		0.24	12.00
214+00		5.00			0.00		
	50		5.86	293.00		0.00	0.00
214+50		6.72			0.00		
	50		12.35	617.50		0.00	0.00
215+00		17.98			0.00		
	50		18.73	936.50		0.00	0.00
215+50		19.48			0.00		
	50		18.39	919.25		0.00	0.00
216+00		17.29			0.00		
	50		15.83	791.25		0.00	0.00
216+50		14.36			0.00		
	50		11.13	556.25		0.01	0.25
217+00		7.89			0.01		
	50		7.58	379.00		0.80	39.75
217+50		7.27			1.58		
	50		6.05	302.50		1.47	73.25
218+00		4.83			1.35		
	50		6.20	309.75		0.68	33.75
218+50		7.56			0.00		
	50		11.03	551.25		0.00	0.00
219+00		14.49			0.00		
	50		14.57	728.25		0.00	0.00
219+50		14.64			0.00		
	50		14.88	744.00		0.00	0.00
220+00		15.12			0.00		
	50		16.04	801.75		0.00	0.00
220+50		16.95			0.00		
	50		11.60	579.75		0.00	0.00
221+00		6.24			0.00		
	50		3.27	163.50		3.39	169.50
221+50		0.30			6.78		
	50		0.19	9.50		5.76	287.75
222+00		0.08			4.73		
	50		0.17	8.50		3.75	187.50
222+50		0.26			2.77		
	50		0.91	45.50		1.62	81.00
223+00		1.56			0.47		
	50		2.62	131.00		0.24	11.75
223+50		3.68			0.00		
	50		4.43	221.25		0.05	2.25
224+00		5.17			0.09		

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		6.55	327.50		0.05	2.25
224+50		7.93			0.00		
	50		10.61	530.50		0.00	0.00
225+00		13.29			0.00		
	50		14.49	724.50		0.00	0.00
225+50		15.69			0.00		
	50		15.07	753.25		0.01	0.50
226+00		14.44			0.02		
	50		7.96	397.75		3.55	177.25
226+50		1.47			7.07		
	50		1.51	75.25		7.55	377.50
227+00		1.54			8.03		
	50		1.17	58.25		7.11	355.25
227+50		0.79			6.18		
	50		3.50	174.75		3.42	171.00
228+00		6.20			0.66		
	50		9.67	483.25		0.34	17.00
228+50		13.13			0.02		
	50		12.78	638.75		0.59	29.50
229+00		12.42			1.16		
	50		10.41	520.25		0.59	29.50
229+50		8.39			0.02		
	50		7.38	368.75		0.72	35.75
230+00		6.36			1.41		
	50		3.67	183.25		4.76	238.00
230+50		0.97			8.11		
	50		1.11	55.25		8.60	429.75
231+00		1.24			9.08		
	50		0.93	46.25		6.01	300.25
231+50		0.61			2.93		
	50		1.70	85.00		2.04	101.75
232+00		2.79			1.14		
	50		6.24	311.75		0.57	28.50
232+50		9.68			0.00		
	50		19.86	993.00		0.00	0.00
233+00		30.04			0.00		
	50		29.42	1470.75		0.00	0.00
233+50		28.79			0.00		
	50		31.69	1584.50		0.00	0.00
234+00		34.59			0.00		
	50		24.95	1247.25		0.00	0.00
234+50		15.30			0.00		
	50		13.19	659.25		0.00	0.00
235+00		11.07			0.00		
	50		8.48	424.00		0.97	48.25
235+50		5.89			1.93		
	50		3.72	185.75		1.74	87.00
236+00		1.54			1.55		
	50		0.77	38.50		6.41	320.25

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
236+50		0.00			11.26		
	50		0.11	5.25		15.86	792.75
237+00		0.21			20.45		
	50		0.40	19.75		23.76	1188.00
237+50		0.58			27.07		
	50		2.76	137.75		28.58	1429.00
238+00		4.93			30.09		
	50		2.54	127.00		31.73	1586.25
238+50		0.15			33.36		
	50		0.12	6.00		31.00	1550.00
239+00		0.09			28.64		
	50		2.12	105.75		20.45	1022.25
239+50		4.14			12.25		
	50		11.47	573.25		9.50	475.00
240+00		18.79			6.75		
	50		9.61	480.50		6.09	304.25
240+50		0.43			5.42		
	50		1.17	58.25		4.72	236.00
241+00		1.90			4.02		
	50		2.51	125.25		2.69	134.50
241+50		3.11			1.36		
	50		3.73	186.50		1.17	58.25
242+00		4.35			0.97		
	50		4.33	216.50		0.93	46.50
242+50		4.31			0.89		
	50		6.44	322.00		0.45	22.25
243+00		8.57			0.00		
	50		8.59	429.25		0.03	1.50
243+50		8.60			0.06		
	50		8.99	449.50		0.03	1.50
244+00		9.38			0.00		
	50		8.31	415.50		3.80	190.00
244+50		7.24			7.60		
	50		5.43	271.50		4.76	237.75
245+00		3.62			1.91		
	50		4.99	249.50		0.96	47.75
245+50		6.36			0.00		
	50		9.51	475.25		0.12	5.75
246+00		12.65			0.23		
	50		14.92	746.00		0.12	5.75
246+50		17.19			0.00		
	50		15.38	769.00		0.00	0.00
247+00		13.57			0.00		
	50		8.63	431.50		0.60	29.75
247+50		3.69			1.19		
	50		12.27	613.50		0.60	29.75
248+00		20.85			0.00		
	50		19.20	959.75		2.50	125.00
248+50		17.54			5.00		

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
	50		9.05	452.50		6.25	312.50
249+00		0.56			7.50		
	50		2.52	126.00		3.91	195.50
249+50		4.48			0.32		
	50		4.45	222.25		0.76	38.00
250+00		4.41			1.20		
	50		5.81	290.25		0.72	35.75
250+50		7.20			0.23		
	50		10.19	509.50		0.21	10.50
251+00		13.18			0.19		
	50		14.42	720.75		0.13	6.50
251+50		15.65			0.07		
	50		12.14	606.75		0.04	1.75
252+00		8.62			0.00		
	50		9.17	458.50		0.00	0.00
252+50		9.72			0.00		
	50		6.33	316.25		0.18	9.00
253+00		2.93			0.36		
	50		5.08	254.00		0.34	17.00
253+50		7.23			0.32		
	36		8.06	289.98		3.88	139.68
253+86		8.88			7.44		
	14		4.44	62.16		3.72	52.08
254+00		0.00			0.00		
	31		7.03	217.78		6.20	192.20
254+31		14.05			12.40		
	19		13.26	251.85		9.03	171.57
254+50		12.46			5.66		
	50		14.96	747.75		2.83	141.50
255+00		17.45			0.00		
	50		19.26	962.75		0.00	0.00
255+50		21.06			0.00		
	50		20.65	1032.50		0.14	7.00
256+00		20.24			0.28		
	50		22.74	1137.00		0.14	7.00
256+50		25.24			0.00		
	50		27.91	1395.25		0.00	0.00
257+00		30.57			0.00		
	50		30.64	1531.75		0.00	0.00
257+50		30.70			0.00		
	50		25.89	1294.50		0.00	0.00
258+00		21.08			0.00		
	50		16.48	823.75		0.32	16.00
258+50		11.87			0.64		
	50		6.65	332.50		3.00	150.00
259+00		1.43			5.36		
	50		0.72	35.75		11.19	559.50
259+50		0.00			17.02		
	50		0.00	0.00		18.33	916.25

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

BFRT		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
260+00		0.00			19.63		
	50		0.70	35.00		17.89	894.50
260+50		1.40			16.15		
	50		2.46	122.75		11.00	549.75
261+00		3.51			5.84		
	50		12.79	639.25		2.92	146.00
261+50		22.06			0.00		
	50		23.34	1167.00		0.00	0.00
262+00		24.62			0.00		
	50		24.80	1239.75		0.00	0.00
262+50		24.97			0.00		
	50		24.38	1218.75		0.00	0.00
263+00		23.78			0.00		
	50		22.78	1138.75		1.10	55.00
263+50		21.77			2.20		
	50		16.42	820.75		2.50	125.00
264+00		11.06			2.80		
	50		13.17	658.50		4.44	221.75
264+50		15.28			6.07		
	50		16.95	847.25		3.94	196.75
265+00		18.61			1.80		
	50		17.29	864.50		2.17	108.50
265+50		15.97			2.54		
	50		10.68	534.00		2.53	126.50
266+00		5.39			2.52		
	50		11.09	554.25		1.26	63.00
266+50		16.78			0.00		
	50		10.76	537.75		0.00	0.00
267+00		4.73			0.00		
	50		17.31	865.50		0.00	0.00
267+50		29.89			0.00		
	50		14.95	747.25		0.00	0.00
268+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
268+50		0.00			0.00		
	50		0.00	0.00		0.00	0.00
269+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
269+50		0.00			0.00		
	50		0.00	0.00		0.00	0.00
270+00		0.00			0.00		
	50		0.00	0.00		0.00	0.00
270+50		0.00			0.00		

TOTAL 358,383 TOTAL 174,475

Cut	358,383	ft ³	13,273	CY
Fill	174,475	ft ³	6,462	CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Acton Garage Parking Lot		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
20+06	4	25.53	19.81	79.24	0.00	0.00	0.00
20+10		14.09			0.00		
20+25	15	0.06	7.08	106.13	7.97	3.99	59.78
20+40	15	0.00	0.03	0.45	21.40	14.69	220.28
20+55	15	0.00	0.00	0.00	69.38	45.39	680.85
20+70	15	0.00	0.00	0.00	71.92	70.65	1059.75
20+85	15	0.00	0.00	0.00	67.59	67.59	1013.78
21+00	15	0.00	0.00	0.00	63.25	54.22	813.23
21+15	15	0.00	0.00	0.00	45.18	44.97	674.55
21+30	15	0.00	0.00	0.00	44.76	34.66	519.90
21+45	15	0.00	0.72	10.73	24.56	15.33	229.95
21+60	15	1.43	1.57	23.48	6.10	4.98	74.70
21+75	15	1.70	3.39	50.78	3.86	2.24	33.60
21+90	15	5.07	7.89	118.28	0.62	0.31	4.65
22+05	15	10.70	34.53	517.88	0.00	0.00	0.00
	15	58.35	68.17	1022.55	0.00	0.00	0.00

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Acton Garage Parking Lot		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
22+20	15	77.99	71.49	1072.28	0.00	0.00	0.00
22+35		64.98			0.00		
22+50	15	48.89	56.94	854.03	0.00	0.00	0.00
22+65		33.27			0.29		
22+80	15	28.62	41.08	616.20	0.00	0.15	2.18
22+95		19.52			0.00		
23+10	4	16.49	18.01	270.08	0.00	0.01	0.08
23+14		26.76			0.01		
					0.01		

TOTAL 5,654 TOTAL 5,389

Cut	5,654	ft ³	209	CY
Fill	5,389	ft ³	200	CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Powers Gallery Path		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
50+10		0.00			22.32		
	5		0.00	0.00		18.27	91.35
50+15		0.00			14.22		
	5		0.00	0.00		12.36	61.78
50+20		0.00			10.49		
	5		0.07	0.35		14.38	71.90
50+25		0.14			18.27		
	5		0.07	0.35		19.19	95.95
50+30		0.00			20.11		
	5		0.00	0.00		21.32	106.58
50+35		0.00			22.52		
	5		0.00	0.00		23.73	118.63
50+40		0.00			24.93		
	5		0.00	0.00		25.60	128.00
50+45		0.00			26.27		
	5		0.00	0.00		26.33	131.65
50+50		0.00			26.39		
	5		0.00	0.00		26.62	133.08
50+55		0.00			26.84		
	5		0.00	0.00		26.52	132.58
50+60		0.00			26.19		
	5		0.01	0.05		26.07	130.33
50+65		0.02			25.94		
	5		0.01	0.05		23.07	115.35
50+70		0.00			20.20		
	5		2.02	10.08		12.47	62.35
50+75		4.03			4.74		
	5		4.78	23.88		3.08	15.38
50+80		5.52			1.41		
	5		4.83	24.15		1.12	5.58
50+85		4.14			0.82		
	5		3.74	18.68		0.90	4.48
50+90		3.33			0.97		
	5		3.13	15.63		0.81	4.05
50+95		2.92			0.65		
	5		3.03	15.13		0.49	2.43
51+00		3.13			0.32		
	5		3.56	17.78		0.33	1.65
51+05		3.98			0.34		
	5		4.28	21.38		0.28	1.40
51+10		4.57			0.22		
	5		4.09	20.43		0.22	1.10
51+15		3.60			0.22		
	5		3.45	17.23		0.23	1.15
51+20		3.29			0.24		
	5		3.65	18.23		0.23	1.15
51+25		4.00			0.22		
	5		4.06	20.28		0.23	1.15

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Powers Gallery Path		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
51+30	5	4.11	4.14	20.68	0.24	0.25	1.25
51+35		4.16			0.26		
51+40	5	4.14	4.15	20.75	0.28	0.27	1.35
51+45	5	4.05	4.10	20.48	0.30	0.29	1.45
51+50	5	3.91	3.98	19.90	0.32	0.31	1.55
51+55	5	3.72	3.82	19.08	0.34	0.33	1.65
51+60	5	3.72	3.72	18.60	0.32	0.33	1.65
51+65	5	4.35	4.04	20.18	0.18	0.25	1.25

TOTAL 363 TOTAL 1,429

Cut	363	ft ³	13	CY
Fill	1,429	ft ³	53	CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Brook St Path		EARTH EXCAVATION					
Station	Length (ft)	Cut			Fill		
		P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
80+05		0.00			0.00		
	5		26.11	130.55		0.00	0.00
80+10		52.22			0.00		
	5		79.88	399.40		0.00	0.00
80+15		107.54			0.00		
	5		122.87	614.33		0.02	0.08
80+20		138.19			0.03		
	5		110.22	551.08		0.04	0.18
80+25		82.24			0.04		
	5		74.41	372.05		0.02	0.10
80+30		66.58			0.00		
	5		60.55	302.73		0.00	0.00
80+35		54.51			0.00		
	5		50.12	250.58		0.00	0.00
80+40		45.72			0.00		
	5		39.62	198.10		0.00	0.00
80+45		33.52			0.00		
	5		28.78	143.90		0.00	0.00
80+50		24.04			0.00		
	5		12.02	60.10		0.00	0.00
80+55		0.00			0.00		

TOTAL 3,023 TOTAL 0

Cut	3,023	ft ³	112	CY
Fill	0	ft ³	0	CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

EARTH SUMMARY

FROM EARTHWORKS SHEETS:

<u>EXCAVATION</u>	<u>CY</u>	<u>EMBANKMENT</u>	<u>CY</u>
SubTotal (BFRT)	13,273		6,462
SubTotal (Acton Garage Parking Lot)	209		200
SubTotal (Powers Gallery Path)	13		53
SubTotal (Brook St)	112		0
Total Excavation	13,608		6,715

<u>EXCAVATION</u>	<u>CY</u>	<u>EMBANKMENT</u>	<u>CY</u>
Earthworks	13,608	Earthworks	6,715
Deduct 2.5% (Boulders):	-340		
Deduct 5% (Shrinkage):	-680	Plus 15% (Swell):	1,007

Available for Embankment: 12,588 CY

Total Embankment Required: 7,722 CY

SURPLUS 4,866 CY

NOTE: 4" of material has been assumed to be organic material that is unsuitable for reuse and will be removed under Item 101. This quantity has not been included in the Excavation calculations. Any material removed and not refilled under a separate Item has been included in required embankment.

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Hot Mix Asphalt Trail (SF)	
PATH	
PATH-1	42652
PATH-2	22403
PATH-3	44944
PATH-4	11393
PATH-5	87094
PATH-6	3092
PATH-7	67327
PATH-8	15842
PATH-9	7965
TOTAL =	302,713 SF

Full Depth Hot Mix Asphalt Construction (SF)	
FDHMA	
FDHMA-1	2164
FDHMA-2	827
FDHMA-3	3320
FDHMA-4	1214
FDHMA-5	1604
TOTAL =	9,130 SF

Full Depth Hot Mix Asphalt Construction <4' (SF)	
FD<4	
FD<4	59
TOTAL =	59 SF

Mill & Overlay (SF)	
CP&O	
CP&O-1	11671
SUBTOTAL =	11,671 SF

Stone Dust Shoulder (SF)	
STND	
STND-1	3155
STND-2	2491
STND-3	5393
STND-4	4307
STND-5	1824
STND-6	1914
STND-7	913
STND-8	940
STND-9	193
STND-10	197
STND-11	6212
STND-12	2017
SUBTOTAL =	29,555 SF

Stone Dust Shoulder (SF)	
STND	
STND-13	4500
STND-14	1075
STND-15	883
STND-16	1423
STND-17	84
STND-18	69
STND-19	445
STND-20	83
STND-21	2251
STND-22	1907
STND-23	5951
STND-24	1369
STND-25	14159
STND-26	804
STND-27	13413
STND-28	6439
STND-29	1870
STND-30	9539
STND-31	4717
STND-32	108
STND-33	195
STND-34	605
STND-35	901
STND-36	6658
STND-37	3096
STND-38	5659
STND-39	15524
STND-40	4223
STND-41	10058
STND-42	334
STND-43	177
STND-44	2753
STND-45	1223
STND-46	4154
STND-47	1304
STND-48	971
STND-49	2719
SUBTOTAL =	131,641 SF
TOTAL =	161,196 SF

Cement Concrete Wheelchair Ramp (SF)	
WCR	
WCR-1	121
WCR-2	204
WCR-3	204
WCR-4	220
TOTAL =	749 SF

Hot Mix Asphalt Driveway and Parking Lots (SF)	
HMADW	
HMADW-1	7221
HMADW-2	262
HMADW-3	1490
HMADW-4	721
HMADW-5	1779
HMADW-6	294
TOTAL =	11,768 SF

Hot Mix Asphalt Walkway (SF)	
HMAW	
HMAW-1	136
TOTAL =	136 SF

Stamped Concrete Splitter Island (SF)	
SCSI	
SCSI-1	33
SCSI-2	51
SCSI-3	48
SCSI-4	32
SCSI-5	32
SCSI-6	17
SCSI-7	13
SCSI-8	7
SCSI-9	24
SCSI-10	33
SCSI-11	32
SCSI-12	3
SCSI-13	15
SCSI-14	55
SCSI-15	67
SCSI-16	32
TOTAL =	495 SF

Cement Concrete Sidewalk (SF)	
CONC	
CONC-1	1795
TOTAL =	1,795 SF

Cement Concrete Sidewalk at Driveways (SF)	
CCDW	
CCDW-1	153
SUBTOTAL =	153 SF

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Gravel Driveway and Parking Lots (SF)		Loam & Seed (SF)		Loam & Seed (SF)	
GVDW		L&S		L&S	
GVDW-1	1971	L&S-1	200	L&S-50	688
GVDW-2	3428	L&S-2	450	L&S-51	444
TOTAL =	5,399 SF	L&S-3	606	L&S-52	815
		L&S-4	2405	L&S-53	1664
		L&S-5	4414	L&S-54	140
		L&S-6	160	L&S-55	57
		L&S-7	2576	L&S-56	112
		L&S-8	2573	L&S-57	1107
		L&S-9	4844	L&S-58	77
		L&S-10	1983	L&S-59	3486
		L&S-11	456	L&S-60	5120
		L&S-12	162	L&S-61	3513
		L&S-13	802	L&S-62	590
		L&S-14	1264	L&S-63	336
		L&S-15	12	L&S-64	383
		L&S-16	2638	L&S-65	233
		L&S-17	1098	L&S-66	186
		L&S-18	173	L&S-67	113
		L&S-19	417	L&S-68	1155
		L&S-20	805	L&S-69	1695
		L&S-21	97	L&S-70	1828
		L&S-22	149	L&S-71	416
		L&S-23	32	L&S-72	208
		L&S-24	86	L&S-73	653
		L&S-25	848	L&S-74	21
		L&S-26	145	L&S-75	31
		L&S-27	759	L&S-76	302
		L&S-28	486	L&S-77	190
		L&S-29	121	L&S-78	1689
		L&S-30	719	L&S-79	165
		L&S-31	496	L&S-80	660
		L&S-32	175	L&S-81	890
		L&S-33	171	L&S-82	3546
		L&S-34	470	L&S-83	3284
		L&S-35	268	L&S-84	783
		L&S-36	328	L&S-85	2506
		L&S-37	186	L&S-86	317
		L&S-38	202	L&S-87	824
		L&S-39	57	L&S-88	292
		L&S-40	172	L&S-89	93
		L&S-41	729	L&S-90	265
		L&S-42	417	L&S-91	361
		L&S-43	179	L&S-92	924
		L&S-44	185	L&S-93	189
		L&S-45	98	L&S-94	2352
		L&S-46	102	L&S-95	1891
		L&S-47	219	L&S-96	2169
		L&S-48	110	L&S-97	2052
		L&S-49	1167	SUBTOTAL =	50,816 SF
TOTAL = 38,903 SF		SUBTOTAL =	37,211 SF	TOTAL =	88,028 SF

Landscape Areas (SF)	
LDSCP	
LDSCP-1	729
LDSCP-2	514
LDSCP-3	450
LDSCP-4	321
LDSCP-5	582
LDSCP-6	746
LDSCP-7	512
LDSCP-8	910
LDSCP-9	477
LDSCP-10	366
LDSCP-11	590
TOTAL =	6,197 SF

Clearing and Grubbing (SF)	
C&G	
C&G-1	89632
C&G-2	1292
C&G-3	45506
C&G-4	96086
C&G-5	23695
C&G-6	162943
C&G-7	57816
C&G-8	154812
C&G-9	34706
C&G-10	17228
TOTAL =	683,716 SF

NHESP Seed Mix (SF)	
NHESP	
NHESP-1	2688
NHESP-2	2439
NHESP-3	298
NHESP-4	523
NHESP-5	6223
NHESP-6	9721
NHESP-7	930
NHESP-8	695
NHESP-9	1057
NHESP-10	811
NHESP-11	1006
NHESP-12	5330
NHESP-13	7181
TOTAL =	38,903 SF

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Filter Strip (SF)		Loam & Steep Slope Seed (SF)		Loam & Steep Slope Seed (SF)	
FS		L&SS		L&SS	
FS-1	227	L&SS-11	65	L&SS-49	2360
FS-2	272	L&SS-12	41	L&SS-50	170
FS-3	285	L&SS-13	615	L&SS-51	419
FS-4	179	L&SS-14	905	L&SS-52	246
FS-5	412	L&SS-15	218	L&SS-53	119
FS-6	278	L&SS-16	28	L&SS-54	195
FS-7	309	L&SS-17	308	L&SS-55	419
FS-8	304	L&SS-18	3199	L&SS-56	78
FS-9	270	L&SS-19	6	L&SS-57	141
FS-10	267	L&SS-20	1900	L&SS-58	4076
FS-11	326	L&SS-21	234	L&SS-59	3860
FS-12	262	L&SS-22	5567	L&SS-60	429
FS-13	283	L&SS-23	309	L&SS-61	96
FS-14	302	L&SS-24	1093	L&SS-62	137
FS-15	305	L&SS-25	707	L&SS-63	275
FS-16	277	L&SS-26	295	L&SS-64	227
FS-17	238	L&SS-27	302	L&SS-65	148
FS-18	327	L&SS-28	132	L&SS-66	162
FS-19	335	L&SS-29	1053	L&SS-67	1252
FS-20	252	L&SS-30	410	L&SS-68	30
FS-21	295	L&SS-31	115	L&SS-69	778
FS-22	255	L&SS-32	130	L&SS-70	152
FS-23	253	L&SS-33	175	L&SS-71	241
FS-24	231	L&SS-34	158	L&SS-72	257
TOTAL =	6,743 SF	L&SS-35	13	L&SS-73	167
		L&SS-36	14	L&SS-74	139
		L&SS-37	30	L&SS-75	178
		L&SS-38	97	L&SS-76	596
		L&SS-39	892	L&SS-77	398
		L&SS-40	91	L&SS-78	532
		L&SS-41	242	L&SS-79	448
		L&SS-42	318	L&SS-80	257
		L&SS-43	275	L&SS-81	91
		L&SS-44	250	L&SS-82	81
		L&SS-45	49	L&SS-83	207
		L&SS-46	36	L&SS-84	1239
		L&SS-47	98	L&SS-85	655
		L&SS-48	977	SUBTOTAL =	21,254 SF
		SUBTOTAL =	21,348 SF	TOTAL =	47,179 SF

Loam & Steep Slope Seed (SF)	
L&SS	
L&SS-1	77
L&SS-2	206
L&SS-3	59
L&SS-4	44
L&SS-5	634
L&SS-6	160
L&SS-7	816
L&SS-8	2145
L&SS-9	278
L&SS-10	158
SUBTOTAL =	4,576 SF

SURFACE AREA SUMMARY			
Description	Area (sf)	Area (sy)	
Hot Mix Asphalt Trail	302,713 SF	33,635 SY	
Full Depth Hot Mix Asphalt Construction <4'	59 SF	7 SY	
Full Depth Hot Mix Asphalt Construction	9,130 SF	1,014 SY	
Clearing and Grubbing	683,716 SF	75,968 SY	
Landscape Areas	6,197 SF	689 SY	
Stone Dust Shoulder	161,196 SF	17,911 SY	
Gravel Driveway and Parking Lots	5,399 SF	600 SY	
Stamped Concrete Splitter Island	495 SF	55 SY	
Cement Concrete Wheelchair Ramp	749 SF	83 SY	
Cement Concrete Sidewalk	1,795 SF	199 SY	
Hot Mix Asphalt Driveway and Parking Lots	11,768 SF	1,308 SY	
Filter Strip	6,743 SF	749 SY	
Loam & Seed	88,028 SF	9,781 SY	
NHESP Seed Mix	38,903 SF	4,323 SY	
Hot Mix Asphalt Walkway	136 SF	15 SY	
Loam & Steep Slope Seed	47,179 SF	5,242 SY	
Cement Concrete Sidewalk at Driveways	153 SF	17 SY	
Mill & Overlay	11,671 SF	1,297 SY	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 100.01	Schedule Of Operations - Fixed Price \$67,500		LS
Estimate Total	Unit Price		
\$ 8,522,234	Minimum		
Less than	\$ 10,000	\$ -	
\$ 1,000,000			
to	\$ 17,500	\$ -	
\$ 2,000,000			
to	\$ 25,000	\$ -	
\$ 3,000,000			
to	\$ 32,500	\$ -	
\$ 4,000,000			
to	\$ 37,500	\$ -	
\$ 5,000,000			
to	\$ 45,000	\$ -	
\$ 6,000,000			
to	\$ 52,500	\$ -	
\$ 7,000,000			
to	\$ 60,000	\$ -	
\$ 8,000,000			
to	\$ 67,500	\$ 67,500.00	
\$ 9,000,000			
to	\$ 75,000	\$ -	
\$ 10,000,000			
to	\$ 100,000	\$ -	
\$ 20,000,000			
to	\$ 125,000	\$ -	
\$ 30,000,000			
to	\$ 150,000	\$ -	
\$ 40,000,000			
to	\$ 175,000	\$ -	
\$ 50,000,000			
to	\$ 200,000	\$ -	
\$ 60,000,000			
to	\$ 225,000	\$ -	
\$ 70,000,000			
to	\$ 250,000	\$ -	
\$ 80,000,000			
to	\$ 275,000	\$ -	
\$ 90,000,000			
to	\$ 300,000	\$ -	
\$ 100,000,000			
	\$ 300,000	\$ -	
	Price=	\$ 67,500.00	
	Say	1	LS

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 101.</u>	<u>Clearing And Grubbing</u>			<u>A</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Area (acre)</u>	
Clearing and Grubbing	683,716	75,968	15.70	
			<u>Say</u>	<u>15.7 A</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 102.51</u>	<u>Individual Tree Protection</u>	<u>EA</u>
	As Contingency	
	<u>Say</u>	<u>50 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 102.52</u>	<u>Temporary Tree Protection Fence</u>	<u>FT</u>
Assume 10% of Project length on each side of trail.		
Project Length=	25784 ft x 10% x 2 =	5156.8 ft
	<u>Say</u>	<u>6,000 FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 120.1</u>	<u>Unclassified Excavation</u>	<u>CY</u>
Total Excavation from Earthworks Summary =		13,608 CY
	Total =	13608 CY
	<u>Say</u>	<u>14,000</u> <u>CY</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Item 123. Muck Excavation CY

Station	Length (ft)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)
75+50	50	0.00	0.40	19.75
76+00		0.79		
76+50	50	0.00	0.40	19.75
			Subtotal =	39.50
79+00	50	0.00	0.06	2.75
79+50		0.11		
80+00	50	0.00	0.06	2.75
			Subtotal =	5.50
84+50	50	0.00	0.06	2.75
85+00		0.11		
85+50	50	0.00	0.06	2.75
			Subtotal =	5.50
117+00	50	0.00	0.16	7.75
117+50		0.31		
118+00	50	0.00	0.16	7.75
			Subtotal =	15.50
165+00	50	0.00	29.81	1490.25
165+50		59.61		
166+00	50	119.26	89.44	4471.75
166+50	50	120.99	120.13	6006.25
167+00	50	198.82	159.91	7995.25
167+50	50	254.09	226.46	11322.75
600+00	50	165.03	209.56	10478.00
600+50			167.80	166.42
601+00	50	191.68	179.74	8987.00
601+50	50	0.00	95.84	4792.00
			Subtotal =	63864.00
603+00	50	0.00	53.78	2689.00
603+50		107.56		
604+00	50	107.29	107.43	5371.25
172+00	26	0.00	53.65	1387.80
			Subtotal =	9448.05
191+50	50	0.00	0.04	2.00

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Muck Excavation (Continued)						
Station	Length (ft)	P.R. (ft ²)	Av.R. (ft ²)	Vol. (ft ³)		
192+00	50	0.08	0.04	2.00		
192+50		0.00				
			Subtotal =	4.00		
227+00	50	0.00	0.04	2.00		
227+50		0.09				
228+00	50	0.08	0.09	4.25		
228+50	50	0.08	0.04	2.00		
		0.00				
			Subtotal =	8.25		
236+00	50	0.00	0.13	6.50		
236+50		0.26				
237+00	50	0.13	0.13	6.50		
		0.00				
			Subtotal =	13.00		
253+00	50	0.00	0.04	2.00		
253+50		0.08				
254+00	50	0.04	0.04	2.00		
		0.00				
			Subtotal =	4.00		
For areas not shown in Cross Sections, assume					150	cf
Total =					73407.30	cf
Total =					2718.79	cy
Say					2,720	CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 127.12		<u>Substructure Demolition</u>		<u>CY</u>
Quantities From Bridge Estimate				
			Quantity	
Bridge No. A02-014 (A5T)			0 CY	
Bridge No. A02-019 (BF5)			6 CY	
Bridge No. A02-027 (BF6)			6 CY	
Bridge No. A02-028 (BF7)			7 CY	
Bridge No. A02-030 (BF8)			4 CY	
Bridge No. A02-031 (BFA)			6 CY	
Bridge No. A02-032 (BG0)			13 CY	
			42 CY	
		Say	42	CY
		<hr/>		
Item 129.		<u>Pavement Milling</u>		<u>SY</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>		
Mill & Overlay	11,671	1,297		
		Say	1,300	SY
		<hr/>		

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 129.5</u>		<u>Track Excavation</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
12+90	-	BFRT	46+34	-	BFRT	3,344
48+05	-	BFRT	83+73	-	BFRT	3,568
76+84	LT	BFRT	78+65	LT	BFRT	181
81+58	LT	BFRT	83+07	LT	BFRT	149
105+11	-	BFRT	113+12	-	BFRT	801
113+87	-	BFRT	261+42	-	BFRT	14,755
266+83	LT	BFRT	267+71	LT	BFRT	88
Total =						22,886
Say						23,000 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 140. **Bridge Excavation** **CY**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	145 CY	
Bridge No. A02-019 (BF5)	25 CY	
Bridge No. A02-027 (BF6)	15 CY	
Bridge No. A02-028 (BF7)	30 CY	
Bridge No. A02-030 (BF8)	13 CY	
Bridge No. A02-031 (BFA)	13 CY	
Bridge No. A02-032 (BG0)	17 CY	
	258 CY	
	Say	258 CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 141.</u>	<u>Class A Trench Excavation</u>			<u>CY</u>			
Fieldstone Masonry Wall from Sta. 112+20 RT to Sta. 113+24 RT							
<u>Length</u>		<u>Avg. Area from</u>		<u>Volume</u>			
109	FT	<u>Cross Sections</u>	59 SF	237	CY		
				<u>Say</u>	<u>250</u>	<u>CY</u>	<u>CY</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 141.1</u>	<u>Test Pit For Exploration</u>	<u>CY</u>
	As Contingency	
	<u>Say 50 CY</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 144.</u>	<u>Class B Rock Excavation</u>	<u>CY</u>
	As Contingency	
	<u>Say</u>	<u>50 0</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 150.</u>	<u>Ordinary Borrow</u>	<u>CY</u>
	As Contingency	
	<u>Say</u>	<u>10</u> <u>CY</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 150.1</u>	<u>Special Borrow</u>	<u>CY</u>
For use in fill areas of wetlands and other unsuitable material.		
	<u>Say</u>	<u>500</u> <u>CY</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 151.

Gravel Borrow

Full Depth HMA Bike Trail Subbase shall be a minimum of 2" gravel borrow over railroad ballast.
 8" of gravel subbase has been assumed for estimating purposes.

<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Volume (cy)</u>
Hot Mix Asphalt Trail	302,713	33,635	8.00	7,474
Full Depth Hot Mix Asphalt Construction	9,130	1,014	8.00	225
Stone Dust Shoulder	161,196	17,911	8.00	3,980
Gravel Driveway and Parking Lots	5,399	600	8.00	133
Stamped Concrete Splitter Island	495	55	8.00	12
Cement Concrete Wheelchair Ramp	749	83	8.00	18
Cement Concrete Sidewalk	1,795	199	8.00	44
Hot Mix Asphalt Driveway and Parking Lots	11,768	1,308	8.00	291
Cement Concrete Sidewalk at Driveways	153	17	8.00	4

Subtotal = 12,183

<u>Deduct Areas of Bridges</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Volume (cy)</u>
Bridge 1	306	34	8.00	8
Bridge 2	384	43	8.00	9
Bridge 3	670	74	8.00	17
Bridge 4	3,560	396	8.00	88
Bridge 5	1,146	127	8.00	28
Bridge 6	852	95	8.00	21
Bridge 7	970	108	8.00	24

Subtotal = -195

Total = 11,988

Add 25% (Swell Factor) = 2,997

Final Total = 14,985

Say 15,000 CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 151.2 **Gravel Borrow For Backfilling Structures And Pipes** **CY**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	0 CY	
Bridge No. A02-019 (BF5)	5 CY	
Bridge No. A02-027 (BF6)	5 CY	
Bridge No. A02-028 (BF7)	5 CY	
Bridge No. A02-030 (BF8)	5 CY	
Bridge No. A02-031 (BFA)	5 CY	
Bridge No. A02-032 (BG0)	5 CY	
	30 CY	
Say	30	CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 156.</u>	<u>Crushed Stone</u>	<u>TON</u>
For use with drainage structures		
# of Drainage Structures=	4 EA (From Item 202. & 205.)	
Assume 15 CF per Drainage Structure		
4 x	15 =	60 CF
	Total =	60 CF
60 x	0.083 TON/CF =	4.98 TON
	<u>Say</u>	<u>5 TON</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 156.1 **Crushed Stone For Bridge Foundations** **TON**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	200 TON	
Bridge No. A02-019 (BF5)	0 TON	
Bridge No. A02-027 (BF6)	0 TON	
Bridge No. A02-028 (BF7)	0 TON	
Bridge No. A02-030 (BF8)	0 TON	
Bridge No. A02-031 (BFA)	0 TON	
Bridge No. A02-032 (BG0)	0 TON	
	200 TON	
	Say	200 TON

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 170.</u>	<u>Fine Grading And Compacting</u>		<u>SY</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	
Hot Mix Asphalt Trail	302,713	33,635	
Full Depth Hot Mix Asphalt Construction	9,130	1,014	
Stone Dust Shoulder	161,196	17,911	
Gravel Driveway and Parking Lots	5,399	600	
Stamped Concrete Splitter Island	495	55	
Cement Concrete Wheelchair Ramp	749	83	
Cement Concrete Sidewalk	1,795	199	
Hot Mix Asphalt Driveway and Parking Lots	11,768	1,308	
Cement Concrete Sidewalk at Driveways	153	17	
	Total	54,822	
	Say	55,000	SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 180.1</u>	<u>Health And Safety Plan</u>	<u>LS</u>
	<u>Say</u>	<u>1</u> <u>LS</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 180.2</u>	<u>Implementation Of Health And Safety Plan</u>	<u>HR</u>
	<u>Say</u> <u>80</u> <u>HR</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 180.3</u>	<u>Personnel Protection Level C Upgrade</u>	<u>HR</u>
	<u>Say</u>	<u>80 HR</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 180.4</u>	<u>Monitoring/Handling And Stockpiling Of Contaminated Soils</u>	<u>CY</u>
	As Contingency	
	<u>Say</u> <u>400</u> <u>CY</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 180.5</u>	<u>Licensed Site Professional</u>	<u>HR</u>
	As Contingency	
	Say	120 HR

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 180.6</u>	<u>Miscellaneous Soils Testing</u>	<u>EA</u>
	As Contingency	
	<u>Say</u>	<u>25 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 181.11</u>	<u>Disposal Of Unregulated Soil</u>	<u>TON</u>
	As Contingency, assume soil weighs 125#/CF	6400 711.11
	<u>Say</u> 400 <u>TON</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 181.12</u>	<u>Disposal Of Regulated Soil - In-State Facility</u>	<u>TON</u>
	As Contingency	
	<u>Say</u>	<u>175</u> <u>TON</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 181.13</u>	<u>Disposal Of Regulated Soil - Out-Of-State Facility</u>	<u>TON</u>
	As Contingency	
	<u>Say</u> <u>100</u> <u>TON</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 181.14</u>	<u>Disposal Of Hazardous Waste</u>	<u>TON</u>
	As Contingency	
	<u>Say</u>	<u>1</u> <u>TON</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Station</u>	<u>Offset</u>	<u>Side</u>	<u>Baseline</u>	<u>Type</u>	<u>Quantity</u>	
47+77	0.0	-	BFRT	Signal Box	1	
113+89	3.3	RT	BFRT	Signal Box	1	
113+96	3.4	RT	BFRT	Battery Well	1	
603+08	47.0	LT	BFRT	Signal Box	1	
603+40	40.0	LT	BFRT	Signal Box	1	
205+00	11.0	RT	BFRT	Battery Well	1	
234+40	26.0	RT	BFRT	Battery Well	1	
246+62	31.0	RT	BFRT	Battery Well	1	
248+52	7.0	LT	BFRT	Signal Box	1	
248+61	6.0	LT	BFRT	Signal Box	1	
Total =					10	
Say					10	EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 183.1</u>	<u>Treatment Of Contaminated Groundwater</u>	<u>GAL</u>
	As Contingency	
	<u>Say</u>	<u>1,000 GAL</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 183.2</u>	<u>Disposal Of Granular Activated Carbon</u>	<u>LB</u>
	As Contingency	
	<u>Say</u> <u>200</u> <u>LB</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 184.1</u>	<u>Disposal Of Treated Wood Products</u>	<u>TON</u>
For use with disposal of railroad ties and as directed by the Engineer. Assume ties are only located where rails currently exist. Assume ties are spaced 1.75' on center. Assume each tie is 9" wide by 7" high by 102" in length.		
		2754 784.66
	From Item 129.5, length of tracks =	22,886 FT
	# of ties =	13077.7 EA
	Say	13100 EA
	Total weight based on assumed tie weight of 200 pounds =	1310 Tons
	<u>Say</u>	<u>1,320 TON</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 189.2</u>		<u>Abandonment Of Septic System</u>		<u>LS</u>
<u>Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Quantity</u>	
113+00	LT	BFRT	1	
			<u>Say</u>	<u>1 LS</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 202.</u>	<u>Manhole</u>			<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Quantity</u>	
50+64	-	Power's Gallery	1	
			Total =	1
			Say	1 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 205.</u>	<u>Leaching Basin</u>				<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Structure</u>	<u>Quantity</u>	
259+16	LT	BFRT	Leaching Basin	1	
262+87	LT	BFRT	Leaching Basin	1	
262+87	RT	BFRT	Leaching Basin	1	
			Total =	<u>3</u>	
			Say	3	EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 238.06</u>		<u>6 Inch Ductile Iron Pipe</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
602+97	LT	BFRT	603+83	LT	BFRT	89
					Total =	<u>89</u>
			Say		90	FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 238.10</u>		<u>10 Inch Ductile Iron Pipe</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
67+72	RT	BFRT	68+40	RT	BFRT	68
67+92	LT	BFRT	68+41	LT	BFRT	51
78+09	LT	BFRT	78+20	LT	BFRT	11
93+51	RT	BFRT	3+52	RT	NARA Path	40
210+37	LT	BFRT	210+37	RT	BFRT	20
226+50	RT	BFRT	226+50	LT	BFRT	24
242+00	RT	BFRT	242+00	LT	BFRT	32
245+90	RT	BFRT	245+90	LT	BFRT	24
Total =						270
Say						270
FT						FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 238.12</u>		<u>12 Inch Ductile Iron Pipe</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
227+40	RT	BFRT	227+40	LT	BFRT	24
234+03	RT	BFRT	234+06	LT	BFRT	48
					Total =	72
			Say		75	FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 241.12</u>		<u>12 Inch Reinforced Concrete Pipe</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
97+90	LT	BFRT	97+90	LT	BFRT	10
					Total =	10
			<u>Say</u>	<u>10</u>	<u>FT</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 243.15</u>		<u>15 Inch Reinforced Concrete Pipe Class Iv</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
84+97	RT	BFRT	84+98	RT	BFRT	7
					Total =	<u>7</u>
			Say	12	FT	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 252.08</u>		<u>8 Inch Corrugated Plastic (Polyethylene) Pipe</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
50+64	RT	Powers	50+69	RT	Powers	4
					Total =	<u>4</u>
			<u>Say</u>	<u>5</u>	<u>FT</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 252.12</u>		<u>12 Inch Corrugated Plastic (Polyethylene) Pipe</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
50+55	RT	Powers	50+64	RT	Powers	14
50+64	RT	Powers	50+67	RT	Powers	4
245+92	LT	BFRT	246+07	LT	BFRT	14
Total =						32
Say						35 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 252.15</u>		<u>15 Inch Corrugated Plastic (Polyethylene) Pipe</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
244+48	RT	BFRT	244+53	LT	BFRT	38
					Total =	38
			<u>Say</u>	<u>40</u>	<u>FT</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 258.</u>	<u>Stone For Pipe Ends</u>			<u>SY</u>
	<u>Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Area</u>
	67+69	RT	BFRT	6
	67+89	LT	BFRT	6
	68+42	RT	BFRT	6
	68+43	LT	BFRT	6
	78+06	LT	BFRT	3
	78+22	LT	BFRT	3
	602+95	LT	BFRT	3
	210+37	RT	BFRT	3
	50+53	RT	Powers	3
	245+90	RT	BFRT	3
	245+92	LT	BFRT	3
			Total =	45
			Say	45 SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 302.16		16 Inch Ductile Iron Water Pipe (Rubber Gasket)				FT
<u>From Station</u> 603+39	<u>Side</u> RT	<u>Baseline</u> BFRT	<u>To Station</u> 604+13	<u>Side</u> LT	<u>Baseline</u> BFRT	<u>Length</u> 100
					Total =	100
					Say	110 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 309.</u>	<u>Ductile Iron Fittings For Water Pipe</u>						<u>LB</u>
<u>Station</u>	<u>Offset</u>	<u>Baseline</u>	<u>Type</u>	<u>Weight</u>	<u>Quantity</u>	<u>Total Quantity</u>	
603+43	RT	BFRT	16" 45 deg.	340	1	340	
603+95	RT	BFRT	16" 45 deg.	340	1	340	
604+14	RT	BFRT	16" 45 deg.	340	1	340	
604+10	LT	BFRT	16" 45 deg.	340	1	340	
Total =						1360 LBS	
Say					1,500	LB	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 402.</u>	<u>Dense Graded Crushed Stone For Sub-Base</u>			<u>CY</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Volume (cy)</u>
Full Depth Hot Mix Asphalt Construction	9,130	1,014	4.00	113
			Total	113
	Say	200	CY	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 431.1</u>	<u>High Early Strength Cement Concrete Base Course</u>			<u>CY</u>	
<u>From Surface Areas</u>		<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Volume (cy)</u>
Full Depth Hot Mix Asphalt Construction <4'		59	7	4.00	1
	As Contingency			Total	1
		Say	10	CY	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 440. Calcium Chloride For Roadway Dust Control LB

Applied at a rate of 1.5 lb/sy in areas of Full Depth Construction

<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Weight (lb)</u>
Hot Mix Asphalt Trail	302,713	33,635	50,452
Full Depth Hot Mix Asphalt Construction	9,130	1,014	1,522
Stone Dust Shoulder	161,196	17,911	26,866
Gravel Driveway and Parking Lots	5,399	600	900
Stamped Concrete Splitter Island	495	55	82
Cement Concrete Wheelchair Ramp	749	83	125
Cement Concrete Sidewalk	1,795	199	299
Hot Mix Asphalt Driveway and Parking Lots	11,768	1,308	1,961
		Total	82,208
	Say	83,000	LB

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 443. **Water For Roadway Dust Control** **MGL**

Assume 3 applications applied at a rate of 1 g/sy in areas of Full Depth Construction

<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Volume (gallon)</u>	<u>Volume (mgl)</u>
Hot Mix Asphalt Trail	302,713	33,635	100904	101
Full Depth Hot Mix Asphalt Construction	9,130	1,014	3043	3
Stone Dust Shoulder	161,196	17,911	53732	54
Gravel Driveway and Parking Lots	5,399	600	1800	2
Stamped Concrete Splitter Island	495	55	165	0
Cement Concrete Wheelchair Ramp	749	83	250	0
Cement Concrete Sidewalk	1,795	199	598	1
Hot Mix Asphalt Driveway and Parking Lots	11,768	1,308	3923	4
			Total	164
	Say	170	MGL	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 451.</u>	<u>HMA For Patching</u>	<u>TON</u>
For use where trenches will be part of the permanent roadway surface. As Contingency		
	Say	20 TON

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 452. **Asphalt Emulsion For Tack Coat** **GAL**

Use 0.05 Gal/SY for new pavement; 0.07 Gal/SY for milled surfaces

<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Layers</u>	<u>Volume (gal)</u>
Hot Mix Asphalt Trail	302,713	33,635	1	1,682
Full Depth Hot Mix Asphalt Construction	9,130	1,014	2	101
Hot Mix Asphalt Driveway and Parking Lots	11,768	1,308	1	65
Mill & Overlay	11,671	1,297	1	65
			Total	1,913
	Say	2,000	GAL	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 453.</u>	<u>HMA Joint Sealant</u>				<u>FT</u>
For use between HMA mats and at cold joint between new and existing HMA.					
Assume path pavement placed in two layers, each one pass.					
<u>From Station</u>	<u>To Station</u>	<u>Baseline</u>	<u># of HMA Mats</u>	<u># of Joints</u>	<u>Length</u>
Prop. Main Street Parking Lot, 82' long by 61' wide (say 5 mats)			4		244
Prop. Main Street Parking Driveway, 52' long by 24' wide (say 2 mats)			1		52
Prop. Main Street Parking Access Path, 172' long by 12' wide (say 2 mats)			1		172
Prop. Path to NARA Parking Lot, 100' by 12' (say 2 mats)			1		100
Prop. Path to Brook Street Parking Lot, 44' by 12' (say 2 mats)			1		44
Prop. Path to Rte 2A, 150' by 12' (say 2 mats)			1		150
Prop. Path to Indoor Sports Parking Lot, 56' by 43' (say 4 mats)			3		43
Prop. Path to Indoor Sports Parking Lot, 40' by 91' (say 3 mats)			2		40
Rte 225 (At beginning of project)					25
Rte 27 (At driveway to prop. parking lot)					67
Rte 27 (At crossing)					83
Driveway to Nashoba Sprotsman Club					36
Rex Lane					78
NARA Parking Lot					600
Rte 27 (At crossing)					81
Exist. HMA Drive (Approx. 116+00 RT)					92
Rte 2A (FDC & Driveway)					19
Prop. Path to Brook Street Parking Lot					12
Brook Street (At crossing)					51
Prop. Path to Rte 2A					101
Concord Road (At crossing)					50
Wetherbee Steet (At crossing)					80
Prop. Path to Indoor Sports Parking Lot					182
				Total =	2,402
			<u>Say</u>	<u>3,000</u>	<u>FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 455.23</u>	<u>Superpave Surface Course - 12.5 (SSC - 12.5)</u>			<u>TON</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Weight (ton)</u>
Hot Mix Asphalt Trail	302,713	33,635	1.50	2825.3
Full Depth Hot Mix Asphalt Construction	9,130	1,014	1.75	99.417
Mill & Overlay	11,671	1,297	1.75	127.08
			Total	3051.8
	Say	3,100	TON	

<u>Item 455.31</u>	<u>Superpave Intermediate Course - 12.5 (SIC -12.5)</u>			<u>TON</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Weight (ton)</u>
Full Depth Hot Mix Asphalt Construction	9,130	1,014	1.75	99.417
			Total	99.417
	Say	400	TON	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 455.32</u>	<u>Superpave Intermediate Course - 19.0 (SIC - 19.0)</u>			<u>TON</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Weight (ton)</u>
Hot Mix Asphalt Trail	302,713	33,635	2.50	4708.9
			Total	4708.9
	Say	4,800	TON	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 455.42</u>	<u>Superpave Base Course - 37.5 (SBC - 37.5)</u>			<u>TON</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Weight (ton)</u>
Full Depth Hot Mix Asphalt Construction	9,130	1,014	3.50	198.83
			Total	198.83
	<u>Say</u>	<u>200</u>	<u>TON</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 455.61 **Superpave Bridge Surface Course - 12.5 (SSC-B - 12.5)** **TON**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	0 TON	
Bridge No. A02-019 (BF5)	7 TON	
Bridge No. A02-027 (BF6)	7 TON	
Bridge No. A02-028 (BF7)	9 TON	
Bridge No. A02-030 (BF8)	4 TON	
Bridge No. A02-031 (BFA)	4 TON	
Bridge No. A02-032 (BG0)	6 TON	
	37 TON	
	Say	37 TON

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 455.71 **Superpave Bridge Protective Course – 12.5 (SPC-B - 12.5)** **TON**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	0 TON	
Bridge No. A02-019 (BF5)	10 TON	
Bridge No. A02-027 (BF6)	9 TON	
Bridge No. A02-028 (BF7)	11 TON	
Bridge No. A02-030 (BF8)	6 TON	
Bridge No. A02-031 (BFA)	5 TON	
Bridge No. A02-032 (BG0)	8 TON	
	49 TON	
	Say	49 TON

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 482.31 **Sawing & Sealing Joints In Asphalt Pavement At Bridges** **FT**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	0 FT	
Bridge No. A02-019 (BF5)	32 FT	
Bridge No. A02-027 (BF6)	32 FT	
Bridge No. A02-028 (BF7)	32 FT	
Bridge No. A02-030 (BF8)	32 FT	
Bridge No. A02-031 (BFA)	32 FT	
Bridge No. A02-032 (BG0)	32 FT	
	192 FT	
	Say	192 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 506.</u>	<u>Granite Curb Type VB - Straight</u>	<u>FT</u>
	As Contingency	
	<u>Say</u>	<u>10 FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 506.1</u>	<u>Granite Curb Type VB - Curved</u>		<u>FT</u>
	Flush mount at granite pier - Sta. 103+22	31 ft	
	Flush mount at granite pier - Sta. 247+11	31 ft	
	As Contingency	10 ft	
	Total =	72 ft	
	Say	80	FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 509.</u>						<u>FT</u>
<u>Granite Transition Curb For Wheelchair Ramps - Straight</u>						
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
113+59	LT	BFRT	113+61	LT	BFRT	7
113+67	RT	BFRT	113+71	RT	BFRT	8
					Total =	15
				Say	20	FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 509.1</u>						<u>Granite Transition Curb For Wheelchair Ramps - Curved</u>		<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>		
12+80	RT	BFRT	12+81	RT	BFRT	7		
						Total =		7
						Say	10	FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Item 511.1 Granite Edging Type SB - Straight FT

For use on splitter islands

<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
12+82	LT	BFRT	12+82	RT	BFRT	3
12+83	LT	BFRT	12+91	LT	BFRT	8
12+83	RT	BFRT	12+91	RT	BFRT	8
46+88	LT	BFRT	47+03	LT	BFRT	15
46+88	RT	BFRT	46+97	RT	BFRT	9
47+01	RT	BFRT	47+03	LT	BFRT	3
47+42	RT	BFRT	47+44	LT	BFRT	3
47+43	RT	BFRT	47+57	RT	BFRT	14
47+48	LT	BFRT	47+57	LT	BFRT	9
67+87	LT	BFRT	67+96	LT	BFRT	9
67+87	RT	BFRT	67+95	RT	BFRT	8
67+96	RT	BFRT	67+97	LT	BFRT	3
68+14	RT	BFRT	68+15	LT	BFRT	3
68+15	RT	BFRT	68+24	RT	BFRT	8
68+16	LT	BFRT	68+24	LT	BFRT	8
113+21	LT	BFRT	113+26	LT	BFRT	5
113+26	LT	BFRT	113+28	RT	BFRT	4
113+21	RT	BFRT	113+28	RT	BFRT	7
113+31	LT	BFRT	113+33	RT	BFRT	5
113+31	LT	BFRT	113+33	LT	BFRT	2
113+33	RT	BFRT	113+34	RT	BFRT	2
113+34	LT	BFRT	113+35	RT	BFRT	3
113+63	LT	BFRT	113+64	RT	BFRT	3
113+64	LT	BFRT	113+66	RT	BFRT	5
113+65	RT	BFRT	113+66	RT	BFRT	1
113+69	LT	BFRT	113+70	RT	BFRT	4
113+69	LT	BFRT	113+78	LT	BFRT	9
113+70	RT	BFRT	113+78	RT	BFRT	7
188+27	LT	BFRT	188+35	LT	BFRT	8
188+27	RT	BFRT	188+35	RT	BFRT	8
188+37	LT	BFRT	188+36	RT	BFRT	3
188+62	RT	BFRT	188+62	LT	BFRT	3
188+63	RT	BFRT	188+71	RT	BFRT	8
188+64	LT	BFRT	188+71	LT	BFRT	8
247+97	LT	BFRT	247+98	LT	BFRT	2
247+97	RT	BFRT	247+98	LT	BFRT	3
248+02	RT	BFRT	248+05	RT	BFRT	4
248+02	RT	BFRT	248+05	LT	BFRT	3
248+05	LT	BFRT	248+07	LT	BFRT	2
248+06	RT	BFRT	248+08	LT	BFRT	3
248+33	RT	BFRT	248+34	LT	BFRT	3
248+34	RT	BFRT	248+48	RT	BFRT	14
248+35	LT	BFRT	248+48	LT	BFRT	12
261+43	LT	BFRT	261+55	LT	BFRT	12
261+43	RT	BFRT	261+58	RT	BFRT	16
261+56	LT	BFRT	261+59	RT	BFRT	6
261+93	LT	BFRT	261+95	RT	BFRT	3
261+94	LT	BFRT	262+03	LT	BFRT	9
261+96	RT	BFRT	262+03	RT	BFRT	7

Total = 305

Say 310 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Item 512.1 Granite Edging Type SB (Radius 10 Feet Or Less) FT

For use on splitter islands

<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
12+82	LT	BFRT	12+83	LT	BFRT	2
12+82	RT	BFRT	12+83	RT	BFRT	2
12+91	LT	BFRT	12+91	RT	BFRT	3
46+88	LT	BFRT	46+88	RT	BFRT	3
46+97	RT	BFRT	47+01	RT	BFRT	4
47+03	LT	BFRT	47+03	LT	BFRT	3
47+42	RT	BFRT	47+43	RT	BFRT	3
47+44	LT	BFRT	47+48	LT	BFRT	4
47+57	LT	BFRT	47+57	LT	BFRT	3
67+87	LT	BFRT	67+87	RT	BFRT	3
67+95	RT	BFRT	67+96	RT	BFRT	2
67+96	LT	BFRT	67+97	LT	BFRT	2
68+14	RT	BFRT	68+15	RT	BFRT	2
68+15	LT	BFRT	68+16	LT	BFRT	2
68+24	LT	BFRT	68+24	RT	BFRT	3
113+21	LT	BFRT	113+21	RT	BFRT	3
113+33	LT	BFRT	113+34	LT	BFRT	2
113+34	RT	BFRT	113+35	RT	BFRT	2
113+33	LT	BFRT	113+34	LT	BFRT	2
113+34	RT	BFRT	113+35	RT	BFRT	2
113+63	LT	BFRT	113+64	LT	BFRT	2
113+64	RT	BFRT	113+65	RT	BFRT	2
113+78	LT	BFRT	113+78	RT	BFRT	3
188+27	LT	BFRT	188+27	RT	BFRT	3
188+35	RT	BFRT	188+36	RT	BFRT	2
188+35	LT	BFRT	188+37	LT	BFRT	2
188+62	RT	BFRT	188+63	RT	BFRT	2
188+62	LT	BFRT	188+64	LT	BFRT	2
188+71	LT	BFRT	188+71	RT	BFRT	3
247+97	LT	BFRT	247+97	RT	BFRT	3
248+05	RT	BFRT	248+06	RT	BFRT	2
248+07	LT	BFRT	248+08	LT	BFRT	2
248+33	RT	BFRT	248+34	RT	BFRT	2
248+34	LT	BFRT	248+35	LT	BFRT	1
247+48	LT	BFRT	248+48	RT	BFRT	3
261+43	LT	BFRT	261+43	RT	BFRT	3
261+55	LT	BFRT	261+56	LT	BFRT	1
261+58	RT	BFRT	261+59	RT	BFRT	2
261+93	LT	BFRT	261+94	LT	BFRT	2
261+95	RT	BFRT	261+96	RT	BFRT	2
262+03	LT	BFRT	262+03	RT	BFRT	3

Total = 99

Say 100 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 570.3		Hot Mix Asphalt Curb Type 3				FT
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
Prop. Path to NARA Parking Lot						303
Prop. Path to NARA Parking Lot						32
Prop. Path to NARA Parking Lot						32
Prop. Path to NARA Parking Lot						32
Total =						399
Say						400 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 594.</u>	<u>Curb Removed And Discarded</u>	<u>FT</u>
	From Item 509.	20
	From Item 509.1	10
	As Contingency	20
	Total =	50
	Say	50 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 620.2</u>		<u>Steel W Beam Highway Guard (Single Faced) - Rub Rail</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
62+00	LT	BFRT	63+00	LT	BFRT	100
116+13	RT	BFRT	120+27	RT	BFRT	414
249+31	LT	BFRT	252+00	LT	BFRT	269
262+25	LT	BFRT	266+79	LT	BFRT	454
Total =						783
<u>Say</u>						<u>800 FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 627.1</u>	<u>Steel W Beam Terminal Section (Single Faced)</u>			<u>EA</u>
	<u>Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Qty.</u>
	62+00	LT	BFRT	1
	63+00	LT	BFRT	1
	116+13	RT	BFRT	1
	120+27	RT	BFRT	1
	249+31	LT	BFRT	1
	252+00	LT	BFRT	1
	262+25	LT	BFRT	1
	266+79	LT	BFRT	1
			Total =	8
			Say	8 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 639.</u>	<u>Privacy Screen</u>						<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>	
85+24	LT	BFRT	105+44	LT	BFRT	2011	
82+27	RT	BFRT	92+25	RT	BFRT	893	
					Total =	2904	
				Say	2,950	FT	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 645.196		96 Inch Chain Link Fence (PTR) Vinyl Coated (Line Post Opt.)					FT
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>	
85+25	LT	BFRT	92+86	LT	BFRT	722	
101+14	LT	BFRT	103+63	LT	BFRT	196	
103+88	LT	BFRT	105+42	LT	BFRT	189	
103+93	RT	Great Rd.	104+68	RT	Great Rd.	75	
104+86	RT	Great Rd.	105+06	RT	Great Rd.	20	
Total =						1202	
Say						1,250	FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 655.01		Timber Rail Fence				FT
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
16+55	LT	BFRT	18+75	LT	BFRT	220
17+25	RT	BFRT	20+75	RT	BFRT	350
24+00	RT	BFRT	25+25	RT	BFRT	125
28+25	LT	BFRT	39+25	LT	BFRT	1,100
28+73	RT	BFRT	39+25	RT	BFRT	1,057
21+45	RT	AGP	21+88	RT	AGP	43
21+45	LT	AGP	21+78	LT	AGP	33
45+75	LT	BFRT	46+25	LT	BFRT	50
46+88	LT	BFRT	47+08	LT	BFRT	20
47+41	RT	BFRT	47+50	RT	BFRT	9
48+00	RT	BFRT	49+00	RT	BFRT	100
54+25	LT	BFRT	56+07	LT	BFRT	182
55+75	RT	BFRT	56+07	RT	BFRT	32
56+26	LT	BFRT	58+25	LT	BFRT	199
56+26	RT	BFRT	58+50	RT	BFRT	224
63+00	LT	BFRT	65+48	LT	BFRT	248
62+25	RT	BFRT	65+48	RT	BFRT	323
65+72	LT	BFRT	67+75	LT	BFRT	203
65+72	RT	BFRT	67+75	RT	BFRT	203
75+25	RT	BFRT	80+75	RT	BFRT	550
84+25	LT	BFRT	85+25	LT	BFRT	100
84+27	RT	BFRT	85+75	RT	BFRT	137
90+75	LT	BFRT	92+25	LT	BFRT	144
97+73	LT	BFRT	98+07	LT	BFRT	34
98+75	RT	BFRT	99+25	RT	BFRT	50
104+25	RT	BFRT	104+90	RT	BFRT	65
105+40	RT	BFRT	105+80	RT	BFRT	40
104+25	LT	BFRT	109+25	LT	BFRT	500
115+05	LT	BFRT	117+75	LT	BFRT	270
127+50	RT	BFRT	130+75	RT	BFRT	325
129+75	LT	BFRT	132+25	LT	BFRT	250
135+75	LT	BFRT	140+03	LT	BFRT	428
138+00	RT	BFRT	140+57	RT	BFRT	257
140+08	LT	BFRT	144+08	LT	BFRT	400
142+25	RT	BFRT	144+08	RT	BFRT	183
144+39	LT	BFRT	159+24	LT	BFRT	1,485
144+39	RT	BFRT	154+00	RT	BFRT	961
157+28	RT	BFRT	159+75	RT	BFRT	247
164+75	LT	BFRT	165+50	LT	BFRT	75
164+75	RT	BFRT	166+00	RT	BFRT	125
171+78	LT	BFRT	175+25	LT	BFRT	347
171+78	RT	BFRT	175+25	RT	BFRT	347
179+25	LT	BFRT	182+26	LT	BFRT	301
188+75	RT	BFRT	191+48	RT	BFRT	273
190+25	LT	BFRT	191+48	LT	BFRT	123
192+00	RT	BFRT	192+10	RT	BFRT	10
192+00	LT	BFRT	194+70	LT	BFRT	270
194+75	LT	BFRT	203+30	LT	BFRT	855
201+25	RT	BFRT	203+30	RT	BFRT	205
203+68	LT	BFRT	207+75	LT	BFRT	407
203+68	RT	BFRT	207+75	RT	BFRT	407
216+71	LT	BFRT	217+05	LT	BFRT	34
220+50	RT	BFRT	221+73	RT	BFRT	123
221+25	LT	BFRT	221+75	LT	BFRT	50
226+00	LT	BFRT	227+23	LT	BFRT	131
236+52	LT	BFRT	236+86	LT	BFRT	34
237+25	RT	BFRT	238+75	RT	BFRT	150
243+00	LT	BFRT	244+00	LT	BFRT	100
244+25	RT	BFRT	244+77	RT	BFRT	52
244+25	LT	BFRT	244+75	LT	BFRT	50
248+29	RT	BFRT	249+25	RT	BFRT	110

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 655.01 (cont'd)						
253+77	LT	BFRT	253+87	LT	BFRT	10
253+78	RT	BFRT	253+88	RT	BFRT	10
254+32	RT	BFRT	254+42	RT	BFRT	10
254+31	LT	BFRT	256+75	LT	BFRT	244
					Total =	16,000
				Say	16,000	FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 655.02 **Timber Rail Fence On Bridge** **FT**

Quantities From Bridge Estimate

	Quantity
Bridge No. A02-014 (A5T)	220 FT
Bridge No. A02-019 (BF5)	92 FT
Bridge No. A02-027 (BF6)	82 FT
Bridge No. A02-028 (BF7)	108 FT
Bridge No. A02-030 (BF8)	52 FT
Bridge No. A02-031 (BFA)	43 FT
Bridge No. A02-032 (BG0)	71 FT
	668 FT
Say	668 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 655.03 **Timber Rail Post - 54" Tall** **FT**

Quantities From Bridge Estimate

	Quantity
Bridge No. A02-014 (A5T)	830 FT
Bridge No. A02-019 (BF5)	0 FT
Bridge No. A02-027 (BF6)	0 FT
Bridge No. A02-028 (BF7)	0 FT
Bridge No. A02-030 (BF8)	0 FT
Bridge No. A02-031 (BFA)	0 FT
Bridge No. A02-032 (BG0)	0 FT
	830 FT
Say	830 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 656.</u>			<u>Remove and Reset Electric Gate and Equipment</u>		<u>LS</u>
<u>Station</u>	<u>Side</u>	<u>Baseline</u>			
103+69	RT	BFRT			
			Total =	1	
			Say	1	LS

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 660.01</u>	<u>Railings</u>					<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
20+10	LT	AGP	21+47	LT	AGP	141
20+10	RT	AGP	21+47	RT	AGP	141
187+83	LT	BFRT	187+83	LT	BFRT	37
187+94	LT	BFRT	187+94	LT	BFRT	37
50+10	LT	PG	50+42	LT	PG	32
50+10	RT	PG	50+42	RT	PG	32
Total =						420
Say						450 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 665.</u>		<u>Chain Link Fence Removed And Stacked</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
82+25	RT	BFRT	82+25	RT	BFRT	20
92+25	RT	BFRT	92+86	LT	BFRT	85
101+14	LT	BFRT	103+26	RT	BFRT	210
105+11	RT	BFRT	105+43	LT	BFRT	57
267+05	LT	BFRT	268+82	LT	BFRT	177
Total =						549
<u>Say</u>						<u>600 FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 665.3</u>		<u>72 Inch Stockade Fence</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
50+42	LT	PG	51+65	LT	PG	123
					Total =	123
			Say		150	FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 667.	<u>Chain Link Fence Gate W/Gate Posts Removed & Stacked</u>		<u>EA</u>
<u>Station</u> 82+25	<u>Side</u> -	<u>Baseline</u> BFRT	
			Total = 2
			Say 2 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 668.	<u>Chain Link Fence Gate W/Gate Posts Removed & Reset</u>		<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Baseline</u>	
103+70	RT	BFRT	
			Total = 1
			Say 1 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 669.</u>		<u>Fence Removed And Stacked</u>				<u>FT</u>
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
19+66	RT	BFRT	22+45	RT	BFRT	279
244+05	LT	BFRT	244+28	LT	BFRT	25
					Total =	304
				<u>Say</u>	<u>350</u>	<u>FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 670.</u>	<u>Fence Removed And Reset</u>	<u>FT</u>
		<u>Length</u>
	Wooden Fence at Access path from NARA	88
	Total =	88
	Say	100 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 673.</u>	<u>Steel Pipe Access Gate</u>		<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Baseline</u>	
104+91	RT	Great Rd.	
			Total = 1
			Say 1 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 685. **Stone Masonry Wall In Cement Mortar** **CY**

Sta. 112+20 RT to Sta. 113+24 RT

<u>Length</u>		<u>Avg. Area</u>		<u>Volume</u>	
109	FT	59	SF	237	CY
				Say	250 CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 690.1 **Stone Masonry Wall Removed And Rebuilt Dry** **CY**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	0 CY	
Bridge No. A02-019 (BF5)	3 CY	
Bridge No. A02-027 (BF6)	0 CY	
Bridge No. A02-028 (BF7)	5 CY	
Bridge No. A02-030 (BF8)	0 CY	
Bridge No. A02-031 (BFA)	0 CY	
Bridge No. A02-032 (BG0)	8 CY	
	16 CY	
	Say	16 CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 690.2</u>	<u>Granite Headwall Removed and Rebuilt in Cement Mortar</u>	<u>EA</u>
<u>Station</u>	<u>Baseline</u>	<u>Count</u>
116+37	BFRT	2
130+23	BFRT	2
212+49	BFRT	2
216+90	BFRT	2
236+68	BFRT	2
244+51	BFRT	2
	Total =	12
	<u>Say</u>	<u>12 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 690.3</u>	<u>Granite Slab Culvert Removed and Rebuilt in Cement Mortar</u>	<u>LS</u>
<u>Station</u> 216+90	<u>Baseline</u> BFRT	<u>Count</u> 1
	Total =	1
	Say	1 LS

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 691.01</u>	<u>Landscape Boulder</u>			<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Count</u>	
13+16	RT	BFRT	1	
13+48	LT	BFRT	1	
13+48	LT	BFRT	1	
46+33	RT	BFRT	1	
48+09	LT	BFRT	1	
48+09	LT	BFRT	1	
48+15	LT	BFRT	1	
68+33	RT	BFRT	1	
68+33	LT	BFRT	1	
68+34	RT	BFRT	1	
68+37	LT	BFRT	1	
68+37	RT	BFRT	1	
102+81	RT	BFRT	1	
102+81	RT	BFRT	1	
102+81	RT	BFRT	1	
111+76	LT	BFRT	1	
111+78	LT	BFRT	1	
112+51	LT	BFRT	1	
113+60	LT	BFRT	1	
113+66	LT	BFRT	1	
227+02	LT	BFRT	1	
227+19	LT	BFRT	1	
246+48	LT	BFRT	1	
246+53	LT	BFRT	1	
246+58	LT	BFRT	1	
246+62	RT	BFRT	1	
246+62	LT	BFRT	1	
246+66	RT	BFRT	1	
246+68	RT	BFRT	1	
260+96	RT	BFRT	1	
260+99	RT	BFRT	1	
261+02	LT	BFRT	1	
261+22	LT	BFRT	1	
261+27	LT	BFRT	1	
262+15	RT	BFRT	1	
262+23	RT	BFRT	1	
			Total =	36
			Say	40 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 691.1</u>	<u>Landscape Boulder Removed and Reset</u>			<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Count</u>	
85+32	LT	BFRT	1	
85+41	LT	BFRT	1	
85+64	LT	BFRT	1	
93+28	LT	BFRT	1	
98+74	LT	BFRT	1	
98+92	RT	BFRT	1	
99+07	RT	BFRT	1	
104+99	LT	BFRT	1	
105+00	LT	BFRT	1	
111+81	LT	BFRT	1	
112+00	LT	BFRT	1	
112+23	LT	BFRT	1	
247+41	RT	BFRT	1	
247+84	RT	BFRT	1	
262+92	RT	BFRT	1	
262+99	RT	BFRT	1	
263+05	RT	BFRT	1	
263+12	RT	BFRT	1	
263+19	RT	BFRT	1	
263+26	RT	BFRT	1	
			Total =	20
			<u>Say</u>	<u>20</u> <u>EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 699.</u>	<u>Filter Strip</u>			<u>SY</u>
<u>From Surface Areas</u>		<u>Area (sf)</u>	<u>Area (sy)</u>	
Filter Strip		6,743	749	
		Total	749	
		<u>Say</u>	<u>800</u>	<u>SY</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 701.</u>	<u>Cement Concrete Sidewalk</u>		<u>SY</u>
<u>From Surface Areas</u>		<u>Area (sf)</u>	<u>Area (sy)</u>
Cement Concrete Sidewalk		1,795	199
		Total	199
		Say	200 SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 701.1</u>	<u>Cement Concrete Sidewalk At Driveways</u>		<u>SY</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	
Cement Concrete Sidewalk at Driveways	153	17	
	Total	17	
	Say	20	SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 701.2</u>	<u>Cement Concrete Wheelchair Ramp</u>		<u>SY</u>
<u>From Surface Areas</u>		<u>Area (sf)</u>	<u>Area (sy)</u>
Cement Concrete Wheelchair Ramp		749	83
		Total	83
		Say	100 SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 701.3</u>	<u>Stamped Cement Concrete Island</u>		<u>SY</u>
<u>From Surface Areas</u>		<u>Area (sf)</u>	<u>Area (sy)</u>
Stamped Concrete Splitter Island		495	55
		Total	55
		Say	60 SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 702.</u>	<u>Hot Mix Asphalt Walk Surface</u>			<u>TON</u>
For use at path near Sta. 78+15				
	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Weight (ton)</u>
	135	15	2.50	2.1
			<u>Say</u>	<u>5</u> <u>TON</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 703.</u>	<u>Hot Mix Asphalt Driveway</u>			<u>TON</u>
<u>From Surface Areas</u>		<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u> <u>Weight (ton)</u>
Hot Mix Asphalt Driveway and Parking Lots		11,768	1,308	3.50 256.28
				Total = 256
		<u>Say</u>	<u>275</u>	<u>TON</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 704.2</u>	<u>Stone Dust</u>			<u>TON</u>
Assume 2700 pounds per cubic yard				
<u>From Surface Areas</u>		<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u> <u>Volume (cy)</u>
Stone Dust Shoulder		161,196	17,911	4.00 1,990
		Total =	1,990	cy
		1,990 cy x 2700 lb/cy ÷ 2000 lb/ton =	2,687	
		Say	2,800	TON

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 706.38</u>		<u>Granite Pier</u>			<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Offset</u>	<u>Quantity</u>	
103+22	RT	BFRT	4	1	
247+11	-	BFRT	-	1	
				Total =	2
				Say	2 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 707.1</u>	<u>Park Bench</u>			<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Offset</u>	<u>Baseline</u>	<u>Quantity</u>
23+70	LT	12.0	BFRT	1
23+80	LT	12.0	BFRT	1
78+22	LT	12.0	BFRT	1
78+32	LT	12.0	BFRT	1
139+60	LT	12.0	BFRT	1
139+70	LT	12.0	BFRT	1
239+31	RT	16.0	BFRT	1
239+41	RT	16.0	BFRT	1
266+95	LT	12.0	BFRT	1
267+05	LT	12.0	BFRT	1
Total =				10
<u>Say</u>				<u>10 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 707.15</u>		<u>Park Bench Removed And Reset</u>			<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Offset</u>	<u>Baseline</u>	<u>Quantity</u>	
93+76	RT	29.0	BFRT	1	
93+92	RT	21.0	BFRT	1	
95+25	LT	10.0	BFRT	1	
98+30	LT	10.0	BFRT	1	
100+00	RT	10.0	BFRT	1	
101+13	RT	10.0	BFRT	1	
				Total =	6
				<u>Say</u>	<u>6 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 707.7</u>		<u>Display Board</u>			<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Offset</u>	<u>Baseline</u>	<u>Quantity</u>	
21+81	LT	11.0	AGP	1	
102+58	RT	147.0	BFRT	1	
187+99	LT	11.0	BFRT	1	
267+28	LT	13.0	BFRT	1	
				Total =	4
				<u>Say</u>	<u>4 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 707.81</u>	<u>Removable Bollard</u>			<u>Quantity</u>	<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Offset</u>	<u>Baseline</u>		
21+74	-	0.0	AGP	1	
102+81	RT	50.2	BFRT	1	
187+74	LT	15.3	BFRT	1	
227+12	LT	16.6	BFRT	1	
				Total =	4
				<u>Say</u>	<u>4 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 707.9</u>		<u>Bicycle Rack</u>		<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Offset</u>	<u>Baseline</u>	<u>Quantity</u>
227+20	LT	12.0	BFRT	1
Total =				1
<u>Say</u>				<u>1 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 710.8</u>		<u>Granite Marker</u>			<u>EA</u>
<u>Station</u>	<u>Side</u>	<u>Offset</u>	<u>Baseline</u>	<u>Quantity</u>	
18+61	RT	11.0	BFRT	1	
31+82	RT	11.0	BFRT	1	
58+33	RT	10.0	BFRT	1	
71+53	RT	10.0	BFRT	1	
83+87	RT	10.0	BFRT	1	
106+07	RT	10.0	BFRT	1	
119+91	RT	10.0	BFRT	1	
132+68	RT	14.0	BFRT	1	
145+91	RT	14.0	BFRT	1	
159+11	RT	14.0	BFRT	1	
172+55	RT	15.0	BFRT	1	
185+73	RT	14.0	BFRT	1	
198+94	RT	14.0	BFRT	1	
225+34	RT	14.0	BFRT	1	
238+54	RT	16.2	BFRT	1	
251+87	RT	14.0	BFRT	1	
				Total =	16
				Say	16 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 714.2</u>		<u>Mile Marker Removed and Reset</u>				<u>EA</u>
<u>Station</u>	<u>Offset</u>	<u>Side</u>	<u>Baseline</u>	<u>Type</u>	<u>Quantity</u>	
44+54	12.6	RT	BFRT	MM Gran Post	1	
265+35	0.9	RT	BFRT	MM Gran Post	1	
Total =					2	
Say					2 EA	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Station</u>	<u>Offset</u>	<u>Side</u>	<u>Baseline</u>	<u>Type</u>	<u>Quantity</u>	
261+42	10.7	RT	BFRT	Signal Post	1	
262+80	16.0	RT	BFRT	Signal Post	1	
264+18	16.0	RT	BFRT	Signal Post	2	
264+21	16.0	RT	BFRT	Signal Post	1	
265+51	16.0	RT	BFRT	Signal Post	1	
266+87	10.0	RT	BFRT	Signal Post	1	
				Total =	7	
				<u>Say</u>	<u>7</u>	<u>EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 714.4</u>	<u>Whistle Post Removed and Reset</u>				<u>EA</u>
<u>Station</u>	<u>Offset</u>	<u>Side</u>	<u>Baseline</u>	<u>Quantity</u>	
201+77	12.0	LT	BFRT	1	
234+88	10.0	RT	BFRT	1	
249+58	6.5	RT	BFRT	1	
			Total =	3	
			Say	3	EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Station</u>	<u>Offset</u>	<u>Side</u>	<u>Baseline</u>	<u>Type</u>	<u>Quantity</u>	
76+85	7.5	LT	BFRT	Switch	1	
				Total =	1	
				Say	1	EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Station</u>	<u>Side</u>	<u>Offset</u>	<u>Baseline</u>	<u>Quantity</u>	
140+18	LT	13.0	BFRT	1	
				Total =	1
			Say	1	EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 740.</u>	<u>Engineers Field Office And Equipment (Type A)</u>	<u>MO</u>
Assume	24	Month Construction Duration.
Assume Field Office is needed for 1 month prior to construction and 1 month after substantial completion		
Assume Total =	26	Months
	<u>Say</u>	<u>26</u> <u>MO</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 748.</u>	<u>Mobilization</u>			<u>LS</u>
		<u>Say</u>	<u>1</u>	<u>LS</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 751.7</u>	<u>Compost Topsoil</u>			<u>CY</u>
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	<u>Depth (in)</u>	<u>Volume (cy)</u>
Loam & Seed	88,028	9,781	4.00	1087
			Total	1,087
			Say	1,100 CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 754.2</u>	<u>Turtle Protection Plan</u>	<u>LS</u>
	<u>Say</u>	<u>1</u> <u>LS</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 755.3 **Non-Tidal Wetland Mitigation Areas** **LS**

There are no wetland impact areas within Westford and Carlisle
In Acton, replicate wetland impacted areas at a ratio of 1:1.

<u>From Station</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>
29+00	30+00	RT	BFRT
223+00	224+00	RT	BFRT

Say 1 **LS**

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 755.7</u>	<u>Wetland Specialist</u>	<u>HR</u>
	<u>Say</u>	<u>40 HR</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 756.</u>	<u>NPDES Stormwater Pollution Prevention Plan</u>	<u>LS</u>
	<u>Say</u>	<u>1</u> <u>LS</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 765.</u>	<u>Seeding</u>		<u>SY</u>
<u>From Surface Areas</u>		<u>Area (sf)</u>	<u>Area (sy)</u>
Loam & Seed		88,028	9,781
		Total	9,781
		Say	10,000 SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 765.15 **Seeding - Steep Slope Mix** **SY**

For use on slopes steeper than 3 Horizontal to 1 Vertical

<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	
Loam & Steep Slope Seed	47,179	5,242	
	Total	5,242	
	Say	5,500	SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 765.4 **NHESP Restoration Area Seed Mix** **SY**

For use in NHESP Focus Areas

<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	
NHESP Seed Mix	38,903	4,323	
	Total	4,323	
	Say	4,500	SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 765.5 **Bioswale Seed Mix** **SY**

For use in landscaped bioretention areas.

<u>Lanscaped Area</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	
Area 5	582	65	
Area 6	582	65	
Area 7	1,258	140	
	Total	204	
	Say	225	SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By _____ Checked By _____

Item 767.12 Compost Filter Tubes FT

<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Side</u>	<u>Baseline</u>	<u>Length</u>
13+00	RT	BFRT	22+75	RT	BFRT	981.58
15+25	LT	BFRT	19+75	LT	BFRT	452.03
27+73	LT	BFRT	39+50	LT	BFRT	1181.8
28+93	RT	BFRT	39+27	RT	BFRT	1044.4
20+12	RT	Acton Storage	23+13	RT	Acton Storage	316.72
20+75	LT	Acton Storage	23+26	LT	Acton Storage	299.67
42+25	LT	BFRT	43+75	LT	BFRT	150.13
43+75	LT	BFRT	46+25	LT	BFRT	255.75
46+85	LT	BFRT	47+16	LT	BFRT	34.05
47+30	RT	BFRT	47+50	RT	BFRT	22.03
51+50	LT	BFRT	55+75	LT	BFRT	425.79
52+25	RT	BFRT	55+75	RT	BFRT	349.66
75+22	RT	BFRT	81+76	RT	BFRT	656.35
83+75	RT	BFRT	85+79	RT	BFRT	178.14
84+23	LT	BFRT	85+25	LT	BFRT	114.74
87+74	LT	BFRT	92+00	LT	BFRT	416.93
103+93	LT	BFRT	110+35	LT	BFRT	661.17
104+97	RT	BFRT	106+85	RT	BFRT	184.82
116+02	RT	BFRT	117+00	RT	BFRT	98.37
122+35	RT	BFRT	138+35	RT	BFRT	1594.1
129+35	RT	BFRT	131+85	RT	BFRT	254.36
134+92	LT	BFRT	143+68	LT	BFRT	877.76
140+83	LT	BFRT	143+68	LT	BFRT	286.64
144+00	RT	BFRT	153+60	RT	BFRT	961.15
144+02	RT	BFRT	169+63	RT	BFRT	2595.8
156+76	LT	BFRT	160+86	LT	BFRT	411.31
163+85	RT	BFRT	168+71	RT	BFRT	515.25
179+61	RT	BFRT	182+11	RT	BFRT	250.53
179+86	LT	BFRT	181+61	LT	BFRT	175.63
183+11	RT	BFRT	184+11	RT	BFRT	100.66
195+00	LT	BFRT	203+30	LT	BFRT	822.03
195+00	RT	BFRT	203+30	RT	BFRT	829.33
225+00	RT	BFRT	239+10	RT	BFRT	1430.9
227+26	LT	BFRT	230+86	LT	BFRT	360.55
236+11	LT	BFRT	236+86	LT	BFRT	75.56
240+11	RT	BFRT	247+68	RT	BFRT	774.14
248+16	RT	BFRT	253+72	RT	BFRT	558.12
251+86	LT	BFRT	253+72	LT	BFRT	188.81
254+15	RT	BFRT	260+68	RT	BFRT	685.73
254+27	LT	BFRT	258+11	LT	BFRT	388.05
Total =						21961

Say 22,000 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 767.2</u>	<u>Hay Mulch</u>				<u>SY</u>
For use with Item 751.7. To be placed on all distributed slopes if the season prevents establishment of a vegetative cover. Assume 20% of the area from Item 751.7.					
	From Item 751.7	1,100	SY x 20% =	220	SY
			Say	400	SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 767.9</u>	<u>Matting For Erosion Control</u>		<u>SY</u>
For use on slopes steeper than 3 Horizontal to 1 Vertical For use with Item 765.15			
<u>From Surface Areas</u>	<u>Area (sf)</u>	<u>Area (sy)</u>	
Loam & Steep Slope Seed	47,179	5,242	
	Total	5,242	
	<u>Say</u>	<u>5,500</u>	<u>SY</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 769.</u>	<u>Pavement Milling Mulch Under Guard Rail</u>	<u>FT</u>
	From Item 620.2	783 ft
		<u>Say 800 FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 772.366</u>	<u>Fir - Canaan 8-10 Feet</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	7	
	Say	7 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 773.438</u>	<u>Pine - White 8-10 Feet</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	3	
	<u>Say</u>	<u>3 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 782.538</u>	<u>Redbud - Eastern 8-10 Feet Multi-stem</u>	<u>EA</u>
From Plant List:	<u>Qty.</u> 6	
	<u>Say</u>	<u>6 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 783.05</u>	<u>Robin Hill Serviceberry 3-3.5 Inch Caliper</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	4	
	Say	4 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 783.541</u>	<u>Yellowwood 3-3.5 Inch Caliper</u>	<u>EA</u>
From Plant List:	<u>Qty.</u> 7	
	Say	7 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 785.183</u>	<u>Boxwood - Common 3-4 Feet</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	258	
	Say	258 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 785.733</u>	<u>Inkberry - Compact 24-30 Inch</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	30	f
	<u>Say</u>	<u>30 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 786.671</u>	<u>Mountain Laurel 24-30 Inch</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	35	
	<u>Say</u>	<u>35 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 789.8</u>	<u>Chokeberry - Red 3-4 Feet</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	33	
	<u>Say</u>	<u>33 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 790.133</u>	<u>Coralberry Shrub-Chenault 2-3 Feet</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	31	
	<u>Say</u>	<u>31 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 791.313</u>	<u>Fothergilla - Dwarf 18-24 Inch Spread</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	33	
	<u>Say</u>	<u>33 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 794.322</u>	<u>Sumac Shrub - Fragrant 18-24 Inch</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	32	
	<u>Say</u>	<u>32 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 794.731</u>	<u>Summersweet Shrub 18-24 Inch</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	36	
	Say	36 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 795.053</u>	<u>Viburnum - Highbush Cranberry 3-4 Feet</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	18	
	<u>Say</u>	<u>18 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 795.153</u>	<u>Winterberry - Male 24-30 Inch</u>	<u>EA</u>
	<u>Qty.</u>	
From Plant List:	1	
	<u>Say</u>	<u>1 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

<u>Item 795.157</u>	<u>Winterberry - Female 24-30 Inch</u>	<u>EA</u>
From Plant List:	<u>Qty.</u> 5	
	Say	5 EA

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 804.3</u>		<u>3 Inch Electrical Conduit Type NM - Plastic -(UL)</u>					<u>FT</u>	
<u>Station</u>	<u>Side</u>	<u>Type</u>	<u>To Station</u>	<u>Side</u>	<u>Type</u>			
12+31	RT	BFRT	Pull Box	12+62	LT	BFRT	Pull Box	52
12+31	RT	BFRT	Pull Box	12+24	RT	BFRT	Exist. M.A. Fdn.	12
12+34	RT	BFRT	Pull Box	12+37	RT	BFRT	8' Post Fdn.	3
12+83	RT	BFRT	Pull Box	12+31	RT	BFRT	Pull Box	48
12+83	RT	BFRT	Pull Box	12+86	LT	BFRT	10' Post Fdn.	18
12+83	RT	BFRT	Pull Box	12+87	RT	BFRT	Exist. 10' Post Fdn.	10
12+83	RT	BFRT	Pull Box	13+07	RT	BFRT	Pull Box	37
13+07	RT	BFRT	Pull Box	12+94	RT	BFRT	Controller	35
12+94	RT	BFRT	Controller	13+07	RT	BFRT	U.P.	11
12+94	RT	BFRT	Controller	12+65	RT	BFRT	Exist. M.A. Fdn.	27
12+94	RT	BFRT	Controller	12+40	RT	BFRT	Pull Box	61
12+40	RT	BFRT	Pull Box	11+93	RT	BFRT	Pull Box	50
11+93	RT	BFRT	Pull Box	11+98	RT	BFRT	Exist. 10' Post Fdn.	7
11+93	RT	BFRT	Pull Box	11+73	RT	BFRT	Pull Box	30
							Total =	401
<u>Say</u>							<u>410</u>	<u>FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 811.31</u>	<u>Pull Box 12 X 12 Inches - Sd2.031</u>	<u>EA</u>
	<u>Station</u>	
	12+83 RT BFRT	1
	12+31 RT BFRT	1
	12+62 LT BFRT	1
	13+07 RT BFRT	1
	12+40 RT BFRT	1
	11+93 RT BFRT	1
	11+73 RT BFRT	1

		Total = 7
	<u>Say</u>	<u>7 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 816.01</u>	<u>Traffic Signal Reconstruction Location No. 1</u>	<u>LS</u>
Signalization at Carlisle Rd and BFRT		1
	<u>Say 1 LS</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 816.8</u>	<u>Traffic Control Signal Removed And Stacked</u>	<u>LS</u>
Signalization at Carlisle Rd and BFRT		1
	<u>Say 1 LS</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

Item 824.01	<u>Rectangular Rapid-Flash Beacons, Location No. 1</u>	<u>LS</u>
	<u>Location #</u>	<u>No. Required</u>
	<u>1</u>	<u>1</u>
	Say	1 LS

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 824.02</u>	<u>Rectangular Rapid-Flash Beacons, Location No. 2</u>	<u>LS</u>
	<u>Location #</u>	<u>No. Required</u>
	<u>2</u>	<u>1</u>
	<u>Say</u>	<u>1 LS</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 824.03</u>	<u>Rectangular Rapid-Flash Beacons, Location No. 3</u>	<u>LS</u>
	<u>Location #</u>	<u>No. Required</u>
	<u>3</u>	<u>1</u>
	<u>Say</u>	<u>1 LS</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 824.04</u>	<u>Rectangular Rapid-Flash Beacons, Location No. 4</u>	<u>LS</u>
	<u>Location #</u>	<u>No. Required</u>
	<u>4</u>	<u>1</u>
	Say	1 LS

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 824.05</u>	<u>Rectangular Rapid-Flash Beacons, Location No. 5</u>	<u>LS</u>
	<u>Location #</u>	<u>No. Required</u>
	<u>5</u>	<u>1</u>
	<u>Say</u>	<u>1 LS</u>

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
 Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
 Calculated By CTW Checked By _____

<u>Item 832.</u>	<u>Warning-Regulatory And Route Marker - Alum. Panel (Type A)</u>			<u>SF</u>
<u>Identification</u>	<u>Unit Area (SF)</u>	<u>Supports</u>	<u>No. Required</u>	
R1-1	6.25	5 P5	5	31.25
R1-1(B)	2.25	11 P5	11	24.75
R1-2(B)	2.25	2 P5	2	4.50
R4-2sp	3.00	8 P5	8	24.00
R5-3	4.00	16 P5	16	64.00
R7-8	1.50	3 P5	3	4.50
R7-8P	1.125	mount with R7-8	3	3.38
R8-1a	5.00	2 P5	2	10.00
R8-3a	3.00	2 P5	2	6.00
R9-5	1.50	mount on Signal Post	2	3.00
R9-14	2.25	12 P5	12	27.00
R10-6	6.00	1 P5	1	6.00
R10-11a	5.00	mount on Mast Arm Shaft	2	10.00
R10-22	3.00	3 P5	4	12.00
		1 mount w/R10-6		
W1-5R	2.25	2 P5	2	4.50
W1-8L	1.50	18 P5	18	27.00
W1-8R	1.50	18 P5	18	27.00
W1-10L	2.25	1 P5	1	2.25
W1-10R	2.25	1 P5	1	2.25
W2-1	2.25	2 P5	2	4.50
W2-3sp(L)	2.25	2 P5	2	4.50
W2-3sp(R)	2.25	2 P5	2	4.50
W3-1	6.25	1 P5	1	6.25
W3-1(B)	2.25	10 P5	10	22.50
W3-3	2.25	2 P5	2	4.50
W7-5	2.25	2 P5	2	4.50
W8-3sp	2.25	1 P5	1	2.25
W11-15	9.00	12 P5	12	108.00
W11-15P	3.00	mount with W11-15	12	36.00
W16-1Psp	2.25	mount with W2-3sp	4	9.00
W16-2aP	1.13	mount with W8-3sp	1	1.13
W16-9P	2.00	mount with W11-15	12	24.00
SP-1	2.00	5 P5	5	10.00
SP-2	3.00	2 P5	2	6.00
SP-3	3.00	2 P5	2	6.00
SP-4	5.00	5 P5	5	25.00
SP-6		2 P5		
SP-7	5.00	2 P5	2	10.00
I-2-1	3.75	2 P5	2	7.50
I-2-2	3.00	mount with I-2-1	1	3.00
I-2-3	3.75	mount with I-2-1	1	3.75
D11-1	3.00	8 P5	8	24.00
D11-1c	3.00	2 P5	2	6.00
M4-6	0.50	mount with D11-1	4	2.00
M4-14	0.50	mount with D11-1	4	2.00
M6-2(L)	0.75	mount with D11-1c	1	0.75

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>M6-2(R)</u>	<u>0.75</u>	<u>mount with D11-1c</u>	<u>1</u>	<u>0.75</u>
		For Item 847.1 =	169	Total = 632
		<u>Say</u>	<u>640</u>	<u>SF</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By CTW Checked By _____

<u>Item 833.5</u>	<u>Demountable Reflectorized Delineator - Guard Rail</u>	<u>EA</u>
On Straight runs of guardrail, delineators shall be installed on every tenth guardrail post. Each post is spaced 6.25' apart, so delineators are located 62.5' apart.		
From Item 603.7=	800 FT	
Total Length =	800 FT	
	Delineators Required =	13 EA
	<u>Say</u>	<u>15 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 833.7</u>	<u>Delineation For Guard Rail Termini</u>	<u>EA</u>
	From Item 627.1	8

		Total = 8
	<u>Say</u>	<u>10</u> <u>EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 847.1</u>	<u>Sign Sup (N/Guide)+Rte Mkr W/1 Brkway Post Assembly - Steel</u>	<u>EA</u>
	From Item 832.	169
	From Item 874.	5
	From Item 874.55	2

		Total = 176
	<u>Say</u>	<u>180</u> <u>EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 850.41</u>	<u>Roadway Flagger</u>	<u>HR</u>
Assume 2 Roadway Flaggers needed for 1 week for setting up work zones.		
0.25 Months X	4.33 $\frac{\text{Weeks}}{\text{Month}}$ X	5 $\frac{\text{Days}}{\text{Week}}$ = 5 Days
5 Days X	8 $\frac{\text{Hours}}{\text{Day}}$ X	2 Flaggers = 87 HR
Say		100 HR

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

Item 852.		<u>Safety Signing For Traffic Management</u>		<u>SF</u>
(Note: Quantity is for estimating purpose only. Quantity varied pending field condition and as directed by the Engineer. Quantity based on assuming no more than 1 section of sidewalk will be closed and 2 work zones at the same time.)				
Sign ID	Unit Area	# Required	Total Sign Area (SF)	
R2-10a	12.00	9	108.00	
R2-10e	12.00	14	168.00	
R4-7	5.00	2	10.00	
R9-11aL	2.00	1	2.00	
R9-11aR	2.00	1	2.00	
W1-4L	6.25	2	12.50	
W1-4R	6.25	2	12.50	
W5-1	9.00	2	18.00	
W8-3	9.00	2	18.00	
W8-8	6.25	2	12.50	
W11-2	6.25	4	25.00	
W13-1P	4.00	2	8.00	
W16-7pL	2.19	2	4.38	
W16-7pR	2.19	2	4.38	
W16-9p	2.00	2	4.00	
W20-1(AHEAD)	9.00	15	135.00	
W20-1(1000)	9.00	2	18.00	
W20-1(1500)	9.00	2	18.00	
W20-4(1000)	9.00	2	18.00	
W20-7a	9.00	2	18.00	
W20-8	9.00	2	18.00	
W21-5a	6.25	4	25.00	
			<u>659.25</u>	
		Say	660	SF

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 853.1</u>	<u>Portable Breakaway Barricade Type III</u>	<u>EA</u>
Estimate 4 will be needed for Temporary Traffic Control use.		
	<u>Say</u>	<u>4 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 854.016</u>	<u>Temporary Paving Markings - 6 Inch (Painted)</u>	<u>FT</u>
As a contingency		
	<u>Say</u>	<u>500 FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 854.1</u>	<u>Pavement Marking Removal</u>		<u>SF</u>
<u>Street</u>	<u>Description</u>	<u>Length</u>	
Rte 27 S	DYCL	20'	40
Rte 27 S	SWLL	40'	40
Brook St	DYCL	20'	40
Brook St	SWLL	40'	40
Wetherbee St	DYCL	20'	40
Wetherbee St	SWLL	40'	40
Contingency			400
			400
			Total = 640'
			Total = 213 SF
	<u>Say</u>	<u>250</u>	<u>SF</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 856.</u>	<u>Arrow Board</u>	<u>DAY</u>
Assume 2 Units will be used (as a contingency):		
2	unit x 1 weeks	X 5 <u>days</u> = 10
		week
	Say	10 DAY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By CTW Checked By _____

<u>Item 859.</u>	<u>Reflectorized Drum</u>	<u>DAY</u>
Assume 1 work zones per day, each zone 300' long, will require a total of 17 drums/day		
Assume 2 month construction duration		
Estimate number of drums will be used: 20 drums		
17	drums X 2 months X 4.25 $\frac{\text{weeks}}{\text{month}}$ X 5 $\frac{\text{days}}{\text{week}}$ =	723
<u>Say</u> 730		<u>DAY</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 860.12</u>		<u>12 Inch ReflectORIZED White Line (Painted)</u>		<u>FT</u>
<u>Intersection</u>		<u>Stop Line</u>	<u>Crosswalk</u>	
BFRT	BFRT NB	5'		= 5
<u>@ Rte 225</u>				
BFRT	BFRT NB	5'		= 5
@ Rte 27 N	BFRT SB	5'		= 5
BFRT	BFRT NB			= 0
@ Nahoba	BFRT SB			= 0
<u>Sportsman's Club</u>				
BFRT	BFRT NB	6'		= 6
@ Rex Ln	BFRT SB			
BFRT	BFRT NB	5'		= 5
@ Rte 27 S	BFRT SB	5'		= 5
BFRT	BFRT NB	5'		= 5
@ Brook St	BFRT SB	5'		= 5
BFRT	BFRT NB	5'		= 5
@ Concord Rd	BFRT SB	5'		= 5
BFRT	BFRT NB	5'		= 5
@ Wetherbee St.	BFRT SB	5'		= 5
				Total = 61
<u>Say 100 FT</u>				

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 861.04</u>	<u>4 Inch ReflectORIZED Yellow Line (Painted)</u>	<u>FT</u>
<u>Street</u>	<u>Description</u>	
Rte 225	YCL 190'	190
Rte 27 N	YCL 374'	374
Sportsman's Club	YCL 374'	374
Nara Park	YCL 877'	877
Rte 27 S	YCL 362'	362
Brook St	YCL 369'	369
Concord Rd	YCL 390'	390
Wetherbee St	YCL 382'	382
		<hr/>
		Total = 3,318
	<u>Say</u>	<u>3,400 FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 864.04</u>	<u>Pavement Arrows And Legends Refl. White (Thermoplastic)</u>					<u>SF</u>
(Note: Roadway "XING" is approximately 30 SF) 1 Bicycle Symbol is approximately 20 SF) 1 Bike Symbol is approximately 3 SF) Bikepath "XING" is approximately 15 SF) Bikepath "HWY" is approximately 15 SF)						
<u>Street Name</u>	<u>Roadway XING</u>	<u>Bikepath HWY XING</u>	<u>Bicycle Symbol</u>	<u>Bike Symbol</u>	<u>Misc.</u>	
BFRT @ Rte 225	30 x 0	30 x 1	20 x 0	3 x 4	3 x 0 =	42 sf
Parking @ Rte 27	30 x 0	30 x 0	20 x 0	3 x 0	3 x 1 =	3 sf
BFRT @ Rte 27 N	30 x 2	30 x 2	20 x 2	3 x 0	3 x 0 =	160 sf
BFRT @ Nashoba Sportsman's Club	30 x 1	30 x 2	20 x 1	3 x 0	3 x 0 =	110 sf
BFRT @ Rex Ln	30 x 1	30 x 0	20 x 1	3 x 0	3 x 1 =	53 sf
BFRT @ Rte 27 S	30 x 2	30 x 2	20 x 2	3 x 0	3 x 0 =	160 sf
BFRT @ Brook St	30 x 2	30 x 2	20 x 2	3 x 0	3 x 1 =	163 sf
BFRT @ Concord Rd	30 x 2	30 x 2	20 x 2	3 x 0	3 x 0 =	160 sf
BFRT @ Wetherbee	30 x 2	30 x 2	20 x 2	3 x 0	3 x 0 =	160 sf
BFRT @ Acton Indoor Sports	30 x 0	30 x 0	20 x 0	3 x 0	3 x 0 =	0 sf
					Total =	1011 sf
<u>Say</u>					<u>1,050</u>	<u>SF</u>

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 865.1</u>	<u>Cross Walks And Stop Lines Refl. White (Thermoplastic)</u>	<u>SF</u>
For 2 foot wide lines.		
<u>Intersection</u>	<u>Stop Line</u>	<u>Crosswalk</u>
BFRT	Rte 225 WB	106'
@ Rte 225		= 106
BFRT	Rte 225 EB	145'
@ Rte 27 N	Rte 225 WB	= 0
BFRT	Drive EB	69'
@ Nahoba	Drive WB	= 0
Sportsman's Club		
BFRT	Rex Ln EB	71'
@ Rex Ln	Rex Ln WB	= 0
BFRT	Rte 27 EB	101'
@ Rte 27 S	Rte 27 WB	= 0
BFRT	Brook St EB	99'
@ Brook St	Brook St WB	= 0
BFRT	Concord Rd EB	90'
@ Concord Rd	Concord Rd WB	= 0
BFRT	Wetherbee St EB	140'
@ Wetherbee St.	Wetherbee St WB	= 0
		Total = 1,642
<u>Say</u>		<u>1,650</u> <u>SF</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 866.06</u>	<u>6 Inch Reflectorized White Line (Thermoplastic)</u>					<u>FT</u>
	<u>SWEL (L)</u>	<u>SWEL (R)</u>	<u>SWLL</u>	<u>SWL</u>	<u>DWL</u>	
Rte 27 at Rte 225		505'				505'
					Total =	505
				<u>Say</u>	<u>550</u>	<u>FT</u>

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 866.12</u>		<u>12 Inch ReflectORIZED White Line (Thermoplastic)</u>		<u>FT</u>
<u>Intersection</u>		<u>Stop Line</u>	<u>Crosswalk</u>	
BFRT	Rte 225 WB	15'	67'	= 82
@ Rte 225	Rte 225 EB	21'		= 21
	Rte 27 NB	24'		= 24
	Rte 27 SB	29'		= 29
BFRT	Rte 225 EB		40'	= 40
@ Rte 27 N	Rte 225 WB		40'	= 40
BFRT	Drive EB	10'	18'	= 28
@ Nahoba	Drive WB	10'	18'	= 28
<u>Sportsman's Club</u>				
BFRT	Rex Ln EB	10'	20'	= 30
@ Rex Ln	Rex Ln WB	10'	20'	= 30
BFRT	Rte 27 EB		29'	= 29
@ Rte 27 S	Rte 27 WB		29'	= 29
BFRT	Brook St EB		26'	= 26
@ Brook St	Brook St WB		26'	= 26
BFRT	Concord Rd EB		26'	= 26
@ Concord Rd	Concord Rd WB		26'	= 26
BFRT	Wetherbee St EB		33'	= 33
@ Wetherbee St.	Wetherbee St WB		37'	= 37
Contingency for vehicle loop detector installation			50'	= 50
				Total = 634
<u>Say</u>		<u>650</u>	<u>FT</u>	

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 867.04</u>	<u>4 Inch Reflectorized Yellow Line (Thermoplastic)</u>	<u>FT</u>
<u>Street</u>	<u>Description</u>	
<u>Contingency</u>	<u>YCL</u>	<u>50</u>
		<u>50</u>
		Total = 50
	<u>Say</u>	<u>100 FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 867.06</u>	<u>6 Inch ReflectORIZED Yellow Line (Thermoplastic)</u>	<u>FT</u>
<u>Street</u>	<u>Description</u>	
Rte 225	DYCL 97 x 2	194
Rte 27	DYCL 101 x 2	202
		<hr/>
		Total = 396
	<u>Say</u>	<u>400 FT</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 874.</u>		<u>Street Name Sign</u>		<u>EA</u>
<u>Identification</u>	<u>Description</u>	<u>Supports</u>		
D3-1	"Main St"	2 P5		2
D3-2	"Brook St"	1 P5		1
D3-3	"Concord Rd"	1 P5		1
D3-4	"Wetherbee St"	1 P5		1
		_____		_____
		For Item 847.1 =	5	Total =
				5
		<u>Say</u>	<u>5</u>	<u>EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 874.45</u>		<u>Traffic Sign Removed and Discarded</u>		<u>EA</u>
<u>Station</u>		<u>Description</u>		
11+40	LT BFRT	Stop ahead		1
11+90	RT BFRT	Bike route; "left arrow"		2
12+34	RT BFRT	End; Bike route; Stop		3
12+35	LT BFRT	Begin		1
13+28	LT BFRT	Bike route; "right arrow"		2
13+54	LT BFRT	"bike symbol"		1
169+79	RT BFRT	Rail Road Crossing		1
170+08	LT BFRT	Rail Road Crossing		1
170+46	RT BFRT	Rail Road Crossing		1
171+38	LT BFRT	S		1
				Total = 14
<u>Say</u>				<u>20 EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By CTW **Checked By** _____

<u>Item 874.75</u>		<u>Miscellaneous Sign Removed And Reset</u>		<u>EA</u>
<u>Sta.</u>		<u>Description</u>	<u>Supports</u>	
13+36	LT BFRT	S	1 P5	1
202+11	RT BFRT	S	1 P5	1
			For Item 847.1 = 2	
				Total = 2
		<u>Say</u>	<u>2</u>	<u>EA</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 901.		<u>4000 Psi, 1.5 In., 565 Cement Concrete</u>	<u>CY</u>
Quantities From Bridge Estimate			
		Quantity	
Bridge No. A02-014 (A5T)		0 CY	
Bridge No. A02-019 (BF5)		7 CY	
Bridge No. A02-027 (BF6)		5 CY	
Bridge No. A02-028 (BF7)		8 CY	
Bridge No. A02-030 (BF8)		5 CY	
Bridge No. A02-031 (BFA)		8 CY	
Bridge No. A02-032 (BG0)		8 CY	
		41 CY	
	Say	41	<u>CY</u>

Item 903.		<u>3000 Psi, 1.5 In., 470 Cement Concrete</u>	<u>CY</u>
For Thrust Blocks			
For Bends Each Thrust Block is 12 SF			
Assume a Length of 4 FT for each Thrust Block			
		<u>EA</u>	<u>SF</u>
From Item 309. For Bends		4	48
			<u>CF</u>
			192
		Total CF =	192
192 CF	X	$\frac{1}{27 \text{ CF/CY}}$	= 7 CY
		Say	10 <u>CY</u>

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

<u>Item 904.4</u>	<u>4000 Psi, 3/4 In., 585 Hp Cement Concrete</u>	<u>CY</u>
Quantities From Bridge Estimate		
	Quantity	
Bridge No. A02-014 (A5T)	0 CY	
Bridge No. A02-019 (BF5)	25 CY	
Bridge No. A02-027 (BF6)	22 CY	
Bridge No. A02-028 (BF7)	28 CY	
Bridge No. A02-030 (BF8)	14 CY	
Bridge No. A02-031 (BFA)	11 CY	
Bridge No. A02-032 (BG0)	20 CY	
	120 CY	
	Say	120 CY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 910. **Steel Reinforcement For Structures** **LB**

Quantities From Bridge Estimate

	Quantity
Bridge No. A02-014 (A5T)	0 LB
Bridge No. A02-019 (BF5)	7,150 LB
Bridge No. A02-027 (BF6)	6,270 LB
Bridge No. A02-028 (BF7)	8,245 LB
Bridge No. A02-030 (BF8)	4,070 LB
Bridge No. A02-031 (BFA)	3,565 LB
Bridge No. A02-032 (BG0)	5,705 LB
	35,005 LB
Say	35,005 LB

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 945.103 **Drilled Shaft Excavation 4.0 Foot Diameter** **FT**

Quantities From Bridge Estimate

	Quantity
Bridge No. A02-014 (A5T)	66 FT
Bridge No. A02-019 (BF5)	0 FT
Bridge No. A02-027 (BF6)	0 FT
Bridge No. A02-028 (BF7)	0 FT
Bridge No. A02-030 (BF8)	0 FT
Bridge No. A02-031 (BFA)	0 FT
Bridge No. A02-032 (BG0)	0 FT
	66 FT
Say	66 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 945.202 **Rock Socket Excavation 3.5 Foot Diameter** **FT**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	20 FT	
Bridge No. A02-019 (BF5)	0 FT	
Bridge No. A02-027 (BF6)	0 FT	
Bridge No. A02-028 (BF7)	0 FT	
Bridge No. A02-030 (BF8)	0 FT	
Bridge No. A02-031 (BFA)	0 FT	
Bridge No. A02-032 (BG0)	0 FT	
	20 FT	
	Say	20 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 945.303 **Obstruction Excavation 4.0 Foot Diameter** **FT**

Quantities From Bridge Estimate

	Quantity
Bridge No. A02-014 (A5T)	15 FT
Bridge No. A02-019 (BF5)	0 FT
Bridge No. A02-027 (BF6)	0 FT
Bridge No. A02-028 (BF7)	0 FT
Bridge No. A02-030 (BF8)	0 FT
Bridge No. A02-031 (BFA)	0 FT
Bridge No. A02-032 (BG0)	0 FT
	15 FT
Say	15 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 945.502 **Drilled Shaft 3.5 Foot Diameter** **FT**

Quantities From Bridge Estimate

	Quantity
Bridge No. A02-014 (A5T)	20 FT
Bridge No. A02-019 (BF5)	0 FT
Bridge No. A02-027 (BF6)	0 FT
Bridge No. A02-028 (BF7)	0 FT
Bridge No. A02-030 (BF8)	0 FT
Bridge No. A02-031 (BFA)	0 FT
Bridge No. A02-032 (BG0)	0 FT
	20 FT
Say	20 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 945.503 **Drilled Shaft 4.0 Foot Diameter** **FT**

Quantities From Bridge Estimate

	Quantity
Bridge No. A02-014 (A5T)	70 FT
Bridge No. A02-019 (BF5)	0 FT
Bridge No. A02-027 (BF6)	0 FT
Bridge No. A02-028 (BF7)	0 FT
Bridge No. A02-030 (BF8)	0 FT
Bridge No. A02-031 (BFA)	0 FT
Bridge No. A02-032 (BG0)	0 FT
	70 FT
Say	70 FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 945.71 **Cross Hole Sonic Testing Access Pipes** **FT**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	85 FT	
Bridge No. A02-019 (BF5)	0 FT	
Bridge No. A02-027 (BF6)	0 FT	
Bridge No. A02-028 (BF7)	0 FT	
Bridge No. A02-030 (BF8)	0 FT	
Bridge No. A02-031 (BFA)	0 FT	
Bridge No. A02-032 (BG0)	0 FT	
	85 FT	
Say	85	FT

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 965. **Membrane Waterproofing For Bridge Decks** **SY**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	0 SY	
Bridge No. A02-019 (BF5)	83 SY	
Bridge No. A02-027 (BF6)	73 SY	
Bridge No. A02-028 (BF7)	96 SY	
Bridge No. A02-030 (BF8)	47 SY	
Bridge No. A02-031 (BFA)	40 SY	
Bridge No. A02-032 (BG0)	65 SY	
	404 SY	
	Say	404 SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 991.1 **Control Of Water - Structure No. A-02-014 (A5T)** **LS**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	1 LS	
Bridge No. A02-019 (BF5)	0 LS	
Bridge No. A02-027 (BF6)	0 LS	
Bridge No. A02-028 (BF7)	0 LS	
Bridge No. A02-030 (BF8)	0 LS	
Bridge No. A02-031 (BFA)	0 LS	
Bridge No. A02-032 (BG0)	0 LS	
	1 LS	
Say	1	LS

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 995.01 **Bridge Structure, - Bridge No. A-02-014 (A5T)** **LS**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	1 LS	
Bridge No. A02-019 (BF5)	0 LS	
Bridge No. A02-027 (BF6)	0 LS	
Bridge No. A02-028 (BF7)	0 LS	
Bridge No. A02-030 (BF8)	0 LS	
Bridge No. A02-031 (BFA)	0 LS	
Bridge No. A02-032 (BG0)	0 LS	
	1 LS	
Say	1	LS

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 995.011 **Culvert Structure, Culvert No.** **LS**

Quantities From Bridge Estimate

	Quantity
Bridge No. A02-014 (A5T)	1 LS
Bridge No. A02-019 (BF5)	0 LS
Bridge No. A02-027 (BF6)	0 LS
Bridge No. A02-028 (BF7)	0 LS
Bridge No. A02-030 (BF8)	0 LS
Bridge No. A02-031 (BFA)	0 LS
Bridge No. A02-032 (BG0)	0 LS
	1 LS
Say	1 LS

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

Item 996.31 **Mechanically Stabilized Earth Wall** **SY**

Quantities From Bridge Estimate

	Quantity	
Bridge No. A02-014 (A5T)	2,430 SY	
Bridge No. A02-019 (BF5)	0 SY	
Bridge No. A02-027 (BF6)	0 SY	
Bridge No. A02-028 (BF7)	0 SY	
Bridge No. A02-030 (BF8)	0 SY	
Bridge No. A02-031 (BFA)	0 SY	
Bridge No. A02-032 (BG0)	0 SY	
	2,430 SY	
Say	2,430	SY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton Job Number MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A Date 3/17/2014
Calculated By _____ Checked By _____

996.330 **MSE Wall Manufacturer's Representative** **DAY**

Quantities From Bridge Estimate

	Quantity
Bridge No. A02-014 (A5T)	30 DAY
Bridge No. A02-019 (BF5)	0 DAY
Bridge No. A02-027 (BF6)	0 DAY
Bridge No. A02-028 (BF7)	0 DAY
Bridge No. A02-030 (BF8)	0 DAY
Bridge No. A02-031 (BFA)	0 DAY
Bridge No. A02-032 (BG0)	0 DAY
	30 DAY
Say	30 DAY

GPI Calculations

Greenman-Pedersen, Inc.

Location Westford, Carlisle, Acton **Job Number** MAX-20010031.02
Title Bruce Freeman Rail Trail Phase 2A **Date** 3/17/2014
Calculated By _____ **Checked By** _____

Item 996.4		Prefabricated Concrete Modular Gravity Wall					SF
<u>From Station</u>	<u>Side</u>	<u>Baseline</u>	<u>To Station</u>	<u>Length</u>	<u>Ave. Height</u>	<u>Face Feet (sf)</u>	
46+25	LT	BFRT	46+88	63	4.5	283.5	
47+50	RT	BFRT	48+00	50	5.5	275	
104+90	RT	BFRT	105+40	50	7	350	
154+00	RT	BFRT	157+16	316	7	2212	
Total =						3121	
Say					3,150	SF	