AGENDA
Nantucket Land Bank Commission
Regular Meeting of April 25, 2023
Land Bank Conference Room, 22 Broad Street

CALL TO ORDER: 4:00 P.M.

A. CONVENE IN OPEN SESSION

1. PUBLIC COMMENT / STAFF ANNOUNCEMENTS

2. GOLF BUSINESS
    a. Sconset Golf Course – Manager's Monthly Review (March)
    b. Miacomet Golf Course – Manager's Monthly Review (March)
    c. Warrant Authorization – Golf Capital Funds Transfer Request

3. AGRICULTURAL PROPERTY MANAGEMENT
    a. Island Fair Discussion

4. PROPERTY MANAGEMENT
    a. Smooth Hummocks – Run for Recovery (9/24/23) Request
    b. 65/67 Easton Street – Naming Discussion
    c. 8 Ocean Avenue – Review of Restoration Plan and Access Agreement
    d. Water Tower Beach - Request to Grant NCF Parking Permission During an Alum Treatment on Capaum Pond.
    e. Sesachacha Pond Boardwalk - Update

5. TRANSFER BUSINESS
    a. "M" Exemption Update – Release of Liens
    b. "O" Exemption Update – Release of Liens

6. APPROVAL OF MINUTES
    a. Regular Meeting of April 11, 2023

8. FINANCIAL BUSINESS
    a. Monthly Financial Report – March
    b. Warrant Authorization – Cash Disbursement

9. COMMISSIONERS/STAFF ADDITIONAL QUESTIONS AND CONCERNS

B. EXECUTIVE SESSION: *The Executive Session is for Purpose 6 [G.L. c. 30A, 21(a)(6)]. The particular transactions and parcels of real estate are not identified since disclosure of the property information may have a detrimental impact on the Land Bank's negotiating position with one or more third parties; and for Purpose 3 [G.L. c. 30A, 21(a)(3)], discussions concerning strategy with respect to ongoing litigation. The Commission will not reconvene in open session at the conclusion of executive session.*
1. Approval of Executive Session Minutes
2. Ongoing Litigation Matters:
    a. Land Court Department Action No. 20MISC000058: The Ceylon Elves, LLC v. Nantucket Islands Land Bank Commission (3 & 3B Wyer's Way)
    b. Land Court Department Action No. 22 MISC 000409: Nantucket Islands Land Bank v. Hunter S. Ziesing and Marcy E. Ziesing, Co-Trustees of the Lampoon Nominee Trust (6

Wesco Place)

c. Suffolk Superior Court Docket No. 2284CV02606: Richard Corey, Trustee of Twenty-One Commercial Wharf Nominee Trust v. Massachusetts Department of Environmental Protection, Nantucket Islands Land bank, and Nantucket Conservation Commission. (Petrel Landing/17 Commercial Street)

3. Real Estate Acquisition

C. ADJOURNMENT

Siasconset Golf
Balance Sheet
March 2023

Assets

	Current YTD	Prior YTD
NGM - SGC Operating Account	$104,339.88	$317,388.66
Golf Shop Cash	$500.00	$300.00
Change Bank	$500.00	$500.00
CC Transactions Pro Shop	$2,732.04	$0.00
Credit Cards F&B	$115.00	$0.00
Management Contract escrow	$2,500.05	$1,575.00
Total Cash	$110,686.97	$319,763.66
Accounts Receivable-Miacomet Golf	($8,320.37)	($60,107.39)
Accounts Receivable	$2,654.81	$0.00
Total Accounts Receivable	($5,665.56)	($60,107.39)
Inventory Golf Shop	$19,869.18	$20,508.77
Rental Club Inventory	$710.40	$0.00
Inventory Food	$1,562.01	$204.13
Inventory Bar	$3,769.24	$1,309.90
Inventory - Wine	$346.32	$564.60
Total Inventory	$26,257.15	$22,587.40
Prepaid Expenses- Administration	$5,921.69	$3,564.69
Total Prepaid Expenses	$5,921.69	$3,564.69
Total Current Assets	$137,200.25	$285,808.36
Accumulated Amortization	($481.45)	($355.87)
Total Accumulated Amortization	($481.45)	($355.87)
Logo	$3,768.00	$3,768.00
Golf Course Equipment	$286,474.83	$286,474.83
Accum Depreciation	($757,595.67)	($699,189.89)
Club House Renovations	$174,600.00	$174,600.00
Land Improvements	$8,544,221.91	$8,524,589.37
Leasehold Improvements	$3,083,280.50	$2,783,280.50
Vehicle & Dump Trailer	$2,149.00	$2,149.00
Unspecified- (Equipment)	$5,185.23	$1,215.99
Total Fixed Assets	$11,342,083.80	$11,076,887.80
Total Fixed Assets	$11,341,602.35	$11,076,531.93
Total Assets	$11,478,802.60	$11,362,340.29

Siasconset Golf
Balance Sheet
March 2023

Liabilities and Equity

	Current YTD	Prior YTD
Accounts Payable	($438.64)	$0.00
Total Accounts Payable	($438.64)	$0.00
Total Accounts Payable	($438.64)	$0.00
Gift Certificate Issued	$1,828.25	$1,087.25
Total Gift Certificate	$1,828.25	$1,087.25
Gratuity Liability Bar	$115.00	$90.00
Total Gratuity	$115.00	$90.00
Land Bank Advance on Operations	$10,881,817.64	$11,108,215.86
Total Note Payable	$10,881,817.64	$11,108,215.86
MA Sales Tax Payables Golf	$0.00	$0.00
MA Meals Tax Payable	$0.00	$0.00
Total Tax	$0.00	$0.00
Total Current Liabilities	$10,883,760.89	$11,109,393.11
Total Liabilities	$10,883,322.25	$11,109,393.11
Retained Earnings	$626,343.59	$282,540.69
Total Retained Earnings	$626,343.59	$282,540.69
Total Current Year P&L	($30,863.24)	($29,593.51)
Total Equity	$595,480.35	$252,947.18
Total Liabilities and Equity	$11,478,802.60	$11,362,340.29

Siasconset
March, 2023
Summary

	Month To Date						YearTo Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Actual	Budget	Variance	Prior Year	Variance	Variance %
Rounds	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Covers	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Revenue												
Golf Shop Revenue	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Food & Beverage	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Initiation Fees	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Membership Dues	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Member Finance Charges	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Miscellaneous	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Total Revenue	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Cost of Goods Sold												
Golf Shop	0	0	0	798	(798)	#DIV/0!	0	0	0	798	(798)	#DIV/0!
Food & Beverage	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Total Cost of Sales	0	0	0	798	(798)	#DIV/0!	0	0	0	798	(798)	#DIV/0!
Gross Profit	0	0	0	(798)	798	#DIV/0!	0	0	0	(798)	798	#DIV/0!
Payroll Expense												
Golf Shop	714	0	714	1,200	(486)	#DIV/0!	714	0	714	5,572	(4,858)	#DIV/0!
Food & Beverage	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
General & Administrative	2,096	0	2,096	0	2,096	#DIV/0!	6,470	0	6,470	0	6,470	#DIV/0!
Grounds	3,918	3,833	85	3,462	456	2%	11,374	11,499	(125)	9,782	1,591	-1%
Total Payroll	6,728	3,833	2,895	4,662	2,066	76%	18,558	11,499	7,059	15,354	3,203	61%
Operating Expenses												
Golf Shop	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Food & Beverage	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Membership	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Maintenance	0	0	0	1,416	(1,416)	#DIV/0!	0	0	0	1,416	(1,416)	#DIV/0!
General & Administrative	5,364	1,535	3,829	5,102	262	249%	8,902	7,655	1,247	11,052	(2,150)	16%
Grounds	8	12,050	(12,042)	948	(940)	-100%	30	14,150	(14,120)	989	(960)	-100%
Total Operating Expenses	5,372	13,585	(8,213)	7,466	(2,093)	-60%	8,932	21,805	(12,873)	13,457	(4,526)	-59%
Total Expense	12,100	17,418	(5,318)	12,127	(27)	-31%	27,490	33,304	(5,814)	28,812	960	-17%
Income/(Loss) from Operations	(12,100)	(17,418)	5,318	(12,925)	825	-31%	(27,490)	(33,304)	5,814	(29,610)	2,120	-17%
Depreciation Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Net After Depreciation	(12,100)	(17,418)	5,318	(12,925)	825	-31%	(27,490)	(33,304)	5,814	(29,610)	2,120	-17%

Siasconset
March, 2023
Departmental Summary

	Month To Date						Year To Date						
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Actual	Budget	Variance	Prior Year	Variance	Variance %	Key
Rounds	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Covers	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Golf Shop													
Revenue	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Cost of Goods	0	0	0	798	(798)	#DIV/0!	0	0	0	798	(798)	#DIV/0!	
Payroll Expense	714	0	714	1,200	(486)	#DIV/0!	714	0	714	5,572	(4,858)	#DIV/0!	
Operating Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Net Profit / (Loss)	(714)	0	(714)	(1,998)	1,284	#DIV/0!	(714)	0	(714)	(6,370)	5,656	#DIV/0!	6
Food & Beverage													
Revenue	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Cost of Goods	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Payroll Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Operating Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Net Profit / (Loss)	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	7
Membership													
Dues	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Initiation Fees	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Member Finance Charges	0	0		0	0	#DIV/0!	0	0		0	0	#DIV/0!	
Payroll Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Operating Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Net Profit / (Loss)	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Grounds													
Payroll Expense	3,918	3,833	85	3,462	456	2%	11,374	11,499	(125)	9,766	1,608	-1%	
Operating Expense	8	12,050	(12,042)	948	(940)	-100%	30	14,150	(14,120)	989	(960)	-100%	
Net Profit / (Loss)	(3,926)	(15,883)	11,957	(4,410)	484	-75%	(11,403)	(25,649)	14,246	(10,755)	(648)	-56%	8
General & Administrative													
Revenue	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Payroll Expense	2,096	0	2,096	0	2,096	#DIV/0!	6,470	0	6,470	0	6,470	#DIV/0!	
Operating Expense	5,364	1,535	3,829	5,102	262	249%	8,902	7,655	1,247	11,052	(2,150)	16%	
Net Profit / (Loss)	(7,460)	(1,535)	(5,925)	(5,102)	(2,358)	386%	(15,372)	(7,655)	(7,717)	(11,052)	(4,320)	101%	
Maintenance													
Payroll Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Operating Expense	0	0	0	1,416	(1,416)	#DIV/0!	0	0	0	1,416	(1,416)	#DIV/0!	9
Net Profit / (Loss)	0	0	0	(1,416)	1,416	#DIV/0!	0	0	0	(1,416)	1,416	#DIV/0!	
Income/(Loss) from Operations	(12,100)	(17,418)	5,318	(12,925)	825	-31%	(27,490)	(33,304)	5,814	(29,594)	2,104	-17%	10
Depreciation Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!	
Net After Depreciation	(12,100)	(17,418)	5,318	(12,925)	825	-31%	(27,490)	(33,304)	5,814	(29,594)	2,104	-17%	

Siasconset
March, 2023
Golf Shop

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %		Actual	Budget	Variance	Prior Year	Variance	Variance %
Revenue													
Play Cards	0	0	0	0	0	#DIV/0!	1	0	0	0	0	0	#DIV/0!
Annual Pass	0	0	0	0	0	#DIV/0!	2	0	0	0	0	0	#DIV/0!
Resident Discount Cards	0	0	0	0	0	#DIV/0!	3	0	0	0	0	0	#DIV/0!
Handicap (Non-Members)	0	0	0	0	0	#DIV/0!	4	0	0	0	0	0	#DIV/0!
Greens Fees	0	0	0	0	0	#DIV/0!	5	0	0	0	0	0	#DIV/0!
Cart Fees	0	0	0	0	0	#DIV/0!	6	0	0	0	0	0	#DIV/0!
Golf Club Repair	0	0	0	0	0	#DIV/0!	7	0	0	0	0	0	#DIV/0!
Range Ball Sales	0	0	0	0	0	#DIV/0!	8	0	0	0	0	0	#DIV/0!
Club Rental Sets	0	0	0	0	0	#DIV/0!	9	0	0	0	0	0	#DIV/0!
Walking Trolley Rental	0	0	0	0	0	#DIV/0!	10	0	0	0	0	0	#DIV/0!
Club/Cart Storage	0	0	0	0	0	#DIV/0!	11	0	0	0	0	0	#DIV/0!
Lessons	0	0	0	0	0	#DIV/0!	12	0	0	0	0	0	#DIV/0!
Golf Clinics	0	0	0	0	0	#DIV/0!	13	0	0	0	0	0	#DIV/0!
Tournaments	0	0	0	0	0	#DIV/0!	14	0	0	0	0	0	#DIV/0!
Merchandise	0	0	0	0	0	#DIV/0!	15	0	0	0	0	0	#DIV/0!
Over/Under	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Total Revenue	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Cost of Goods Sold													
Golf Shop	0	0	0	798	(798)	#DIV/0!	16	0	0	0	798	(798)	#DIV/0!
Member 10% Shop Discounts	0	0	0	0	0	#DIV/0!	17	0	0	0	0	0	#DIV/0!
Total Cost of Sales	0	0	0	798	(798)	#DIV/0!		0	0	0	798	(798)	#DIV/0!
Gross Profit	0	0	0	(798)	798	#DIV/0!		0	0	0	(798)	798	#DIV/0!
Payroll Expense													
Golf Shop Manager	714	0	714	1,200	(486)	#DIV/0!	18	714	0	714	5,572	(4,858)	#DIV/0!
Shop Clerks Gross	0	0	0	0	0	#DIV/0!	19	0	0	0	0	0	#DIV/0!
Total Payroll	714	0	714	1,200	(486)	#DIV/0!		714	0	714	5,572	(4,858)	#DIV/0!
Operating Expenses													
Dues and Subscriptions	0	0	0	0	0	#DIV/0!	20	0	0	0	0	0	#DIV/0!
Club Car/Golf Car Lease	0	0	0	0	0	#DIV/0!	21	0	0	0	0	0	#DIV/0!
Tees, Markers, Etc.	0	0		0	0	#DIV/0!	22	0	0	0	0	0	#DIV/0!
Score Cards	0	0	0	0	0	#DIV/0!	23	0	0	0	0	0	#DIV/0!
Uniforms / Clothing Allowance	0	0	0	0	0	#DIV/0!	24	0	0	0	0	0	#DIV/0!
Shipping (ups/fedex)	0	0	0	0	0	#DIV/0!	25	0	0	0	0	0	#DIV/0!
Office/Shop Supplies	0	0	0	0	0	#DIV/0!	26	0	0	0	0	0	#DIV/0!
Golf Course Water Supplies	0	0	0	0	0	#DIV/0!	27	0	0	0	0	0	#DIV/0!
Damaged Goods/Outdated Merchandise	0	0	0	0	0	#DIV/0!	28	0	0	0	0	0	#DIV/0!
Rental Clubs	0	0	0	0	0	#DIV/0!	29	0	0	0	0	0	#DIV/0!
Supplies	0	0	0	0	0	#DIV/0!	30	0	0	0	0	0	#DIV/0!
Total Operating Expenses	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Income/(Loss) from Operations	(714)	0	(714)	(1,998)	1,284	#DIV/0!		(714)	0	(714)	(6,370)	5,656	#DIV/0!

Siasconset
March, 2023
Food & Beverage

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %		Actual	Budget	Variance	Prior Year	Variance	Variance %
Revenue													
Food Sales	0	0	0	0	0	#DIV/0!	31	0	0	0	0	0	#DIV/0!
Bar Sales	0	0	0	0	0	#DIV/0!	32	0	0	0	0	0	#DIV/0!
Clubhouse Usage Fees (Rental)	0	0	0	0	0	#DIV/0!	33	0	0	0	0	0	#DIV/0!
Over/Under	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Total Revenue	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Cost of Goods Sold													
Food	0	0	0	0	0	#DIV/0!	34	0	0	0	0	0	#DIV/0!
Beer	0	0	0	0	0	#DIV/0!	35	0	0	0	0	0	#DIV/0!
Wine	0	0	0	0	0	#DIV/0!	36	0	0	0	0	0	#DIV/0!
Bar Paper/Supply Cost	0	0	0	0	0	#DIV/0!	37	0	0	0	0	0	#DIV/0!
Non- Alcoholic Beverage	0	0	0	0	0	#DIV/0!	38	0	0	0	0	0	#DIV/0!
Bar Snacks	0	0	0	0	0	#DIV/0!	39	0	0	0	0	0	#DIV/0!
Liquor	0	0	0	0	0	#DIV/0!	40	0	0	0	0	0	#DIV/0!
Member Food 10% Discount	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Total Cost of Sales	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Gross Profit	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Payroll Expense													
Food & Beverage Manager	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Restaurant Manager	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Chef Gross	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Payroll Bar/Wait Staff	0	0	0	0	0	#DIV/0!	41	0	0	0	0	0	#DIV/0!
Cook Gross	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Kitchen Staff/Dishwashers Gross	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Clubhouse Cleaning Labor	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Total Payroll	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Operating Expenses													
Dues and Subscriptions	0	0	0	0	0	#DIV/0!	42	0	0	0	0	0	#DIV/0!
Uniforms / Clothing Allowance	0	0	0	0	0	#DIV/0!	43	0	0	0	0	0	#DIV/0!
Clubhouse Floor Supplies	0	0	0	0	0	#DIV/0!	44	0	0	0	0	0	#DIV/0!
Clubhouse Cleaning & Supplies	0	0	0	0	0	#DIV/0!	45	0	0	0	0	0	#DIV/0!
Total Operating Expenses	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Income/(Loss) from Operations	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!

Siasconset
March, 2023
Membership

	Month To Date						YearTo Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Actual	Budget	Variance	Prior Year	Variance	Variance %
Revenue												
Initiation Fees	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Member Dues	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Member Finance Charges	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Total Revenue	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Operating Expenses												
Capital Fund from Init. Fees	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Member Relations	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Total Operating Expenses	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Income/(Loss) from Operations	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!

Siasconset
March, 2023
Grounds

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %		Actual	Budget	Variance	Prior Year	Variance	Variance %
Payroll Expense													
Golf Course Superintendent Gross	2,555	2,500	55	2,308	247	2%	46	7,418	7,500	(82)	6,511	907	-1%
Assistant Superintendent	1,363	1,333	30	1,154	209	2%	47	3,956	3,999	(43)	3,256	701	-1%
Asst. Superintendent #2	0	0	0	0	0	#DIV/0!	48	0	0	0	0	0	#DIV/0!
Mechanic Gross	0	583	(583)	0	0	-100%	49	2,000	1,749	251	0	2,000	14%
Hourly Labor Gross	0	0	0	0	0	#DIV/0!	50	0	0	0	0	0	#DIV/0!
Seasonal Labor	0	0	0	0	0	#DIV/0!	51	0	0	0	0	0	#DIV/0!
Total Payroll	3,918	4,416	(498)	3,462	456	-11%		13,374	13,248	126	9,766	3,608	1%
Operating Expenses													
Water	0	0	0	0	0	#DIV/0!	52	0	0	0	0	0	#DIV/0!
Golf Course Supplies	0	0	0	938	(938)	#DIV/0!	53	0	1,000	(1,000)	938	(938)	-100%
Fertilizer	0	0	0	0	0	#DIV/0!	54	0	0	0	0	0	#DIV/0!
Chemicals/Weed Control	0	0	0	0	0	#DIV/0!	55	0	0	0	0	0	#DIV/0!
Surfactants	0	10,500	(10,500)	0	0	-100%	56	0	10,500	(10,500)	0	0	-100%
Tools	0	0	0	0	0	#DIV/0!	57	0	0	0	0	0	#DIV/0!
Shop Supplies	0	1,000	(1,000)	0	0	-100%	58	0	1,000	(1,000)	0	0	-100%
Electric - Pump House & Irigation	0	0	0	0	0	#DIV/0!	59	0	0	0	0	0	#DIV/0!
Electric - Maintenance Building	8	50	(42)	10	(2)	-83%	60	30	150	(120)	52	(22)	-80%
Raw Materials & Topdressing	0	0	0	0	0	#DIV/0!	61	0	0	0	0	0	#DIV/0!
Seed	0	0	0	0	0	#DIV/0!	62	0	0	0	0	0	#DIV/0!
Gas, Oil & Diesel	0	0	0	0	0	#DIV/0!	63	0	0	0	0	0	#DIV/0!
Debris Disposal Removal	0	0	0	0	0	#DIV/0!	64	0	0	0	0	0	#DIV/0!
Golf Course Repairs & Main	0	500	(500)	0	0	-100%	65	0	500	(500)	0	0	-100%
Equipment - Repairs & Main	0	0	0	0	0	#DIV/0!	66	0	0	0	0	0	#DIV/0!
Irrigation - Repair & Main	0	0	0	0	0	#DIV/0!	67	0	0	0	0	0	#DIV/0!
Roads / Fences - Repair & Main	0	0	0	0	0	#DIV/0!	68	0	0	0	0	0	#DIV/0!
Contract Services	0	0	0	0	0	#DIV/0!	69	0	0	0	0	0	#DIV/0!
Small Equipment Rental	0	0	0	0	0	#DIV/0!	70	0	0	0	0	0	#DIV/0!
Consultants	0	0	0	0	0	#DIV/0!	71	0	0	0	0	0	#DIV/0!
Uniforms	0	0	0	0	0	#DIV/0!	72	0	0	0	0	0	#DIV/0!
Freight	0	0	0	0	0	#DIV/0!	73	0	1,000	(1,000)	0	0	-100%
Clubhouse Grounds	0	0	0	0	0	#DIV/0!	74	0	0	0	0	0	#DIV/0!
Total Operating Expenses	8	12,050	(12,042)	948	(940)	-100%		30	14,150	(14,120)	989	(960)	-100%
Income/(Loss) from Operations	(3,926)	(16,466)	12,540	(4,410)	484	-76%		(13,403)	(27,398)	13,995	(10,755)	(2,648)	-51%

Siasconset
March, 2023
Maintenance

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %		Actual	Budget	Variance	Prior Year	Variance	Variance %
Operating Expenses													
Clubhouse Repair & Maintenance	0	0	0	0	0	#DIV/0!	75	0	0	0	0	0	#DIV/0!
Golf Course Building Repair & Maint	0	0	0	0	0	#DIV/0!	76	0	0	0	0	0	#DIV/0!
Golf Course Building HVAC R&M	0	0	0	0	0	#DIV/0!	77	0	0	0	0	0	#DIV/0!
Clubhouse HVAC R&M	0	0	0	0	0	#DIV/0!	78	0	0	0	0	0	#DIV/0!
Clubhouse Electrical R&M	0	0	0	0	0	#DIV/0!	79	0	0	0	0	0	#DIV/0!
Golf Course Building Electrical R&M	0	0	0	0	0	#DIV/0!	80	0	0	0	0	0	#DIV/0!
Clubhouse Plumbing R&M	0	0	0	1,416	(1,416)	#DIV/0!	81	0	0	0	1,416	(1,416)	#DIV/0!
Oakson Septic System	0	0	0	0	0	#DIV/0!	82	0	0	0	0	0	#DIV/0!
Golf Course Building Plumbing R&M	0	0	0	0	0	#DIV/0!	83	0	0	0	0	0	#DIV/0!
Alarm System/Activity	0	0	0	0	0	#DIV/0!	84	0	0	0	0	0	#DIV/0!
Refrigeration	0	0	0	0	0	#DIV/0!	85	0	0	0	0	0	#DIV/0!
Miscellaneous	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Total Operating Expenses	0	0	0	1,416	(1,416)	#DIV/0!		0	0	0	1,416	(1,416)	#DIV/0!
Income/(Loss) from Operations	0	0	0	(1,416)	1,416	#DIV/0!		0	0	0	(1,416)	1,416	#DIV/0!

Siasconset
March, 2023
General & Administrative

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %		Actual	Budget	Variance	Prior Year	Variance	Variance %
Revenue													
Other Income	0	0	0	0	0	#DIV/0!	86	0	0	0	0	0	#DIV/0!
Interest Income	0	0	0	0	0	#DIV/0!	87	0	0	0	0	0	#DIV/0!
Winter Memberships	0	0	0	0	0	#DIV/0!	88	0	0	0	0	0	#DIV/0!
House Rental Income	0	0	0	0	0	#DIV/0!	89	0	0	0	0	0	#DIV/0!
	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Total Revenue	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Payroll Expense													#DIV/0!
Management Payment	2,096	0	2,096	0	2,096	#DIV/0!	90	6,470	0	6,470	0	6,470	#DIV/0!
Total Payroll	2,096	0	2,096	0	2,096	#DIV/0!		6,470	0	6,470	0	6,470	#DIV/0!
Operating Expenses													
Office Supplies	0	0	0	0	0	#DIV/0!	91	0	0	0	0	0	#DIV/0!
Bank & Finance Charges	0	0	0	0	0	#DIV/0!	92	0	0	0	0	0	#DIV/0!
Credit Card Merchant Services	100	35	65	35	65	187%	93	301	105	196	106	195	187%
Dues and Subscriptions	0	0	0	0	0	#DIV/0!	94	0	0	0	0	0	#DIV/0!
Travel and Education	0	0	0	0	0	#DIV/0!	95	0	0	0	0	0	#DIV/0!
POS Support/Computer Support	27	0	27	0	27	#DIV/0!	96	27	0	27	0	27	#DIV/0!
Legal Fees	0	0	0	0	0	#DIV/0!	97	0	500	(500)	0	0	-100%
Professional Accounting	0	0	0	0	0	#DIV/0!	98	0	0	0	0	0	#DIV/0!
Cell Phones	0	0	0	0	0	#DIV/0!	99	0	0	0	0	0	#DIV/0!
Payroll Service	401	0	401	0	401	#DIV/0!	100	1,124	0	1,124	23	1,101	#DIV/0!
Trash Removal	0	0	0	0	0	#DIV/0!	101	0	0	0	0	0	#DIV/0!
License & Fees	2,700	0	2,700	2,725	(25)	#DIV/0!	102	2,750	2,750	0	2,725	25	0%
Electricity	1,612	1,300	312	2,306	(694)	24%	103	3,206	3,900	(694)	7,319	(4,113)	-18%
Telephone	0	0	0	0	0	#DIV/0!	104	0	0	0	0	0	#DIV/0!
Water	35	0	35	35	0	#DIV/0!	105	105	0	105	123	(18)	#DIV/0!
Cable TV & Internet	199	200	(1)	0	199	0%	106	597	400	197	582	15	49%
Web Site	0	0	0	0	0	#DIV/0!	107	0	0	0	0	0	#DIV/0!
EPLI Insurance	0	0	0	0	0	#DIV/0!	108	0	0	0	0	0	#DIV/0!
Insurance - Property/Liability	0	0	0	0	0	#DIV/0!	109	0	0	0	0	0	#DIV/0!
Insurance - Workers Comp	0	0	0	0	0	#DIV/0!	110	0	0	0	9	(9)	#DIV/0!
Retirement Plan	0	0	0	0	0	#DIV/0!	111	0	0	0	0	0	#DIV/0!
Payroll Taxes - Mgmnt. & Empl. Exp.	290	0	290	0	290	#DIV/0!	112	792	0	792	165	627	#DIV/0!
Clubhouse cleaning labor	0	0	0	0	0	#DIV/0!	113	0	0	0	0	0	#DIV/0!
Interest Expense	0	0	0	0	0	#DIV/0!	114	0	0	0	0	0	#DIV/0!
Suspense	0	0	0	0	0	#DIV/0!	115	0	0	0	0	0	#DIV/0!
Total Operating Expenses	5,364	1,535	3,829	5,102	262	249%		8,902	7,655	1,247	11,052	(2,150)	16%
Income/(Loss) from Operations	(7,460)	(1,535)	(5,925)	(5,102)	(2,358)	386%		(15,372)	(7,655)	(7,717)	(11,052)	(4,320)	101%
Depreciation Expense	0	0	0	0	0	#DIV/0!		-	-	0	-	0	#DIV/0!
Income/(Loss) After Depreciation	(7,460)	(1,535)	(5,925)	(5,102)	(2,358)	386%		(15,372)	(7,655)	(7,717)	(11,052)	(4,320)	101%

Miacomet

Balance Sheet
March 2023

Assets

	Current YTD	Prior YTD
NGM - MIA Operating Account	$665,651.65	$1,111,440.84
Golf Shop Cash	$600.00	$600.00
Restaurant Cash	$1,800.00	$1,800.00
Change Bank	$1,000.00	$2,414.83
Petty Cash	$567.03	$300.00
Credit Cards Pro Shop	($15,869.62)	$20,297.75
Credit Cards F&B	($11,375.96)	$7,383.55
ACH Payment Admin	$3,071.14	$0.00
Total Cash	$645,444.24	$1,144,236.97
Accounts Receivable	$157,262.74	$98,470.02
Accounts Receivable-Siasconset Golf	$6,204.90	$61,467.28
Total Accounts Receivable	$163,467.64	$159,937.30
Inventory Golf Shop	$257,065.45	$105,668.25
Inventory Food	$13,120.42	$9,952.99
Inventory Bar	$18,548.15	$16,151.96
Inventory Wine	$29,429.55	$16,118.69
Inventory Pesicides	$116,371.34	$91,552.47
Total Inventory	$434,534.91	$239,444.36
Prepaid Expenses- Administration	$67,930.26	$66,172.26
Total Prepaid Expenses	$67,930.26	$66,172.26
House Rental Security Deposit	$17,600.00	$1,000.00
Management Contract Escrow	$28,758.06	$24,098.02
Total Other Assets	$46,358.06	$25,098.02
CE Payments - Funds in Transit	$9,356.37	$0.00
Total CE Payments - Funds in Transit	$9,356.37	$0.00
Total Current Assets	$1,367,091.48	$1,634,888.91
Clubhouse	$11,661,390.26	$11,661,390.26
Clubhouse Grounds	$124,132.96	$39,900.00
Ric-shaw Push/Pull Carts	$1,666.07	$1,666.07
Golf Course Equipment	$704,783.51	$998,364.52
Accum Depr/Amort	($11,204,153.95)	($10,791,082.26)
10 Year assets for expansion	$349,835.00	$349,835.00
20 Year assets for expansion	$3,740.00	$3,740.00
7 Year assets for expansion	$971.00	$971.00
Clubhouse Furn & Fix	$35,139.04	$35,139.04
Computer System	$157,727.40	$157,727.40
Golf Course Expansion (GC Exp-3 Yr)	$803,986.00	$803,986.00
Furniture & Fixtures	$1,169,698.34	$1,169,698.34
Golf Cart Storage	$27,677.56	$27,677.56
Golf Course Renov 2	$3,548,414.31	$3,548,414.31
House Renovations	$11,009.00	$11,009.00
Land Improvements	$2,924,115.00	$2,924,115.00
Leasehold Improvements	$4,992,743.63	$4,229,801.05

Surveillance System	$17,682.52	$17,682.52
Vehicle & Dump Trailer	$13,123.76	$13,123.76
Unspecified- (Equipment)	$160,913.00	$160,913.00
Kitchen Equipment	$29,298.55	$29,299.55
Phone System	$4,803.36	$4,803.36
Dormitory	$2,316,603.38	$2,316,603.38
Logo	$4,082.00	$4,082.00
Right of Use Asset	$340,216.00	$0.00
Total Fixed Assets	$18,199,597.70	$17,718,859.86
Accumulated Amortization	($521.59)	($385.52)
Total Accumulated Amortization	($521.59)	($385.52)
Total Fixed Assets	$18,199,076.11	$17,718,474.34
Total Assets	$19,566,167.59	$19,353,363.25

Miacomet
Balance Sheet
March 2023

Liabilities and Equity

	Current YTD	Prior YTD
Accounts Payable	$876.56	$54,975.90
Total Accounts Payable	$876.56	$54,975.90
Total Accounts Payable	$876.56	$54,975.90
MA Sales Tax Payables Golf	$266.46	$302.11
MA Meals Tax Payable	$6,235.36	$7,718.50
Lease payable TCF - 008-0717174-301	$3,402.01	$40,440.63
Clubhouse Payment	$0.00	($64,994.25)
Total Accounts Payable	$9,903.83	($16,533.01)
Accrued Payroll & Related Expenses	$64,847.77	$2,438.43
Employee Bonus Fund	($75.00)	$0.00
Total Payroll	$64,772.77	$2,438.43
Chit CR Book (Tourn. Gift Cert.)	$2,061.91	$0.00
Gift Certificate Issued	$90,839.91	$68,193.62
Total Gift Certificate	$92,901.82	$68,193.62
Deferred Revenue	$0.00	$17,927.25
Total Deferred Revenue	$0.00	$17,927.25
Gratuity Liability Bar	$319.63	($239.97)
Total Gratuity	$319.63	($239.97)
Lease Payable- PNC #1188236-1	$63,189.81	$101,907.49
Lease Payable- PNC #181297	$0.00	($3,676.42)
Lease Liability - 2019 Club Cars	$30,717.00	$0.00
Lease Liability - 2017 Cafe Express	$667.00	$0.00
Lease Liability - 2022 Cafe Express	$17,908.00	$0.00
Lease Liability - 2020 Visage Club	$181,090.00	$0.00
Total Lease Payable	$293,571.81	$98,231.07
Land Bank Advance on Operations	$19,876,664.78	$19,930,857.44
Total Other Funds	$19,876,664.78	$19,930,857.44
Note Payable- Nantucket Land Bank	$4,329,733.00	$4,329,733.00
Total Note Payable	$4,329,733.00	$4,329,733.00
Total Current Liabilities	$24,667,867.64	$24,430,607.83
Total Liabilities	$24,668,744.20	$24,485,583.73
Retained Earnings	($5,783,914.77)	($5,871,274.65)
Total Retained Earnings	($5,783,914.77)	($5,871,274.65)
NLB Equity Contribution	$0.00	$3,676.42
Total NLB Equity Contribution	$0.00	$3,676.42
Total Current Year P&L	$681,338.16	$735,377.75
Total Equity	($5,102,576.61)	($5,132,220.48)
Total Liabilities and Equity	$19,566,167.59	$19,353,363.25

Miacomet
March, 2023
Summary

	Month To Date						YearTo Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Actual	Budget	Variance	Prior Year	Variance	Variance %
Rounds	837	1,200	(363)	1,116	(279)	-30%	2,209	2,200	398	2,147	62	0%
Covers	2,535	3,300	(765)	3,161	(626)	-23%	5,673	7,414	(1,741)	6,517	(844)	-23%
Revenue												
Golf Shop Revenue	24,215	21,984	2,231	25,229	(1,015)	10%	75,343	69,414	5,929	74,358	985	9%
Food & Beverage	89,100	127,000	(37,900)	108,547	(19,447)	-30%	203,525	260,000	(56,475)	227,682	(24,157)	-22%
Initiation Fees	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Membership Dues	(7,803)	0	(7,803)	(3,548)	(4,255)	#DIV/0!	1,487,940	1,540,208	(52,268)	1,445,951	41,989	-3%
Member Finance Charges	(7)	0	(7)	0	(7)	#DIV/0!	(44)	0	(44)	91	(136)	#DIV/0!
Miscellaneous	7,563	9,100	(1,537)	7,604	(41)	-17%	19,870	23,500	(3,630)	22,212	(2,342)	-15%
Total Revenue	113,067	158,084	(45,017)	137,832	(24,765)	-28%	1,786,633	1,893,122	(106,489)	1,770,293	16,340	-6%
Cost of Goods Sold												
Golf Shop	5,238	5,000	238	4,954	284	5%	14,549	10,000	4,549	9,478	5,071	45%
Food & Beverage	36,521	39,800	(3,279)	30,456	6,065	-8%	70,278	81,200	(10,922)	101,173	(30,895)	-13%
Total Cost of Goods Sold	41,760	44,800	(3,040)	35,410	6,350	-7%	84,827	91,200	(6,373)	110,651	(25,824)	-7%
Gross Profit	71,307	113,284	(41,977)	102,422	(31,115)	-37%	1,701,806	1,801,922	(100,116)	1,659,642	42,164	-6%
Payroll Expense												
Golf Shop	24,411	20,833	3,578	20,424	3,987	17%	71,892	58,499	13,393	55,917	15,975	23%
Food & Beverage	49,674	60,031	(10,357)	48,926	748	-17%	125,751	166,759	(41,008)	125,749	2	-25%
General & Administrative	51,995	48,922	3,073	46,613	5,382	6%	149,936	146,766	3,170	144,531	5,405	2%
Grounds	48,073	54,563	(6,490)	49,782	(1,710)	-12%	129,713	136,689	(6,976)	124,066	5,647	-5%
Total Payroll	174,153	184,349	(10,196)	165,745	8,408	-6%	477,292	508,713	(31,421)	450,264	27,028	-6%
Operating Expenses												
Golf Shop	14,987	18,303	(3,316)	10,179	4,808	-18%	26,910	46,459	(19,549)	25,666	1,244	-42%
Food & Beverage	19,123	13,585	5,538	16,083	3,041	41%	36,567	37,890	(1,324)	27,008	9,558	-3%
Membership	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Maintenance	16,153	7,150	9,003	5,227	10,926	126%	33,479	34,900	(1,421)	25,408	8,071	-4%
General & Administrative	162,862	178,279	(15,417)	117,078	45,784	-9%	377,996	368,352	9,644	343,332	34,664	3%
Grounds	32,097	55,623	(23,526)	19,548	12,550	-42%	69,039	141,573	(72,534)	52,586	16,454	-51%
Total Operating Expenses	245,223	272,940	(27,717)	168,114	77,109	-10%	543,991	629,174	(85,183)	474,000	69,991	-14%
Total Expense	419,375	457,289	(37,914)	333,859	85,516	-8%	1,021,283	1,137,887	(116,604)	924,264	(47,349)	-10%
Income/(Loss) from Operations	(348,068)	(344,005)	(4,063)	(231,438)	(116,631)	1%	680,523	664,035	16,488	735,378	(54,855)	2%
Depreciation Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Net After Depreciation	(348,068)	(344,005)	(4,063)	(231,438)	(116,631)	1%	680,523	664,035	16,488	735,378	(54,855)	2%

Miacomet
March, 2023
Departmental Summary

	Month To Date						Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Actual	Budget	Variance	Prior Year	Variance	Variance %
Rounds	837	1,200	(363)	1,116	(279)	-30%	2,209	2,200	398	2,147	62	0%
Covers	2,535	3,300	(765)	3,161	(626)	-23%	5,673	7,414	(1,741)	6,517	(844)	-23%
Golf Shop												
Revenue	24,215	21,984	2,231	25,229	(1,015)	10%	75,343	69,414	5,929	74,358	985	9%
Cost of Goods Sold	5,238	5,000	238	4,954	284	5%	14,549	10,000	4,549	9,478	5,071	45%
Payroll Expense	24,411	20,833	3,578	20,424	3,987	17%	71,892	58,499	13,393	55,917	15,975	23%
Operating Expense	14,987	18,303	(3,316)	10,179	4,808	-18%	26,910	46,459	(19,549)	25,666	1,244	-42%
Net Profit / (Loss)	(20,422)	(22,152)	1,730	(10,328)	(10,094)	-8%	(38,008)	(45,544)	7,536	(16,704)	(21,304)	-17%
Food & Beverage												
Revenue	89,100	127,000	(37,900)	108,547	(19,447)	-30%	203,525	260,000	(56,475)	227,682	(24,157)	-22%
Cost of Goods Sold	36,521	39,800	(3,279)	30,456	6,065	-8%	70,278	81,200	(10,922)	101,173	(30,895)	-13%
Payroll Expense	49,674	60,031	(10,357)	48,926	748	-17%	125,751	166,759	(41,008)	125,749	2	-25%
Operating Expense	19,123	13,585	5,538	16,083	3,041	41%	36,567	37,890	(1,324)	27,008	9,558	-3%
Net Profit / (Loss)	(16,220)	13,584	(29,804)	13,081	(29,301)	-219%	(29,071)	(25,849)	(3,222)	(26,249)	(2,822)	12%
Membership												
Dues	(7,803)	0	(7,803)	(3,548)	(4,255)	#DIV/0!	1,487,940	1,540,208	(52,268)	1,445,951	41,989	-3%
Initiation Fees	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Member Finance Charges	(7)	0		0	(7)	#DIV/0!	(44)	0		91	(136)	#DIV/0!
Payroll Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Operating Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Net Profit / (Loss)	(7,810)	0	(7,810)	(3,548)	(4,262)	#DIV/0!	1,487,896	1,540,208	(52,312)	1,446,042	41,854	-3%
Grounds												
Payroll Expense	48,073	54,563	(6,490)	49,782	(1,710)	-12%	129,713	136,689	(6,976)	124,066	5,647	-5%
Operating Expense	32,097	55,623	(23,526)	19,548	12,550	-42%	69,039	141,573	(72,534)	52,586	16,454	-51%
Net Profit / (Loss)	(80,170)	(110,186)	30,016	(69,330)	(10,840)	-27%	(198,753)	(278,262)	79,509	(176,652)	(22,101)	-29%
General & Administrative												
Revenue	7,563	6,500	1,063	7,604	(41)	16%	19,870	18,500	1,370	22,212	(2,342)	7%
Payroll Expense	51,995	48,922	3,073	46,613	5,382	6%	149,936	146,766	3,170	144,531	5,405	2%
Operating Expense	162,862	178,279	(15,417)	117,078	45,784	-9%	377,996	368,352	9,644	343,332	34,664	3%
Net Profit / (Loss)	(207,294)	(220,701)	13,407	(156,086)	(51,207)	-6%	(508,063)	(496,618)	(11,445)	(465,651)	(42,411)	2%
Maintenance												
Payroll Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Operating Expense	16,153	7,150	9,003	5,227	10,926	126%	33,479	34,900	(1,421)	25,408	8,071	-4%
Net Profit / (Loss)	(16,153)	(7,150)	(9,003)	(5,227)	(10,926)	126%	(33,479)	(34,900)	1,421	(25,408)	(8,071)	-4%
Income/(Loss) from Operations	(348,068)	(346,605)	(1,463)	(231,438)	(116,631)	0%	680,523	659,035	21,488	735,378	(54,855)	3%
Depreciation Expense	0	0	0	0	0	#DIV/0!	0	0	0	0	0	#DIV/0!
Net After Depreciation	(348,068)	(346,605)	(1,463)	(231,438)	(116,631)	0%	680,523	659,035	21,488	735,378	(54,855)	3%

Miacomet
March, 2023
Golf Shop

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Variance Code	Actual	Budget	Variance	Prior Year	Variance	Variance %
Revenue													
Play Cards	0	0	0	0	0	#DIV/0!	1	0	0	0	0	0	#DIV/0!
Winter Membership	800	1,700	(900)	2,400	(1,600)	-53%	2	7,200	3,400	3,800	4,800	2,400	112%
Resident Discount Cards	0	0	0	0	0	#DIV/0!	3	0	0	0	65	(65)	#DIV/0!
Handicap (Non-Members)	0	0	0	0	0	#DIV/0!	4	0	70	(70)	0	0	-100%
Greens Fees	4,700	4,400	300	4,450	250	7%	5	9,155	5,600	3,555	8,000	1,155	63%
Tee Time No Show Charge	0	0	0	0	0	#DIV/0!	6	0	0	0	0	0	#DIV/0!
Cart Fees	4,353	3,300	1,053	3,383	970	32%	7	9,183	6,660	2,523	7,337	1,846	38%
Golf Club Repair	34	50	(16)	12	22	-32%	8	34	150	(116)	68	(35)	-77%
Range Ball Sales	1,825	1,500	325	1,537	288	22%	9	4,062	2,500	1,562	2,614	1,449	62%
Club Rental Sets	155	0	155	0	155	#DIV/0!	10	259	0	259	127	132	#DIV/0!
Walking Trolley Rental	42	34	8	0	42	25%	11	155	34	121	56	99	357%
Club/Cart Storage	(141)	0	(141)	0	(141)	#DIV/0!	12	18,635	20,000	(1,365)	19,588	(953)	-7%
Lessons	750	0	750	1,050	(300)	#DIV/0!	13	1,840	0	1,840	1,050	790	#DIV/0!
Golf Clinics	0	0	0	0	0	#DIV/0!	14	0	0	0	0	0	#DIV/0!
Tournaments	0	0	0	0	0	#DIV/0!	15	0	0	0	0	0	#DIV/0!
League Income	0	0	0	0	0	#DIV/0!	16	0	0	0	0	0	#DIV/0!
Merchandise	7,476	5,000	2,476	5,187	2,289	50%	17	13,279	9,000	4,279	9,712	3,567	48%
Over/Under	10	0	10	0	10	#DIV/0!		10	0	10	0	10	#DIV/0!
Total Revenue	20,004	15,984	4,020	18,019	1,985	25%		63,813	47,414	16,399	53,418	10,395	35%
Cost of Goods Sold													
Golf Shop	5,346	4,800	546	4,858	488	11%	18	14,565	9,600	4,965	9,351	5,214	52%
Member 10% Shop Discounts	(107)	200	(307)	96	(203)	-154%		(16)	400	(416)	127	(143)	-104%
Total Cost of Goods Sold	5,238	5,000	238	4,954	284	5%		14,549	10,000	4,549	9,478	5,071	45%
Gross Profit	14,766	10,984	3,782	13,065	1,701	34%		49,264	37,414	11,850	43,940	5,324	32%
Payroll Expense													
Golf Lessons	587	0	587	589	(2)	#DIV/0!	19	1,870	0	1,870	589	1,281	#DIV/0!
Gripping	31	0	31	0	31	#DIV/0!	20	31	0	31	0	31	#DIV/0!
Golf Clinic	0	0	0	0	0	#DIV/0!	21	0	0	0	0	0	#DIV/0!
Director of Golf Gross	11,071	10,833	238	10,370	702	2%	22	32,527	32,499	28	29,820	2,707	0%
Head Golf Pro	4,960	4,480	480	4,408	552	11%	23	14,400	13,440	960	12,513	1,887	7%
Golf Professional Subs	0	0	0	0	0	#DIV/0!	24	0	0	0	0	0	#DIV/0!
Golf Shop Manager	0	0	0	0	0	#DIV/0!	25	0	0	0	0	0	#DIV/0!
Outside Service Mgr	0	0	0	0	0	#DIV/0!	26	0	0	0	0	0	#DIV/0!
Shop Clerks Gross	5,304	3,520	1,784	3,189	2,115	51%	27	14,860	10,560	4,300	9,311	5,550	41%
Outside Services Payroll	2,458	2,000	458	1,868	590	23%	28	8,203	2,000	6,203	3,684	4,519	310%
Commissions PR Equipment Sales Off	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Total Payroll	24,411	20,833	3,578	20,424	3,987	17%		71,892	58,499	13,393	55,917	15,975	23%
Operating Expenses													
Advertising	0	0	0	0	0	#DIV/0!	29	0	0	0	0	0	#DIV/0!
Dues and Subscriptions	3,369	2,000	1,369	600	2,769	68%	30	5,039	4,000	1,039	1,973	3,066	26%

Travel and Education	222	1,000	(778)	182	40	-78%	31	1,985	6,000	(4,015)	3,631	(1,646)	-67%
Club Car/Golf Car Lease	0	0	0	0	0	#DIV/0!	32	0	0	0	0	0	#DIV/0!
Visage GPS	5,504	2,752	2,752	2,752	2,752	100%	33	8,256	8,256	0	8,256	0	0%
Range Supplies	0	3,000	(3,000)	0	0	-100%	34	0	10,500	(10,500)	498	(498)	-100%
Golf Cart Repairs & Maintenance	0	0	0	0	0	#DIV/0!	35	0	0	0	23	(23)	#DIV/0!
Range Picker Repair & Maintenance	0	0	0	0	0	#DIV/0!	36	0	0	0	0	0	#DIV/0!
Range Balls	0	3,300	(3,300)	0	0	-100%	37	0	3,300	(3,300)	0	0	-100%
Tees, Markers, Etc.	0	500	(500)	281	(281)	-100%	38	0	500	(500)	281	(281)	-100%
Score Cards	0	2,900	(2,900)	0	0	-100%	39	0	2,900	(2,900)	0	0	-100%
Uniforms / Clothing Allowance	0	1,500	(1,500)	469	(469)	-100%	40	242	2,500	(2,258)	513	(270)	-90%
Bag Tags	0	0	0	0	0	#DIV/0!	41	0	1,750	(1,750)	0	0	-100%
Shipping (ups/fedex)	241	185	56	236	5	31%	42	1,987	555	1,432	244	1,744	258%
Office/Shop Supplies	0	166	(166)	0	0	-100%	43	16	498	(482)	0	16	-97%
Cell Phones	0	0	0	0	0	#DIV/0!	44	0	0	0	0	0	#DIV/0!
Handicaps	0	0	0	0	0	#DIV/0!	45	0	0	0	0	0	#DIV/0!
Golf Course Water Supplies	0	0	0	0	0	#DIV/0!	46	0	0	0	0	0	#DIV/0!
Damaged Goods/Outdated Merchandise	0	0	0	0	0	#DIV/0!	47	0	0	0	0	0	#DIV/0!
Rental Clubs	0	0	0	0	0	#DIV/0!	48	0	0	0	0	0	#DIV/0!
Golf Clinic Equipment	208	0	208	0	208	#DIV/0!	49	208	0	208	0	208	#DIV/0!
Golf Shop Small Equipment	0	0	0	0	0	#DIV/0!	50	0	0	0	0	0	#DIV/0!
League Expense	0	0	0	0	0	#DIV/0!	51	0	0	0	0	0	#DIV/0!
Tournament Expenses	0	0	0	0	0	#DIV/0!	52	0	0	0	3,082	(3,082)	#DIV/0!
Tournament Supplies	0	0	0	0	0	#DIV/0!	53	126	200	(74)	0	126	-37%
Supplies	1,429	1,000	429	145	1,284	43%	54	1,429	1,000	429	145	1,284	43%
Total Operating Expenses	10,973	18,303	(7,330)	4,665	6,308	-40%		19,288	41,959	(22,671)	18,646	643	-54%
Income/(Loss) from Operations	(20,618)	(28,152)	7,534	(12,024)	(8,594)	-27%		(41,917)	(63,044)	21,127	(30,624)	(11,293)	-34%

Miacomet
March, 2023
Food & Beverage

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Variance Code	Actual	Budget	Variance	Prior Year	Variance	Variance %
Revenue													
Food Sales	50,558	79,000	(28,442)	66,009	(15,452)	-36%	55	116,456	159,000	(42,544)	135,780	(19,324)	-27%
Bar Sales	38,542	48,000	(9,458)	42,537	(3,995)	-20%	56	87,069	101,000	(13,931)	91,901	(4,832)	-14%
Clubhouse Usage Fees (Rental)	0	0	0	0	0	#DIV/0!	57	0	0	0	0	0	#DIV/0!
Over/Under	0	0	0	(0)	0	#DIV/0!		0	0	0	0	(0)	#DIV/0!
Total Revenue	89,100	127,000	(37,900)	108,547	(19,447)	-30%		203,525	260,000	(56,475)	227,682	(24,157)	-22%
Cost of Goods Sold													
Food	31,272	27,650	3,622	17,517	13,755	13%	58	54,663	55,650	(987)	59,978	(5,315)	-2%
Beer	2,208	12,000	(9,792)	2,714	(507)	-82%	59	4,292	25,250	(20,958)	13,050	(8,758)	-83%
Wine	621	0	621	6,543	(5,923)	#DIV/0!	60	4,146	0	4,146	14,342	(10,196)	#DIV/0!
Bar Paper/Supply Cost	201	0	201	523	(321)	#DIV/0!	61	273	0	273	1,122	(849)	#DIV/0!
Non- Alcoholic Beverage	529	0	529	597	(69)	#DIV/0!	62	1,531	0	1,531	1,124	407	#DIV/0!
Bar Snacks	0	0	0	0	0	#DIV/0!	63	0	0	0	0	0	#DIV/0!
Liquor	1,691	0	1,691	2,562	(871)	#DIV/0!	64	5,372	0	5,372	11,557	(6,185)	#DIV/0!
Member Food 10% Discount	0	150	(150)	0	0	-100%		0	300	(300)	0	0	-100%
Total Cost of Goods Sold	36,521	39,800	(3,279)	30,456	6,065	-8%		70,278	81,200	(10,922)	101,173	(30,895)	-13%
Gross Profit	52,578	87,200	(34,622)	78,090	(25,512)	-40%		133,247	178,800	(45,553)	126,508	6,738	-25%
Payroll Expense													
Food & Beverage Manager	7153.85	13667	(6,513)	7153.85	0	-48%	65	20,769	27,667	(6,898)	20,769	0	-25%
Restaurant Manager	7000	3167	3,833	3302.15	3,698	121%	66	12,400	9,501	2,899	9,587	2,813	31%
Chef Gross	10220	10000	220	7664.84	2,555	2%	67	29,670	30,000	(330)	22,253	7,418	-1%
Payroll Bar/Wait Staff	15143	24212	(9,069)	11978.49	3,164	-37%	68	37,368	72,636	(35,268)	25,858	11,510	-49%
Cook Gross	5962	5417	545	5535.72	426	10%	69	17,006	16,251	755	16,071	934	5%
Kitchen Staff/Dishwashers Gross	4,197	3,568	629	13,291	(9,094)	18%	70	8,538	10,704	(2,166)	31,211	(22,673)	-20%
Total Payroll	49,674	60,031	(10,357)	48,926	748	-17%		125,751	166,759	(41,008)	125,749	2	-25%
Operating Expenses													
Advertising	0	0	0	0	0	#DIV/0!	71	0	0	0	0	0	#DIV/0!
Dues and Subscriptions	319.56	265	55	265	55	21%	72	5,294	4,330	964	4,541	754	22%
Travel and Education	0	1000	(1,000)	1,250	(1,250)	-100%	73	841	2,000	(1,159)	2,250	(1,409)	-58%
Uniforms / Clothing Allowance	0	1000	(1,000)	2,208	(2,208)	-100%	74	0	1,000	(1,000)	2,208	(2,208)	-100%
Clubhouse Cleaning Labor	14,812	8,000	6,812	10,580	4,232	85%	75	22,344	24,000	(1,656)	10,580	11,764	-7%
Clubhouse Floor Supplies	824	200	624	0	824	312%	76	2,661	600	2,061	193	2,467	343%
China, Glass & Silver	840	0	840	0	840	#DIV/0!	77	840	0	840	75	765	#DIV/0!
Kitchen Cleaning & Dishwasher Supplies	415	150	265	175	240	177%	78	681	600	81	502	179	14%
Kitchen Equipment Lease	0	0	0	0	0	#DIV/0!	79	0	0	0	0	0	#DIV/0!
Kitchen Equipment Repair & Maint	0	0	0	308	(308)	#DIV/0!	80	0	500	(500)	308	(308)	-100%
Bar Repair & Maintenance	0	200	(200)	143	(143)	-100%	81	0	200	(200)	143	(143)	-100%
Bar Small Equipment	0	500	(500)	0	0	-100%	82	0	500	(500)	42	(42)	-100%
Kitchen Small Equipment	819	1,000	(181)	185	634	-18%	83	819	1,000	(181)	1,407	(588)	-18%
Clubhouse Small Equipment	0	0	0	1,379	(1,379)	#DIV/0!	84	0	0	0	1,379	(1,379)	#DIV/0!
Kitchen Laundry	0	100	(100)	0	0	-100%	85	0	200	(200)	0	0	-100%
Kitchen Paper & Supplies	1,023	1,000	23	(410)	1,433	2%	86	2,364	2,000	364	2,249	115	18%
Clubhouse Cleaning & Supplies	70	50	20	0	70	41%	87	722	600	122	606	116	20%
Flowers/Decorations	0	120	(120)	0	0	-100%	88	0	360	(360)	225	(225)	-100%
Total Operating Expenses	19,123	13,585	5,538	16,083	3,041	41%		36,567	37,890	(1,324)	26,708	9,858	-3%
Income/(Loss) from Operations	(16,220)	13,584	(29,804)	13,081	(29,301)	-219%		(29,071)	(25,849)	(3,222)	(25,949)	(3,122)	12%

Miacomet
March, 2023
Membership

	Month To Date							YearTo Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Variance Code	Actual	Budget	Variance	Prior Year	Variance	Variance %
Revenue													
Initiation Fees	0	0	0	0	0	#DIV/0!	89	0	0	0	0	0	#DIV/0!
Member Dues	(7,803)	0	(7,803)	(3,548)	(4,255)	#DIV/0!	90	1,487,940	1,540,208	(52,268)	1,445,951	41,989	-3%
Member Finance Charges	(7)	0	(7)	0	(7)	#DIV/0!	91	(44)	0	(44)	91	(136)	#DIV/0!
Total Revenue	(7,810)	0	(7,810)	(3,548)	(4,262)	#DIV/0!		1,487,896	1,540,208	(52,312)	1,446,042	41,854	-3%
Operating Expenses													
Capital Fund from Init. Fees	0	0	0	0	0	#DIV/0!	92	0	0	0	0	0	#DIV/0!
Member Relations	0	0	0	0	0	#DIV/0!	93	0	0	0	0	0	#DIV/0!
Total Operating Expenses	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Income/(Loss) from Operations	(7,810)	0	(7,810)	(3,548)	(4,262)	#DIV/0!		1,487,896	1,540,208	(52,312)	1,446,042	41,854	-3%

Miacomet
March, 2023
Grounds

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Variance Code	Actual	Budget	Variance	Prior Year	Variance	Variance %
Payroll Expense													
Golf Course Superintendent Gross	11,071	10,833	238	10,220	852	2%	94	31,758	32,499	(741)	29,670	2,088	-2%
Assistant Superintendent	7,601	7,438	163	7,239	362	2%	95	22,069	22,314	(245)	21,016	1,052	-1%
Asst. Superintendent #2	5,365	5,250	115	5,110	256	2%	96	15,577	15,750	(173)	14,835	742	-1%
Mechanic Gross	4,568	7,292	(2,724)	7,068	(2,500)	-37%	97	18,751	21,876	(3,125)	20,520	(1,769)	-14%
Hourly Labor Gross	2,226	3,750	(1,524)	2,170	56	-41%	98	6,334	11,250	(4,916)	7,451	(1,117)	-44%
Seasonal Labor	17,240	20,000	(2,760)	17,976	(735)	-14%	99	35,224	33,000	2,224	30,573	4,651	7%
Total Payroll	48,073	54,563	(6,490)	49,782	(1,710)	-12%		129,713	136,689	(6,976)	124,066	5,647	-5%
Operating Expenses													
Water	86	350	(264)	127	(41)	-75%	100	306	570	(264)	354	(48)	-46%
Golf Course Supplies	4,530	2,500	2,030	(20)	4,550	81%	101	4,963	7,500	(2,537)	918	4,045	-34%
Fertilizer	0	6,000	(6,000)	0	0	-100%	102	0	6,000	(6,000)	0	0	-100%
Chemicals/Weed Control	0	27,333	(27,333)	(8,084)	8,084	-100%	103	0	27,333	(27,333)	(8,084)	8,084	-100%
Surfactants	0	0	0	0	0	#DIV/0!	104	0	16,000	(16,000)	0	0	-100%
Tools	3,208	2,500	708	242	2,966	28%	105	4,080	2,500	1,580	1,036	3,044	63%
Shop Supplies	1,779	670	1,109	1,192	587	165%	106	4,567	2,010	2,557	1,918	2,649	127%
Electric - Pump House & Irigation	970	150	820	306	664	547%	107	2,712	450	2,262	389	2,323	503%
Electric - Maintenance Building	1,006	700	306	217	789	44%	108	2,750	2,000	750	669	2,081	38%
Electric - Dorm	234	500	(266)	932	(699)	-53%	109	1,190	1,100	90	4,084	(2,894)	8%
Liquid Propane	3,603	1,600	2,003	767	2,836	125%	110	4,889	4,800	89	4,200	689	2%
Cell Phones	373	210	163	114	259	77%	111	1,340	630	710	325	1,015	113%
Raw Materials & Topdressing	0	0	0	0	0	#DIV/0!	112	2,238	30,250	(28,012)	0	2,238	-93%
Seed	0	0	0	0	0	#DIV/0!	113	0	0	0	0	0	#DIV/0!
Gas, Oil & Diesel	2,144	1,000	1,144	156	1,988	114%	114	4,287	2,000	2,287	4,805	(518)	114%
Debris Disposal Removal	779	0	779	94	686	#DIV/0!	115	779	500	279	94	686	56%
Golf Course Repairs & Main	450	2,500	(2,050)	0	450	-82%	116	450	2,500	(2,050)	0	450	-82%
Equipment - Repairs & Main	744	4,000	(3,256)	4,742	(3,997)	-81%	117	13,471	8,000	5,471	9,241	4,230	68%
Irrigation - Repair & Main	0	0	0	12,148	(12,148)	#DIV/0!	118	0	0	0	12,725	(12,725)	#DIV/0!
Roads / Fences - Repair & Main	445	0	445	0	445	#DIV/0!	119	445	3,000	(2,555)	0	445	-85%
Contract Services	0	0	0	0	0	#DIV/0!	120	4,599	0	4,599	0	4,599	#DIV/0!
Cleaning Dorm	0	750	(750)	1,400	(1,400)	-100%	121	0	2,250	(2,250)	1,600	(1,600)	-100%
Small Equipment Rental	150	0	150	0	150	#DIV/0!	122	150	0	150	0	150	#DIV/0!
Leases (Utility Vehicles)	0	0	0	161	(161)	#DIV/0!	123	(7,820)	0	(7,820)	8,141	(15,962)	#DIV/0!
Consultants	396	0	396	0	396	#DIV/0!	124	396	2,500	(2,104)	0	396	-84%
Office Supplies	0	500	(500)	0	0	-100%	125	0	1,500	(1,500)	484	(484)	-100%
Cable TV & Internet	429	360	69	261	168	19%	126	1,288	1,080	208	897	391	19%
Telephone	0	0	0	0	0	#DIV/0!	127	0	0	0	56	(56)	#DIV/0!
Travel and Education	571	0	571	1,455	(884)	#DIV/0!	128	10,737	8,000	2,737	2,601	8,136	34%
Dues & Subscriptions	765	0	765	0	765	#DIV/0!	129	765	100	665	1,736	(971)	665%
Uniforms	5,572	2,500	3,072	3,108	2,464	123%	130	6,420	7,500	(1,080)	3,108	3,312	-14%
Storage Container Rental	0	0	0	0	0	#DIV/0!	131	0	0	0	0	0	#DIV/0!
Employee Relations	0	0	0	0	0	#DIV/0!	132	173	0	173	109	65	#DIV/0!
Groundwater Monitoring	0	0	0	0	0	#DIV/0!	133	0	0	0	0	0	#DIV/0!
Freight	3,864	0	3,864	230	3,634	#DIV/0!	134	3,864	0	3,864	1,182	2,682	#DIV/0!
Clubhouse Grounds	0	1,500	(1,500)	0	0	-100%	135	0	1,500	(1,500)	0	0	-100%
Total Operating Expenses	32,097	55,623	(23,526)	19,548	12,550	-42%		69,039	141,573	(72,534)	52,586	16,454	-51%
Income/(Loss) from Operations	(80,170)	(110,186)	30,016	(69,330)	(10,840)	-27%		(198,753)	(278,262)	79,509	(176,652)	(22,101)	-29%

Miacomet
March, 2023
Maintenance

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Variance Code	Actual	Budget	Variance	Prior Year	Variance	Variance %
Operating Expenses													
Clubhouse Repair & Maintenance	5,533	1,600	3,933	232	5,301	246%	136	18,227	16,300	1,927	11,265	6,962	12%
Dorm Repair & Maint	268	1,500	(1,232)	0	268	-82%	137	420	3,000	(2,580)	1,000	(580)	-86%
Golf Course Building Repair & Maint	9,459	0	9,459	439	9,020	#DIV/0!	138	11,374	2,000	9,374	439	10,935	469%
Golf Course Building HVAC R&M	0	0	0	0	0	#DIV/0!	139	415	500	(85)	0	415	-17%
Clubhouse HVAC R&M	495	0	495	0	495	#DIV/0!	140	495	1,500	(1,005)	429	66	-67%
Clubhouse Electrical R&M	398	700	(302)	3,505	(3,107)	-43%	141	398	2,100	(1,702)	5,365	(4,967)	-81%
Golf Course Building Electrical R&M	0	500	(500)	51	(51)	-100%	142	0	1,500	(1,500)	3,224	(3,224)	-100%
Clubhouse Plumbing R&M	0	1,250	(1,250)	0	0	-100%	143	850	5,000	(4,150)	1,586	(736)	-83%
Oakson Septic System	0	0	0	0	0	#DIV/0!	144	0	0	0	0	0	#DIV/0!
Golf Course Building Plumbing R&M	0	500	(500)	1,000	(1,000)	-100%	145	0	1,500	(1,500)	2,101	(2,101)	-100%
Alarm System/Activity	0	500	(500)	0	0	-100%	146	1,299	500	799	0	1,299	160%
Refrigeration	0	600	(600)	0	0	-100%	147	0	1,000	(1,000)	0	0	-100%
Miscellaneous	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Total Operating Expenses	16,153	7,150	9,003	5,227	10,926	126%		33,479	34,900	(1,421)	25,408	8,071	-4%
Income/(Loss) from Operations	(16,153)	(7,150)	(9,003)	(5,227)	(10,926)	126%		(33,479)	(34,900)	0	(25,408)	(8,071)	-4%

Miacomet
March, 2023
General & Administrative

	Month To Date							Year To Date					
	Actual	Budget	Variance	Prior Year	Variance	Variance %	Variance Code	Actual	Budget	Variance	Prior Year	Variance	Variance %
Revenue													
Other Income	0	0	0	0	0	#DIV/0!	148	0	0	0	0	0	#DIV/0!
Interest Income	0	0	0	0	0	#DIV/0!	149	0	0	0	0	0	#DIV/0!
Winter Memberships	0	0	0	0	0	#DIV/0!	150	0	0	0	0	0	#DIV/0!
House Rental Income	7,563	6,500	1,063	7,604	(41)	16%	151	19,870	18,500	1,370	22,212	(2,342)	7%
	0	0	0	0	0	#DIV/0!		0	0	0	0	0	#DIV/0!
Total Revenue	7,563	6,500	1,063	7,604	(41)	16%		19,870	18,500	1,370	22,212	(2,342)	7%
Payroll Expense													
Controller	8,602	8,416	186	5,483	3,119	2%	152	24,973	25,248	(275)	23,451	1,521	-1%
Administrative Services Manager	8,258	3,840	4,418	6,847	1,411	115%	153	21,290	11,520	9,770	19,879	1,411	85%
General Manager	17,885	17,500	385	17,033	852	2%	154	51,923	52,500	(577)	49,451	2,472	-1%
Management Payment	17,250	19,166	(1,916)	17,250	0	-10%	155	51,750	57,498	(5,748)	51,750	0	-10%
Total Payroll	51,995	48,922	3,073	46,613	5,382	6%		149,936	146,766	3,170	144,531	5,405	2%
Operating Expenses													
Cleaning Admin. Office	0	0	0	0	0	#DIV/0!	156	0	0	0	0	0	#DIV/0!
Employee Shift Meals 100%	0	900	(900)	1,116	(1,116)	-100%	157	1,957	2,350	(393)	2,352	(395)	-17%
Office Supplies	0	500	(500)	1,705	(1,705)	-100%	158	858	1,200	(342)	2,540	(1,683)	-29%
Bank & Finance Charges	(0)	42	(42)	0	(0)	-101%	159	124	126	(2)	239	(115)	-1%
Credit Card Merchant Services	3,580	8,000	(4,420)	7,856	(4,276)	-55%	160	14,210	15,000	(790)	23,563	(9,353)	-5%
Nant Land Bank Debt - Interest	0	0		0				0	0		0		
Office Equipment Leases	242	200	42	0	242	21%	161	649	600	49	161	489	8%
Office Furniture	0	0	0	0	0	#DIV/0!	162	0	0	0	0	0	#DIV/0!
Advertising	0	0	0	0	0	#DIV/0!	163	0	0	0	0	0	#DIV/0!
Postage & Shipping	32	200	(168)	284	(252)	-84%	164	494	600	(106)	769	(275)	-18%
Dues and Subscriptions	246	200	46	61	185	23%	165	499	800	(301)	324	175	-38%
Travel and Education	3,011	1,500	1,511	686	2,325	101%	166	7,153	6,500	653	2,108	5,045	10%
POS Support/Computer Support	32,803	37,788	(4,985)	32,592	212	-13%	167	37,741	47,364	(9,623)	39,664	(1,923)	-20%
Legal Fees	0	0	0	0	0	#DIV/0!	168	4,698	1,500	3,198	0	4,698	213%
Professional Accounting	0	0	0	0	0	#DIV/0!	169	7,500	0	7,500	0	7,500	#DIV/0!
Cell Phones	182	350	(168)	585	(403)	-48%	170	520	1,050	(530)	1,121	(601)	-51%
Payroll Service	4,608	4,500	108	4,479	129	2%	171	13,288	12,500	788	13,016	273	6%
Trash Removal	1,266	1,300	(34)	1,548	(282)	-3%	172	5,797	3,900	1,897	3,079	2,718	49%
Employee Relations	0	0	0	0	0	#DIV/0!	173	229	0	229	0	229	#DIV/0!
Incentive Bonuses'	0	0	0	0	0	#DIV/0!	174	0	0	0	0	0	#DIV/0!
License & Fees	0	1,000	(1,000)	190	(190)	-100%	175	265	1,000	(735)	250	15	-73%
Electricity	2,429	3,500	(1,071)	3,859	(1,430)	-31%	176	9,031	13,700	(4,669)	17,404	(8,372)	-34%
Liquid Propane	5,000	7,000	(2,000)	6,667	(1,667)	-29%	177	14,310	17,000	(2,690)	14,209	101	-16%
Telephone	0	60	(60)	0	0	-100%	178	61	180	(119)	450	(389)	-66%
Heating Fuel	0	0	0	0	0	#DIV/0!	179	0	0	0	0	0	#DIV/0!
Water	312	400	(89)	318	(6)	-22%	180	847	1,000	(154)	1,072	(226)	-15%
Cable TV & Internet	2,056	1,750	306	1,743	313	17%	181	5,855	5,250	605	5,241	614	12%
Web Site	0	0	0	0	0	#DIV/0!	182	0	0	0	0	0	#DIV/0!
EPLI Insurance	0	4,500	(4,500)	0	0	-100%	183	0	4,500	(4,500)	0	0	-100%
Insurance - Property/Liability	35,618	35,639	(21)	0	35,618	0%	184	35,618	35,639	(21)	36,261	(643)	0%
Professional Liability	2,497	0	2,497	2,380	118	#DIV/0!	185	2,497	0	2,497	2,380	118	#DIV/0!
Insurance - Workers Comp	1,201	1,500	(299)	1,073	128	-20%	186	3,368	3,500	(132)	3,195	174	-4%

Excise Tax/Truck Registration	0	0	0	0	0	#DIV/0!	187	69	375	(306)	290	(221)	-82%
Insurance - Vehicles	0	0	0	0	0	#DIV/0!	188	1,136	2,118	(982)	2,003	(867)	-46%
Land Management Payment ($1/Round)	0	0	0	0	0	#DIV/0!	189	0	0	0	0	0	#DIV/0!
Bad Debt	0	0	0	0	0	#DIV/0!	190	0	0	0	0	0	#DIV/0!
Retirement Plan	1,912	2,000	(88)	1,900	12	-4%	191	7,001	6,600	401	5,683	1,318	6%
Payroll Taxes - Mgmnt. & Empl. Exp.	17,485	20,000	(2,515)	16,781	704	-13%	192	50,344	49,000	1,344	51,769	(1,424)	3%
Employee Housing Rent	13,500	11,000	2,500	6,500	7,000	23%	193	43,100	33,000	10,100	19,500	23,600	31%
Employee Housing - Utilities	4,603	4,000	603	4,770	(167)	15%	194	12,247	12,000	247	13,434	(1,187)	2%
Employee Housing R&M	475	200	275	0	475	138%	195	1,227	600	627	1,464	(237)	104%
Dorm Rent	2,400	0	2,400	0	2,400	#DIV/0!	196	7,200	0	7,200	0	7,200	#DIV/0!
Health Insurance	26,213	25,500	713	19,957	6,256	3%	197	85,588	76,750	8,838	78,479	7,108	12%
Manager Clothing Allowance	0	0	0	0	0	#DIV/0!	198	0	400	(400)	0	0	-100%
Employee Severence Expense	0	0	0	0	0	#DIV/0!	199	0	0	0	0	0	#DIV/0!
General Manager Comp Charges	20	100	(80)	0	20	-80%	200	20	300	(280)	26	(6)	-93%
Food & Bev Manager Comp Charges	1,172	150	1,022	30	1,142	681%	201	2,494	450	2,044	205	2,288	454%
Golf Course Manager Comp Charges	0	0	0	0	0	#DIV/0!	202	0	0	0	0	0	#DIV/0!
Director of Golf Comp Charges	0	100	(100)	0	0	-100%	203	0	300	(300)	0	0	-100%
Interest Expense	0	0	0	0	0	#DIV/0!	204	0	0	0	1,081	(1,081)	#DIV/0!
Penalties	0	0	0	0	0	#DIV/0!	205	0	0	0	0	0	#DIV/0!
Suspense	0	2,400	(2,400)	0	0	-100%	206	0	7,200	(7,200)	0	0	-100%
Total Operating Expenses	162,862	176,279	(13,417)	117,078	45,784	-8%		377,996	364,352	13,644	343,332	34,664	4%
Income/(Loss) from Operations	(207,294)	(218,701)	11,407	(156,086)	(51,207)	-5%		(508,063)	(492,618)	(15,445)	(465,651)	(42,411)	3%
Depreciation Expense	0	0	0	0	0	#DIV/0!		-	-	0	-	0	#DIV/0!
Income/(Loss) After Depreciation	(207,294)	(218,701)	11,407	(156,086)	(51,207)	-5%		(508,063)	(492,618)	(15,445)	(465,651)	(42,411)	3%

Nantucket Islands Land Bank
Golf Capital Fund Transfer Request
03.17.23 –4.20.23

Miacomet Golf

Turf Products	$412.20
Irrigation Services of Connecticut	$2,002.77
Irrigation Services of Connecticut	$154.80
Irrigation Services of Connecticut	$414.37
Turf Products	$151,949.00
Turf Products	$12,937.69
Total Miacomet Golf Capital Expenditures to be reimbursed	**$167,870.83**
(short from 3.16.23)	**+ $270.00**
	$168,140.83

Nantucket Island Fair

Nantucket Island Fair is an agricultural based Fair bringing together our community farmers, home growers and visitors to highlight the Island's bounty during the late summer, early autumn harvest. It features Gertrude's Farm Stand, a judged contest of submitted grown or produced items, Fair games for children and adults, local entertainment, Hay Wagon rides, petting zoo, interactive and educational activities, and so much more. This is an island event put on by the community for the community. The fair committee is strictly volunteer based, without an agenda other than to celebrate agriculture and the end of the summer season. It is viewed by many as the last of the "Real" Nantucket events and traditions following the passing of the Sea Fest, Demo Derby, Carnival and others. In the past, we have run through the Town and the Parks and Recreation division. Given increasing costs, especially for things like tents, town finance policies and procurement laws our continued partnership did not seem like the best path forward. Having to follow town rules and regulations made it difficult to find things like sponsors and donated services to help offset costs. Coming out of the COVID-19 pandemic presented some new challenges without the Town, and partnering with the Nantucket Conservation Foundation for the Cranberry Festival was presented as an option to get both events up and running again. This partnership in review showed a differing in vision for the event being a one day or two day event and at the core of the event was a focus on conservation or a focus on agriculture. In our experience, a two day event has been requested and needed by our vendors and food providers like the American Legion to offset costs and raise monies. This also provides flexibility to families who may have conflicts on one of the days to allow them to still attend the fair. This led to our fair committee to do some serious review and revisioning of the island fair. As we started to look at the direction of the fair, we have been following the invigoration of the Land Bank's agricultural program. The committee decided that the best path forward was to try and work to promote local agriculture with the Land Bank who is providing the greatest opportunity for local agricultural programs. It appeared to the fair committee as we looked for relevant agricultural locations that finding a way to showcase the Sustainable agricultural plots on Hummock Pond Road and being near Bartlett's, Cisco Brewery, My Grandfather's Farm, and Pumpkin Pond Farm seemed to be an untapped opportunity. It is our hope that we can bring our experience in putting on a fair celebrating local agriculture with support from the Land Bank to showcase all of your agricultural efforts.

Vision:
A two day community celebration of the island's agriculture and culture featuring local farmers, home growers and artisans.

Proposed Location:
The Gardener Property 185/Hummock Pond Road
The location is central to many on the island, easy access via bike, walk, and public transportation, lots of parking, nearby farm animals can visit/participate, collaborations with neighboring businesses mainly Sustainable Nantucket's Farms, Cisco Brewery, Pumpkin Pond, My Grandfather's Farm and Bartlett's Farm might be possible enhancement opportunities.

2023 Event:

As it's so late in the planning process we are looking to provide a scaled back event as a bit of a proof of concept for this area and with the Land Bank. We are hoping to have the event on September 16 & 17 or September 30 - October 1as to not conflict with the cross island hike. A major driver in this decision may be the availability of the necessary tents. The fair committee is hoping to have this issue resolved in the coming weeks. We have attached a list of potential events and features to the end of this proposal.

2024 Event and Beyond:

Following the hopeful success of the 2023 event to return to the full size event and continue to sustainably grow the fair to include more local growers and other community programming.

Estimated Budget:

Expenses: we will give you broad estimates as last year's numbers will certainly increase possibly up to 20%.

$80-90,000 overall expense per event
Event Insurance -$ 2000
Town Permits - event, tents, signs, entertainment - $1000 permits
Toilets - $5000
Tents, chairs rentals - $50,000
Media- advertising/posters - $2000
Toys/Ribbons/Prizes - $1000
Straw Bales - $200
Fair Merchandise (T-shirts etc) -$ 5000
Trash Removal - $ 300
Decorations/Fair Supplies - $2000
16'x20' Stage - $2000 (requires construction)
LB Employee hours - maintenance pre and post event for set up help
Pumpkins $400-$500/pallet Usually need 3 pallets
Professional Musical Acts - $5000

Optional:

Shuttle service if combined with walkers - Unknown
Bounce House or train or bull riding - $3000 - $5000

Entrance fees:

$5 Child $10 Adult

Inventory of Island Fair Equipment: (currently stored in NCF barn)

18 Picnic tables
19 8' folding tables
1 - 6' folding table
10 8' Susan Warner Tables
4'x8' plywood Animal tables / saw horses
Metal Animal/Bird Cages
6-10 space Animal Fencing
Gertrude Farm Stand table display stands
Games supplies: tubs, tie dye, paints etc
Tents- 16'x20 Blue/White- no sides, 20'x20' White - no sides, 8-10 10'x10' with sides
Chalk Board Signs
Parking signs
Sandwich Board Signs
Games Signs
2 Photo cutout boards

Future Needs:

Equipment Storage 16' x 20' with loft - stores most equipment less picnic tables,
Storage - 18 Picnic Tables 7' x 6'

Tents:

Currently tents are the largest expense for the fair. They are needed for sheltering animals and produce, housing vendors and other community organizations and providing for shelter from inclement weather or as shade. This was a major driver in leaving the town as to reserve tents requires deposits which the Town was not keen to provide. In looking to be as fiscally responsible as possible the fair committee has been looking for ways to reduce this significant cost.

The fair committee strongly feels that the best way to control this cost moving forward not to not have to compete for tents during "wedding season" is to purchase our own tents. This may include purchasing used tents of acceptable quality from local tent companies at a discounted price from new. As a way to help control this cost the fair committee could make these tents available to other local non-profits for events during the remaining part of the year for a fee.

The fair committee has been in discussions with one of the local tent companies who have offered to sell us a 24' x 44' tent and to train us on setup. We have not accepted to date pending discussion with the Land Bank.

Proposed tent sizes and quantities to be purchased:

1 - 20' x 40'
1 - 40' x 60'
6 - 10' x 10'
1 - 45' x 65'

Historic Fair Features:

Fair Games (watermelon eating, egg and spoon race, 3 legged race, corn husking, cupcake eating, skillet toss, surf casting contest)
Gertrude's Farm Exhibition- judged event
Scarecrow building contest
Animals - goats, alpacas, pigs, bunnies, horses, donkeys, ducks and chickens
Farm Stands Moors End, Bartlett's, Fog Town, Washashore, Pumpkin Pond
Interactive tables - planting, composting, deer solutions,preventive species, how to build a garden, spraying vs fencing for garden nibblers
Island Sciences- land/water/air, Featuring NCF, Linda Loring, Maria Mitchell, Natural Resources Department, Land Bank
NiSHA Dog show - judged event
NiSHA Story Time
NanPuppet show
Dunk Tank
Hot pepper Eating Contest,
Chowder or Chili cook off
Food Trucks and American Legion
Kids Corner (Hay jump, Can Toss, Ducky Draw, Grandma's Apron, Tie Dye shirts, Beanbag toss, Pumpkin Ring Toss, Pumpkin Painting
Entertainment Local Bands including High School Musicians

New Ideas:

Cross Island Walk meet at the Fair - various starts = varying walk distance
Bartlett U-Pick Tomatoes
Pig Roast - Corn in the Cob Roast
Bounce house
Bull Riding Machine
Kiddie Train

NANTUCKET LAND BANK

THANK YOU FOR YOUR INQUIRY TO HOLD A PRIVATE EVENT ON LAND BANK PROPERTY.
The Land Bank Commission will allow small, short, simple ceremonies with minimal set up (no tents, no amplified music, a few chairs for guests who cannot be expected to stand, and preferably fewer than 35 guests). Carpooling is strongly encouraged. Your request will be reviewed at a Land Bank Commission meeting after which you will be notified regarding approval status.

REQUESTS FOR TEMPORARY PRIVATE EVENT USE ON NANTUCKET LAND BANK PROPERTIES

APPLICANT NAME: Addiction Solutions of Nantucket, Inc
MAILING ADDRESS: 57 Prospect St, Anderson Bldg, Nantucket, MA 02554
TELEPHONE: (508)-325-1743*cell* **(508)-228-4846** *home* **(508)-228-0180** *work*
E-MAIL: adbellrx@icloud.com

Location of EVENT: Bartlett's Farm and surrounding dirt roads toward Beach/Miacomet Pond
DATE of EVENT: Sept 24, 2023 TIME of EVENT: 8:30am to 10:30am
Description of attendees (*i.e. friends, family, catering staff*...): runners, walkers, spectators, family
Anticipated number of attendees: 180 to 200
PLEASE DESCRIBE THE EVENT:
FUNDRAISER 5K, OR 2 MILE WALK TO BENEFIT ADDICTION SOLUTIONS OF NANTUCKET (ASN) THE START/FINISH WILL BE AT BARTLETTS'S FARM. 5K RUN TURNS LEFT & TOWARD CISCO BEACH THEN TO W.MIACOMET AVE TO POND AND BACK TO BARTLETT'S. WALK DOES 2 LOOPS TOWARD CISCO BEACH AND BACK ON PROPRIETORS ROAD ENDING AT BARTLETT'S
Other relevant information: Allan Bell, race director, ASN treasurer, and ASN Board along with volunteers will be on hand at Bartlett's and race courses, along with Port-a-Poddies and police detail. Race signs will be put up Saturday night and removed Sunday 24th by noon, along with clean up of any debris on course. *

Approved/Denied: [signature] **Date:** 4/14/23

LAND MANAGEMENT PLAN

2 Gully Road | Nantucket, MA

March 2, 2023

WILKINSON
ECOLOGICAL DESIGN

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Introduction

The purpose of this Land Management Plan (LMP) and accompanying Restoration Plan is to address the work associated with the three Enforcement Orders, *"138 trees of over 4" diameter were removed at 2 Gully Road within buffer zones to Coastal Beach, Coastal Dune, and local Coastal Dune Field. The debris was left where it fell."*.

Project goals

The primary goals are to:

1. Restore a native plant community to the area associated with the Enforcement Orders.

2. Conserve the existing native vegetation and restore a native plant community to the areas surrounding the Enforcement Orders.

Restoring and conserving native plant communities on the property will increase native plant diversity and improve the quality of wildlife habitat within the project area. This plan will serve the wetland interests identified under the Massachusetts Wetlands Protection Act and the Nantucket Wetland Protection Regulations.

EXISTING CONDITIONS AND PLANT COMMUNITY ASSESSMENT

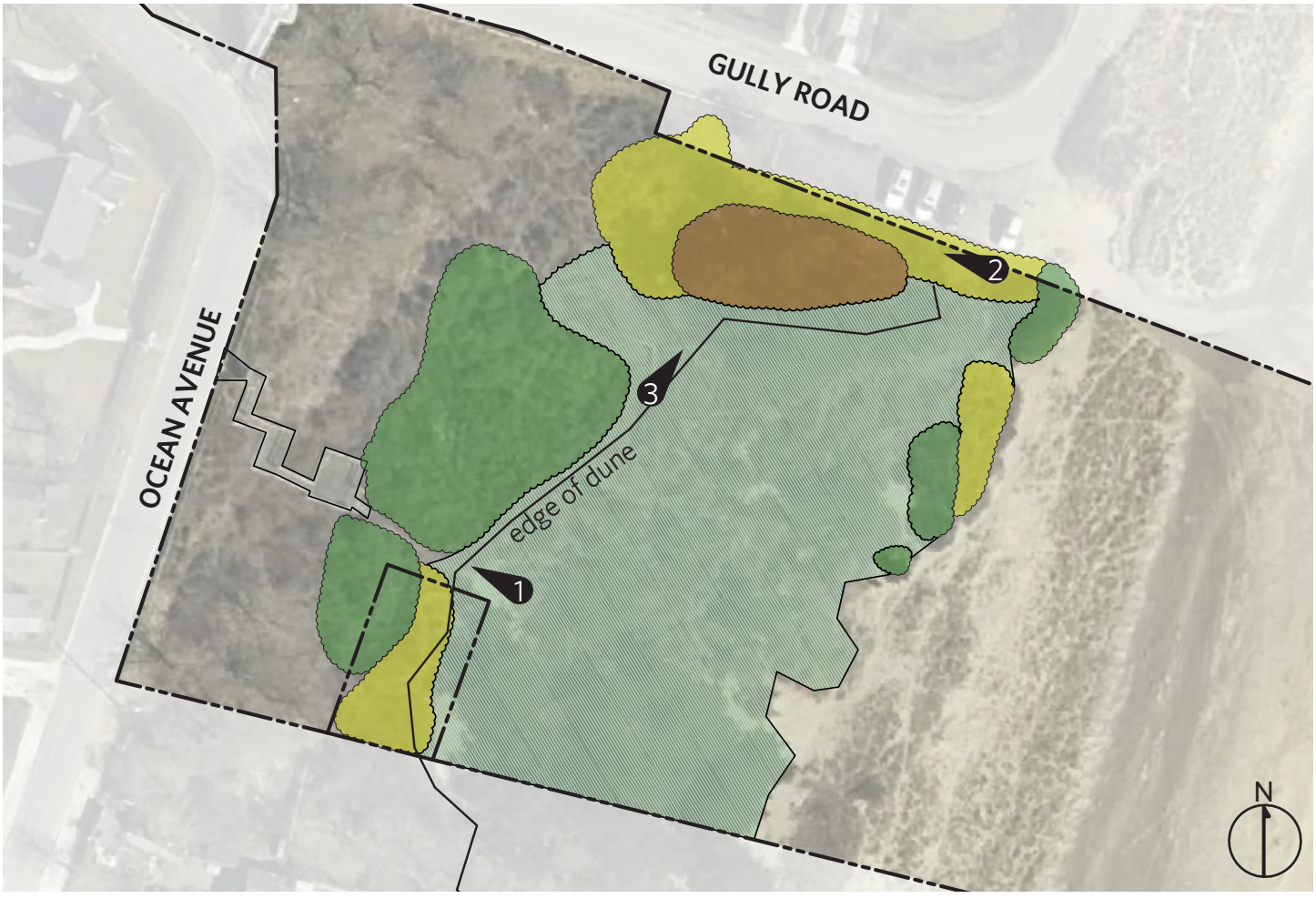
The subject parcels associated with the Enforcement Orders were assessed for the composition and health of existing plant communities. The following descriptions have been color coded and keyed to the Project Area Diagram below. The color coding also corresponds to the areas shown on the accompanying Restoration Plan.

AREA OF JAPANESE BLACK PINE

The area directly associated with the Enforcement Orders is located at the center of the property. This portion of the property was dominated by a dense grove of Japanese black pine. Though many of the non-native pines have been flush cut or cut to a height of four to five feet, it is still the dominant plant species in this area of the property. It is important to note that the status of this plant species was updated by the State of Massachusetts on November 2022. Japanese black pine has been designated as Likely Invasive and added to the Massachusetts Prohibited Plant List. This means nurseries and growers can no longer receive new stock or begin growing new stock, but may sell any existing stock during the phase-out period.

The Japanese black pines were further assessed following the removal of debris from the area. The quantity of Japanese black pine sumps surveyed included 151 trees (estimated 5" DBH or greater) and 147 saplings (estimated less than 5" DBH). Only one eastern red cedar tree stump was identified during the site assessment. The definition of trees and sapling comes from MassDEP (Massachusetts Department of Environmental Protection) and a copy of the document showing these definitions can be found on pages 12 and 13 of this LMP.

The diameter at breast height (DBH) of the Japanese black pines was calculated using a basal diameter and stump height conversion chart from the USDA Forest Service Research Notes. A copy of the conversion chart can be found on pages 14 and 15 of this LMP. Though this species of pine was not included in the study, the conversion chart for pitch pine (*Pinus rigida*) was used in the estimates. A flush cut pitch pine with a 7" stump diameter is estimated to be a tree (5" DBH), but a more conservative measurement of 6" stump diameter was used to estimate a DBH of the cut Japanese black pines to offset any differences in the two plant species.



PROJECT AREA DIAGRAM

AREA OF NATIVE VEGETATION WITH MIXED INVASIVE PLANT SPECIES

The green overlay depicts areas of native vegetation including, bayberry, beach plum, poison ivy, black cherry seedlings, and native rose. These plant species are characteristic of a Maritime Shrubland plant community. One large mature winterberry shrub was found in this area, taking advantage of a low depression that collects water during storm events. Several State-listed invasive and non-native plant species have invaded the native plant community. These include privet, Asiatic bittersweet, vine honeysuckle, sycamore maple saplings, autumn-joy clematis, rugosa rose, velvet grass, and garlic mustard.

AREA OF NON-NATIVE RUGOSA ROSE

As the title suggests, the yellow overlay on the Project Area Diagram depicts vegetation that is dominated by rugosa rose. Other State-listed and non-native plant species were observed within the rugosa rose, but were very minimal. The rugosa rose, a non-native plant species, appeared to be in poor health and suffering from a gaul.

AREA OF MATURE JAPANESE BLACK PINE WITH SPARSE NATIVE UNDERSTORY

The brown overlay is a remaining stand of mature Japanese black pine on the property. Though Japanese black pine is a resilient species that adapts to harsh coastal conditions, this tree is relatively short-lived. According to the University of Arkansas Division of Agriculture, in most American gardens, these trees seldom survive over 20 years. Several Japanese black pine in this stand appear discolored, some are mostly defoliated, and likely at the end of their life cycle.

Vegetation under the pines is quite sparse, which is typical. The low light conditions, thick pine needle duff, and the pine's allelopathic abilities drastically limit the ability of understory vegetation to establish. During the assessment, seedlings of bayberry and beach plum were observed growing under the pines.

PROPOSED PROJECT ACTIVITIES

For the goals to be carried out successfully, the following work activities are proposed:

- Management of invasive and non-native plant species that threaten the native plant community restoration and conservation efforts.
- Planting of diverse native species to restore the targeted native plant communities.
- Protect the establishing native vegetation from deer browse and desiccation to allow for successful establishment of the targeted native plant communities.

Invasive Plant Management

Invasive plant management will target Asiatic bittersweet, privet, vine honeysuckle, sycamore maple, autumn-joy clematis, rugosa rose, velvet grass, and garlic mustard. The removal and management method will vary depending on the plant species and vegetated cover in the area and are specified by the same areas used to describe the existing conditions. The Project Area Diagram below depicts the color overlays for each area.

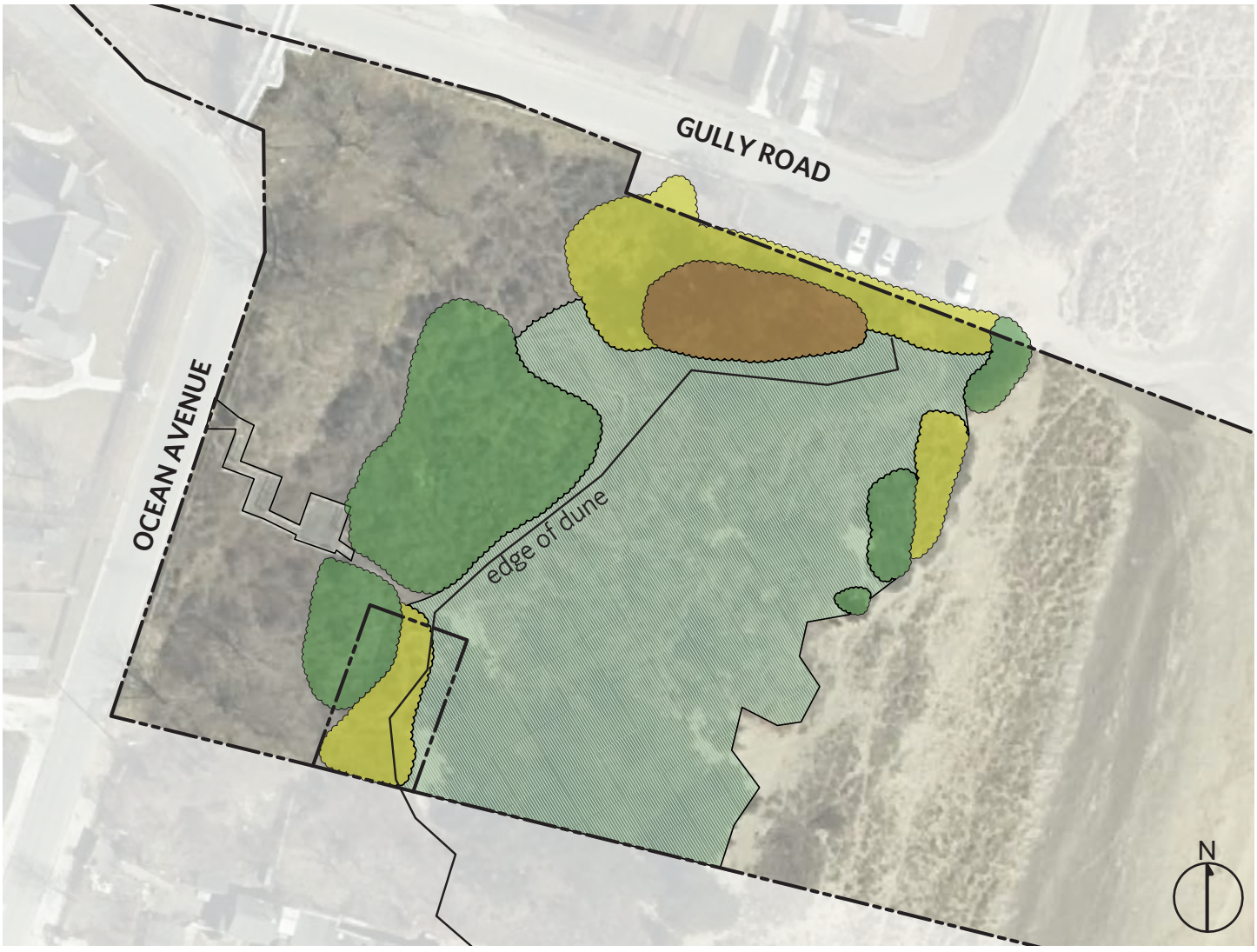
Invasive Management Method by Area:

Area of Japanese black pines

Japanese black pine will be the target species to manage in this area. All seedlings will be removed by hand and fallen pine cones will be removed to lessen the amount of seeds and re-sprouts that will require management.

Approximately 17 of the existing Japanese black pines will temporally remain to as a windbreak for the planted woody vegetation. These pines will be pruned to maintain a height of approximately 3' - 4'. During pruning and maintenance of this area, pine cones from the pines should also be removed to lessen the amount of seeds and re-sprouts that will require management.

No seeding of native grasses is proposed for this project area. Bare root American beach grass will be planted immediately following invasive management to restore a native herbaceous ground cover.



PROJECT AREA DIAGRAM

Native vegetation with mixed invasive plant species

Asiatic bittersweet, privet, vine honeysuckle, sycamore maple saplings, autumn-joy clematis, rugosa rose, velvet grass, and garlic mustard will be the target species to be managed in these areas. To protect the existing native vegetation, management will include treatment using a cut and wipe method to treat individual stems. Low-volume spot applications will only be used where necessary for species whose stems are too small for effective use of the cut and wipe method, such as vine honeysuckle, velvet grass, and garlic mustard. Hand removal of the targeted plant species is proposed in this location to protect existing native vegetation. No mechanical removal will be used in this area.

If areas of bare soils are identified in these locations, they will be seeded with the grass mix specified on the Restoration Plan and covered in a biodegradable mulch product.

Non-native rugosa rose

Rugosa rose, vine honeysuckle, autumn-joy clematis, velvet grass, and garlic mustard will be the target species to be managed in these areas. Management will include treatment using a cut and wipe method to treat individual stems or a low-volume spot application for species whose stems are too small for effective use of the cut and wipe method, such as vine honeysuckle, velvet grass, and garlic mustard. Pre-treated rugosa rose will be mechanically removed. Immediately following vegetation management in this area, all bare soils will be seeded with the native species listed on the Restoration Plan and covered in a biodegradable mulch product.

Area of mature Japanese black pine

The mature stand of Japanese black pine will not be managed during the initial phase of this restoration project. These pines will remain to act as a windbreak for any establishing native vegetation within and surrounding the stand. If any of the other targeted State-listed invasive and non-native species are observed within the stand, they will be managed using a cut and wipe method to treat individual stems and low-volume spot application for species whose stems are too small for effective use of the cut and wipe method, such as vine honeysuckle, velvet grass, and garlic mustard.

A long-term goal for this area will be the eventual removal of all Japanese black pine and the restoration of a Maritime Shrubland plant community. For the first two years following initial management the Japanese black pines will remain to act as a windbreak for the existing and planted native species. After two years of establishment, growth, and 75% survival or better, the pines will be proposed for removal. This removal can be phased over a two or three year period to allow additional windbreak for the establishing native plantings. The Conservation Agent will be consulted prior to any removal, and determine phasing the removal at that time. The removal of the Japanese black pine shall take place during the dormant season, between October and April, in an effort to not attract turpentine beetle.

General Notes for Invasive Management

All herbicide applications will be performed by Massachusetts licensed pesticide applicators. The Invasive Plant Management Protocols on pages ten and eleven provide more detail regarding management protocols and species-specific information. Invasive plant management protocols are designed to maximize the effectiveness of management treatments and minimize disturbance to natural resources and non-target plants by using selective herbicide application methods combined with hand removal methods.

Native Plant Restoration

Native plant restoration recommendations are based on several environmental factors, including soils, topography, solar exposure, salt tolerance, and existing plant communities. Recommendations primarily consider the long-term health of the resource area by proposing to increase biological diversity through the removal of invasive species and the restoration of native plant communities appropriate to the site.

For typical invasive plant management projects, the planting of native woody vegetation takes place at least one year after the initial management begins. This allows management of the targeted invasive and non-native plant species, which lowers invasive plant pressure and increases the success rate of establishing native vegetation. The planting of trees and shrubs within the areas of rugosa rose management will follow this typical time line. After invasive, plant management has reached approximately 85% eradication, typically after one year of management.

The planting of trees and shrubs within the area associated with the Enforcement Orders will not follow the typical time line. They will be planted immediately following management. The re-sprouting Japanese black pine is the only expected invasive plant pressure, and these can be controlled by hand pulling. The Japanese black pines being used temporally as a windbreak to the establishing planted woody vegetation will be maintained at an approximate height of 3' - 4'. During pruning and maintenance of this area, pine cones from the pines should also be removed to lower the quantity of seedlings required to be hand pulled. After two years of establishment, growth, and 75% survival or better, the pines used as a temporary wind break will be proposed for removal. The Conservation Agent will be consulted prior to any removal, and determine phasing the removal at that time. The removal of the Japanese black pine shall take place during the dormant season, between October and April, in an effort to not attract turpentine beetle.

Native trees and shrubs have been specified at sizes that maximize the success of their establishment. We can plant the smaller plants under the re-sprouting Japanese black pine to limit exposure to high winds and desiccation, that would likely kill any planted woody vegetation. The planting of trees at smaller sizes also maximizes the success of the establishment. Studies have shown that large transplanted trees have significantly higher mortality rates and reduced growth for years because they require years to regenerate the roots lost during the transplanting process (Struve 2000 and Watson 1985). These journal articles have been included on pages 16 -27.

THREE YEAR LAND MANAGEMENT TIMELINE

2023

Winter/Spring

- Manage the target plant species with the methods specified in the LMP; cut and wipe or low-volume targeted foliar applications followed by hand and mechanical removal.
- Prune the Japanese black pine to temporarily remain at approximate height of 3' - 4'.
- As specified for each area, either seed bare soils with native grass mix and cover with biodegradable mulch product, or plant bare root beach grass.
- Plant native trees and shrubs in area directly associated with the Enforcement Orders.

Summer/Fall

- Monitor plant response to earlier management treatments and calibrate follow-up treatments accordingly.
- To limit re-establishment of targeted plant species within the project areas, selectively treat re-sprouting invasive and non-native plant species using cut and wipe applications, low volume targeted spot spray, only if necessary, otherwise hand-pull small quantities.
- **General Note:** Herbicides used are to be applied by knowledgeable, Massachusetts licensed applicators. All herbicide applications will avoid non-target native species.

2024

Winter/Spring

- After most other deciduous plants have gone dormant, conduct a low-volume foliar application of herbicide to any persistent targeted species (only if necessary, otherwise hand-pull small quantities).
- Mow or string-trim newly seeded restoration area in spring to limit establishment of cool-season grasses.
- When invasive plants have been reduced by 85% in remaining project areas, commence planting of the areas according to the Restoration Plan.

Summer/Fall

- Monitor plant response to earlier management treatments and calibrate follow-up treatments accordingly.
- To limit re-establishment of invasive plant species within the restoration area, selectively treat re-sprouting invasive and non-native plant species using "cut and wipe" applications, only if necessary, otherwise hand-pull small quantities.

2025

Winter/Spring

- After two years of establishment, growth, and 75% survival or better for the woody plantings, the pines will be proposed for removal. This removal can be phased over a two or three year period to allow additional windbreak for the establishing native plantings. The Conservation Agent will be consulted prior to any removal and the determination of phasing the removal. The removal of the Japanese black pine shall take place during the dormant season, between October and April, in an effort to not attract turpentine beetle.

- After most other deciduous plants have gone dormant, conduct a low-volume foliar application of herbicide to any persistent targeted species (only if necessary, otherwise hand-pull small quantities).

- Mow or string-trim newly seeded restoration area in spring to limit establishment of cool-season grasses.

Summer/Fall

- Monitor plant response to earlier management treatments and calibrate follow-up treatments accordingly.

- To limit re-establishment of invasive plant species within the restoration area, selectively treat re-sprouting invasive and non-native plant species using “cut and wipe” applications, only if necessary, otherwise hand-pull small quantities.

Invasive Plant Management Protocol

Invasive Plant Management Protocols are designed to maximize the effectiveness of treatments and minimize disturbance to natural resources through mechanical removal, hand removal or selective herbicide application where necessary.

Appropriately timed treatments are based on individual plant life cycles, growing seasons and levels of infestation. A program of selective herbicide application will be instituted during time periods when the plants will translocate the herbicide most efficiently to destroy root materials. As the carbohydrate transfer is dictated primarily by weather, the management timeline is specified by season only, necessitating field expertise to initiate timely management procedures. Please reference the Three Year Land Management Timeline for specific treatment times. All plant species listed in the protocol include the invasive status as defined by the Massachusetts Invasive Plant Advisory Group (MIPAG).

Asiatic Bittersweet (*Celastrus orbiculatus*) poses a threat to the preservation of native plant communities because it has the ability to form dense stands in open fields and forests alike. It is most effectively controlled using a "cut and wipe" method of herbicide application with an ultra-low volume Triclopyr-based herbicide. (MIPAG Listed Invasive).

Garlic Mustard (*Alliaria petiolata*) is a bieannial that thrives in shady conditions and can rapidly invade the woodland understory through prolific seed dispersal. Garlic mustard can be hand-pulled in early spring before the plant flowers can be an effective contro method if undertaken consistently. Because garlic mustard remains green at times of the year when most native plants are still dormant, targeted foliar herbicide application using a low-concentration Glyphosate solution in late fall through the early spring, are effective in controlling this plant while limiting potential damage to dormant native plants. (MIPAG Listed Invasive).

Japanese Black Pine (*Pinus thunbergii*) is a tree native to coastal areas of Japan and South Korea. It has become a popular horticultural tree for windbreaks and use in coastal landscapes in America. This species can be managed by mechanical removal if soil disturbance is of minimal concern. A cut and wipe application of Glyphosate-based herbicide can also be utilized to minimize soil disturbance. Follow-up management of newly germinating pines should be conducted using the cut and wipe method of herbicide application or hand removal, if limiting the use of herbicides is preferred. (MIPAG Listed Likely Invasive, Massachusetts Prohibited Plant List).

Privet (*Ligustrum spp.*) is a ubiquitous garden escapee that can be particularly aggressive in heavier soils and areas adjacent to wetlands. Mature plants annually produce hundreds of viable seedlings that spread the species rapidly through a variety of habitats. Plants up to 4-inch basal caliper can be mechanically uprooted. A cut stump herbicide application is the most effective treatment method for these species when the basal diameter exceeds 4 inches. (MIPAG Listed Likely Invasive, Massachusetts Prohibited Plant List).

Rugosa Rose (*Rosa rugosa*) is native to coastal regions of eastern Asia. In Massachusetts, rugosa rose has been widely planted due to its large showy flowers, salt tolerance, and perception as an effective erosion control plant. Rugosa rose has been found to be less effective than native coastal plants at preventing erosion, as its prolific growth habit tends to shades out more effective erosion control plants. Rugosa rose should be mechanically uprooted if conditions allow; where this is not possible, a cut and wipe or low-volume foliar treatment with a Triclopyr-based herbicide should be used. Regular hand pulling of juvenile plants and spot herbicide treatments are also recommended for persistent re-sprouts. (not a State-Listed invasive).

Sycamore Maple (*Acer pseudoplatanus*) was introduced from Europe as a street and park tree because of its ability to provide shade and grow in less-than-ideal conditions. Sycamore maples are successful invaders of New England coastal areas due to their tolerance for exposed sites, salt spray, pollution and poor soils. Sycamore maples are capable of producing numerous seedlings, and compete with and displace the native coastal vegetation. Practitioners reccomend a cut and wipe treatment with Glyphosate-based herbicide to control this tree (MIPAG Listed Invasive, Massachusetts Prohibited Plant List).

Shrub Honeysuckle (*Lonicera morrowii & bella*) poses a major threat to native habitats. This species aggressively out-competes native shrubs in the edge habitat and woodland understory. Shrub honeysuckle can invade a wide variety of native habitats, with or without any previous disturbance. According to vegetation management guidelines published by the University of Illinois at Urbana-Champaign, shrub honeysuckle is suspected of producing allelopathic chemicals that inhibit the growth of other plants. Honeysuckle should be mechanically uprooted if conditions allow, where this is not possible, a cut and wipe herbicide treatment should be used. Practitioners reccommend hand pulling juvenile plants and spot herbicide treatments for persistent re-sprouts. (MIPAG Listed Invasive, Massachusetts Prohibited Plant List).

Vine Honeysuckle (*Lonicera japonica*) is an aggressive perennial vine that can thrive in a range of habitats. It grows in full sun to full shade and can form dense mats that out-compete native vegetation. It produces many seeds that are dispersed by birds and mammals. Vine honeysuckle is semi-evergreen and will continue to photosynthesize after surrounding deciduous vegetation is dormant. Taking advantage of its persistent leaves, control should consist of a late fall application of glyphosate-based herbicide to eradicate. (MIPAG Listed Invasive).

Native species: Tree and Shrub

American Beachgrass	*Ammophila breviligulata*
Bayberry	*Morella caroliniensis*
Beach Plum	*Prunus maritima*
Black Cherry	*Prunus serotina*
Eastern Red Cedar	*Juniperus virginiana*
Goldenrod	*Solidago spp.*
Little Bluestem	*Schizachyrium scoparium*
Poison-Ivy	*Toxicodendron radicans*
Seaside Goldenrod	*Solidago sempervirens*
Virginia Creeper	*Parthenocissus quinquefolia*
Winterberry	*Ilex verticillata*

Invasive and Non-Native species: Tree and Shrub

Apple	*Malus spp*
Autumn Olive	*Elaeagnus umbellata*
Asiatic Bittersweet	*Celastrus orbiculatus*
Garlic-mustard	*Alliaria petiolata*
Japanese Black Pine	*Pinus thunbergii*
Privet	*Ligustrum spp.*
Rugosa Rose	*Rosa rugosa*
Sycamore Maple	*Acer pseudoplatanus*
Shrub Honeysuckle	*Lonicera morrowii & bella*
Vine Honeysuckle	*Lonicera japonica*
Velvet grass	*Holcus lanatus*

Definitions

1. Native plants:
A native (indigenous) species is one that occurs in a particular region, ecosystem, and habitat without direct or indirect human actions. Native plants suited for our coastal areas bind sediments with their fibrous roots. Grasses and forbs create a groundcover that not only stabilize sediments, but improve the quality of wildlife habitat and slow water runoff. Many invasive plants lack fibrous root systems and often have allelopathic chemicals which inhibit the growth of surrounding vegetation, thus creating areas of bare earth which lead to faster rates of erosion, decreased wildlife habitat quality, and increased storm water runoff. The loss of native vegetation to invasive plant species degrades wetlands and public interests (as stated below), and decreases the diversity of the biological community.

2. Invasive Plants:
As defined by the Massachusetts Invasive Plant Advisory Group, invasive plants are non-native species that have spread into native plant systems, causing economic or environmental harm by developing self-sustaining populations and dominating and/or disrupting those native systems. Invasive plant's biology and physiology equip them with the means to out-compete native plants, disrupting native plant communities, and compromising the integrity of that ecosystem. Invasive plant species can alter hydrological patterns, soil chemistry, moisture holding capacity and can accelerate erosion.

3. Sapling (tree):
The Massachusetts Department of Environmental Protection Division(DEP), in their handbook entitled, "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act", defines sapling as woody vegetation under 20 feet in height with a diameter at breast height (dbh) greater than or equal to 0.4 inches to less than 5 inches.

4. Tree:
Massachusetts DEP defines tree as woody plants with a dbh of 5 inches or greater and a height of 20 feet or more in their handbook entitled, "Delineating Bordering Vegetated Wetlands: Under the Massachusetts Wetlands Protection Act".

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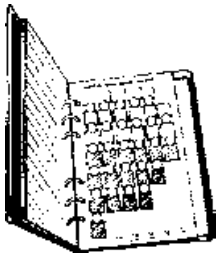
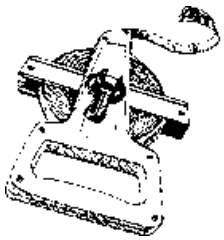
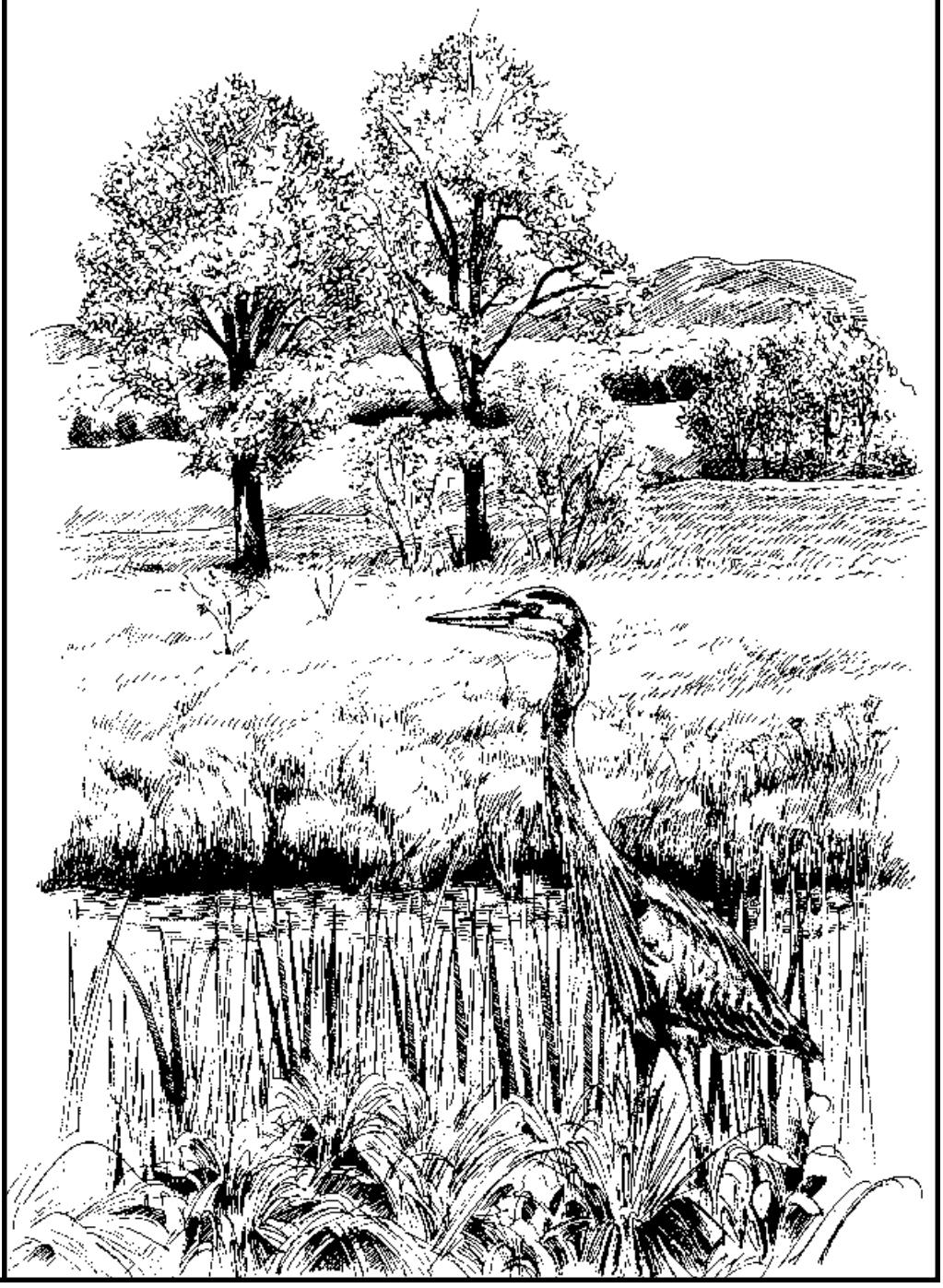




Delineating Bordering Vegetated Wetlands

Under the Massachusetts Wetlands Protection Act

MA Department of Environmental Protection
Division of Wetlands and Waterways

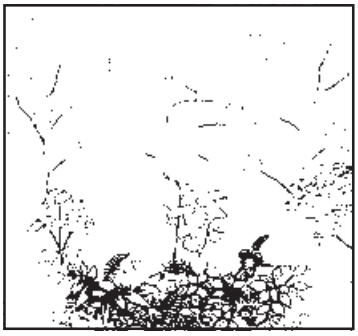


Measuring Plant Abundance

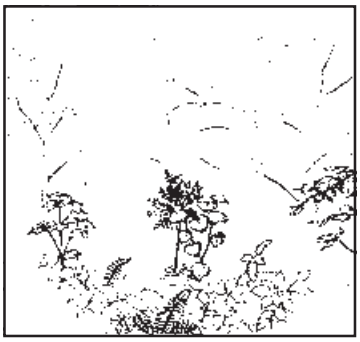
Vegetative Layers

Plants within vegetative communities are divided into strata, or layers, for analysis. Five layers are used in this assessment: ground cover, shrub, sapling, climbing woody vine, and tree.

The **ground cover** layer includes woody vegetation less than 3 feet in height (seedlings), non-climbing woody vines less than 3 feet in height, and all non-woody vegetation (herbs and mosses) of any height. (See dark areas in illustration.)



Shrubs are woody vegetation greater than or equal to 3 feet, but less than 20 feet in height. (See dark areas in illustration.)



The **sapling** layer includes woody vegetation over 20 feet in height with a diameter at breast height (dbh) greater than or equal to 0.4 inches to less than 5 inches. Diameter at breast height is measured 4.5 feet from the ground. (See dark areas in illustration.)

Trees are woody plants with a dbh of 5 inches or greater and a height of 20 feet or more. (See dark areas in illustration.)

Note: climbing woody vines are a separate vegetative layer.

U.S.D.A. forest Service Research Note S E- 99 December 1968

PREDICTING TREE D. B. H. FROM STUMP MEASUREMENTS IN THE SOUTHEAST

Abstract. --When a tree has been cut and only the stump remains as an indicator of tree size, a prediction equation can be used to estimate d.b.h. from stump measurements. An improved equation model was developed from stump measurement data collected by Forest Survey special study crews in North Carolina, Virginia, and South Carolina. Independent samples from Virginia and South Carolina were used to test equations derived from only the North Carolina sample, and a pooled sample of over 14,000 trees was used to compute equation coefficients for 53 southeastern tree species.

Diameter at breast height, traditionally used to calculate tree volume, to describe stand structure, and to select inventory sample trees, is one of the most important tree measurements in forestry. Therefore, when a tree has been cut and only the stump remains as an indicator of tree size, it becomes necessary to use stump measurements to predict d. b. h. Stump measurements are frequently used to estimate timber-cut volumes in trespass cases, to determine timber removals during initial forest inventories, and to measure timber product output from stumpwood in utilization studies.

Special stump measurements were taken in conjunction with a standing-tree volume study during the most recent Forest Surveys of North Carolina, Virginia, and South Carolina. All live trees 5 .O inches d. b. h. and larger were measured on every tenth inventory sample location in the Piedmont and Mountains of North Carolina and throughout the State of Virginia, and on every twentieth sample location in South Carolina. On each of these trees, d. o. b. was measured with a diameter tape at ground level, and at 6-inch intervals up to 2 feet above normal ground level. On slopes, the uphill base of the tree was considered ground level. Diameters were recorded to the last tenth-inch; and measurement points falling on deformities, limbs, or abnormal swells were excluded from the sample. D. b. h. was also measured with a diameter tape and recorded to the last tenth-inch. Normally swell-butted species, such as cypress and tupelo gum, were measured from an assumed ground line, defined as 3.0 feet below the point of bottleneck; and d. b. h. was measured 1.5 feet above the point of bottleneck.

Southeastern Forest Experiment Station-Asheuille, North Carolina

U.S. Department of Agriculture-Forest Service

All stump heights at 2 Gully Road are 0' from ground

EQUATION ESTIMATES OF D.B.H. BY STUMP DOB AND STUMP HEIGHT FOR PITCH PINE

STUMP DOB	STUMP HEIGHT (IN FEET)																				
	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.0	3.6	3.8	4.0	4.1	4.2	4.3	4.4	4.4	4.5	4.6	4.6	4.7	4.7	4.7	4.8	4.8	4.8	4.9	4.9	4.9	4.9
3.5	4.0	4.2	4.4	4.5	4.6	4.7	4.8	4.9	4.9	5.0	5.1	5.1	5.2	5.2	5.2	5.3	5.3	5.4	5.4	5.4	5.4
** 6.0	4.4	4.6	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.5	5.6	5.6	5.7	5.7	5.8	5.8	5.8	5.9	5.9	5.9
6.5	4.7	5.0	5.2	5.3	5.5	5.6	5.7	5.8	5.8	5.9	6.0	6.0	6.1	6.2	6.2	6.2	6.3	6.3	6.4	6.4	6.4
* 7.0	5.1	5.3	5.6	5.7	5.9	6.0	6.1	6.2	6.3	6.4	6.4	6.5	6.6	6.6	6.7	6.7	6.8	6.8	6.9	6.9	6.9
7.5	5.4	5.7	5.9	6.1	6.3	6.4	6.5	6.7	6.7	6.8	6.9	7.0	7.0	7.1	7.2	7.2	7.3	7.3	7.3	7.4	7.4
8.0	5.8	6.1	6.3	6.5	6.7	6.9	7.0	7.1	7.2	7.3	7.4	7.4	7.5	7.6	7.6	7.7	7.7	7.8	7.8	7.9	7.9
8.5	6.2	6.5	6.7	6.9	7.1	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.0	8.1	8.2	8.2	8.3	8.3	8.4	8.4
9.0	6.5	6.9	7.1	7.4	7.5	7.7	7.9	8.0	8.1	8.2	8.3	8.4	8.4	8.5	8.6	8.6	8.7	8.8	8.8	8.9	8.9
9.5	6.9	7.2	7.5	7.8	8.0	8.1	8.3	8.4	8.5	8.7	8.7	8.8	8.9	9.0	9.1	9.1	9.2	9.2	9.3	9.3	9.4
10.0	7.3	7.6	7.9	8.2	8.4	8.6	8.7	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.5	9.6	9.7	9.7	9.8	9.8	9.9
10.5	7.6	8.0	8.3	8.6	8.8	9.0	9.2	9.3	9.4	9.6	9.7	9.8	9.9	9.9	10.0	10.1	10.2	10.2	10.3	10.3	10.4
11.0	8.0	8.4	8.7	9.0	9.2	9.4	9.6	9.8	9.9	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.6	10.7	10.8	10.8	10.9
11.5	8.3	8.8	9.1	9.4	9.6	9.8	10.0	10.2	10.3	10.5	10.6	10.7	10.8	10.9	11.0	11.0	11.1	11.2	11.3	11.3	11.4
12.0	8.7	9.1	9.5	9.8	10.1	10.3	10.5	10.6	10.8	10.9	11.0	11.2	11.3	11.4	11.4	11.5	11.6	11.7	11.7	11.8	11.9
12.5	9.1	9.5	9.9	10.2	10.5	10.7	10.9	11.1	11.2	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.2	12.3	12.4
13.0	9.4	9.9	10.3	10.6	10.9	11.1	11.3	11.5	11.7	11.8	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.6	12.7	12.8	12.9
13.5	9.8	10.3	10.7	11.0	11.3	11.6	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.8	12.9	13.0	13.1	13.1	13.2	13.3	13.3
14.0	10.1	10.7	11.1	11.4	11.7	12.0	12.2	12.4	12.6	12.7	12.9	13.0	13.1	13.2	13.4	13.4	13.5	13.6	13.7	13.8	13.8
14.5	10.5	11.0	11.5	11.8	12.1	12.4	12.6	12.8	13.0	13.2	13.3	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.3
15.0	10.9	11.4	11.9	12.2	12.6	12.8	13.1	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.8
15.5	11.2	11.8	12.3	12.7	13.0	13.3	13.5	13.7	13.9	14.1	14.3	14.4	14.5	14.7	14.8	14.9	15.0	15.1	15.2	15.2	15.3
16.0	11.6	12.2	12.7	13.1	13.4	13.7	13.9	14.2	14.4	14.6	14.7	14.9	15.0	15.1	15.3	15.4	15.5	15.6	15.7	15.7	15.8
16.5	12.0	12.6	13.1	13.5	13.8	14.1	14.4	14.6	14.8	15.0	15.2	15.3	15.5	15.6	15.7	15.8	16.0	16.1	16.1	16.2	16.3
17.0	12.3	12.9	13.5	13.9	14.2	14.5	14.8	15.1	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8
17.5	12.7	13.3	13.8	14.3	14.7	15.0	15.2	15.5	15.7	15.9	16.1	16.3	16.4	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3
18.0	13.0	13.7	14.2	14.7	15.1	15.4	15.7	15.9	16.2	16.4	16.6	16.7	16.9	17.0	17.2	17.3	17.4	17.5	17.6	17.7	17.8
18.5	13.4	14.1	14.6	15.1	15.5	15.8	16.1	16.4	16.6	16.8	17.0	17.2	17.4	17.5	17.6	17.8	17.9	18.0	18.1	18.2	18.3
19.0	13.8	14.5	15.0	15.5	15.9	16.2	16.6	16.8	17.1	17.3	17.5	17.7	17.8	18.0	18.1	18.2	18.4	18.5	18.6	18.7	18.8
19.5	14.1	14.8	15.4	15.9	16.3	16.7	17.0	17.3	17.5	17.7	17.9	18.1	18.3	18.4	18.6	18.7	18.9	19.0	19.1	19.2	19.3
20.0	14.5	15.2	15.8	16.3	16.7	17.1	17.4	17.7	18.0	18.2	18.4	18.6	18.8	18.9	19.1	19.2	19.3	19.5	19.6	19.7	19.8
20.5	14.8	15.6	16.2	16.7	17.2	17.5	17.9	18.1	18.4	18.6	18.9	19.0	19.2	19.4	19.5	19.7	19.8	19.9	20.1	20.2	20.3
21.0	15.2	16.0	16.6	17.1	17.6	18.0	18.3	18.6	18.9	19.1	19.3	19.5	19.7	19.9	20.0	20.2	20.3	20.4	20.5	20.7	20.8
21.5	15.6	16.4	17.0	17.5	18.0	18.4	18.7	19.0	19.3	19.5	19.8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.0	21.1	21.3
22.0	15.9	16.7	17.4	17.9	18.4	18.8	19.2	19.5	19.7	20.0	20.2	20.4	20.6	20.8	21.0	21.1	21.3	21.4	21.5	21.6	21.7
22.5	16.3	17.1	17.8	18.3	18.8	19.2	19.6	19.9	20.2	20.5	20.7	20.9	21.1	21.3	21.4	21.6	21.7	21.9	22.0	22.1	22.2
23.0	16.6	17.5	18.2	18.7	19.2	19.7	20.0	20.4	20.6	20.9	21.1	21.4	21.6	21.8	21.9	22.1	22.2	22.4	22.5	22.6	22.7
23.5	17.0	17.9	18.6	19.2	19.7	20.1	20.5	20.8	21.1	21.4	21.6	21.8	22.0	22.2	22.4	22.6	22.7	22.9	23.0	23.1	23.2
24.0	17.3	18.2	19.0	19.6	20.1	20.5	20.9	21.2	21.5	21.8	22.1	22.3	22.5	22.7	22.9	23.0	23.2	23.3	23.5	23.6	23.7
24.5	17.7	18.6	19.4	20.0	20.5	20.9	21.3	21.7	22.0	22.3	22.5	22.8	23.0	23.2	23.3	23.5	23.7	23.8	24.0	24.1	24.2
25.0	18.1	19.0	19.7	20.4	20.9	21.4	21.8	22.1	22.4	22.7	23.0	23.2	23.4	23.6	23.8	24.0	24.2	24.3	24.5	24.6	24.7
25.5	18.4	19.4	20.1	20.8	21.3	21.8	22.2	22.6	22.9	23.2	23.4	23.7	23.9	24.1	24.3	24.5	24.6	24.8	24.9	25.1	25.2
26.0	18.8	19.8	20.5	21.2	21.7	22.2	22.6	23.0	23.3	23.6	23.9	24.1	24.4	24.6	24.8	25.0	25.1	25.3	25.4	25.6	25.7
26.5	19.1	20.1	20.9	21.6	22.1	22.6	23.1	23.4	23.8	24.1	24.4	24.6	24.8	25.1	25.3	25.4	25.6	25.8	25.9	26.1	26.2
27.0	19.5	20.5	21.3	22.0	22.6	23.1	23.5	23.9	24.2	24.5	24.8	25.1	25.3	25.5	25.7	25.9	26.1	26.3	26.4	26.6	26.7
27.5	19.9	20.9	21.7	22.4	23.0	23.5	23.9	24.3	24.7	25.0	25.3	25.5	25.8	26.0	26.2	26.4	26.6	26.7	26.9	27.0	27.2
28.0	20.2	21.3	22.1	22.8	23.4	23.9	24.4	24.8	25.1	25.4	25.7	26.0	26.2	26.5	26.7	26.9	27.1	27.2	27.4	27.5	27.7
28.5	20.6	21.6	22.5	23.2	23.8	24.3	24.8	25.2	25.6	25.9	26.2	26.5	26.7	26.9	27.2	27.4	27.5	27.7	27.9	28.0	28.2
29.0	20.9	22.0	22.9	23.6	24.2	24.8	25.2	25.6	26.0	26.3	26.6	26.9	27.2	27.4	27.6	27.8	28.0	28.2	28.4	28.5	28.7
29.5	21.3	22.4	23.3	24.0	24.6	25.2	25.7	26.1	26.5	26.8	27.1	27.4	27.6	27.9	28.1	28.3	28.5	28.7	28.9	29.0	29.2
30.0	21.7	22.8	23.7	24.4	25.1	25.6	26.1	26.5	26.9	27.2	27.6	27.8	28.1	28.4	28.6	28.8	29.0	29.2	29.3	29.5	29.7
30.5	22.0	23.1	24.1	24.8	25.5	26.0	26.5	27.0	27.3	27.7	28.0	28.3	28.6	28.8	29.1	29.3	29.5	29.7	29.8	30.0	30.1
31.0	22.4	23.5	24.5	25.2	25.9	26.5	27.0	27.4	27.8	28.2	28.5	28.8	29.0	29.3	29.5	29.7	29.9	30.1	30.3	30.5	30.6
31.5	22.7	23.9	24.8	25.6	26.3	26.9	27.4	27.8	28.2	28.6	28.9	29.2	29.5	29.8	30.0	30.2	30.4	30.6	30.8	31.0	31.1
32.0	23.1	24.3	25.2	26.0	26.7	27.3	27.8	28.3	28.7	29.1	29.4	29.7	30.0	30.2	30.5	30.7	30.9	31.1	31.3	31.5	31.6
32.5	23.4	24.7	25.6	26.4	27.1	27.7	28.3	28.7	29.1	29.5	29.9	30.2	30.4	30.7	31.0	31.2	31.4	31.6	31.8	32.0	32.1
33.0	23.8	25.0	26.0	26.8	27.5	28.2	28.7	29.2	29.6	30.0	30.3	30.6	30.9	31.2	31.4	31.7	31.9	32.1	32.3	32.4	32.6
33.5	24.2	25.4	26.4	27.3	28.0	28.6	29.1	29.6	30.0	30.4	30.8	31.1	31.4	31.7	31.9	32.1	32.4	32.6	32.8	32.9	33.1
34.0	24.5	25.8	26.8	27.7	28.4	29.0	29.6	30.0	30.5	30.9	31.2	31.5	31.8	32.1	32.4	32.6	32.8	33.1	33.2	33.4	33.6
34.5	24.9	26.2	27.2	28.1	28.8	29.4	30.0	30.5	30.9	31.3	31.7	32.0	32.3	32.6	32.9	33.1	33.3	33.5	33.7	33.9	34.1
35.0	25.2	26.5	27.6	28.5	29.2	29.9	30.4	30.9	31.4	31.8	32.1	32.5	32.8	33.1	33.3	33.6	33.8	34.0	34.2	34.4	34.6
35.5	25.6	26.9	28.0	28.9	29.6	30.3	30.8	31.4	31.8	32.2	32.6	32.9	33.2	33.5	33.8	34.1	34.3	34.5	34.7	34.9	35.1
36.0	25.9	27.3	28.4	29.3	30.0	30.7	31.3	31.8	32.3	32.7	33.1	33.4	33.7	34.0	34.3	34.5	34.8	35.0	35.2	35.4	35.6
36.5	26.3	27.7	28.8	29.7	30.5	31.1	31.7	32.2	32.7	33.1	33.5	33.9	34.2	34.5	34.8	35.0	35.3	35.5	35.7	35.9	36.1
37.0	26.7	28.0	29.2	30.1	30.9	31.5	32.1	32.7	33.1	33.6	34.0	34.3	34.6	35.0	35.2	35.5	35.7	36.0	36.2	36.4	36.6
37.5	27.0	28.4	29.5	30.5	31.3	32.0	32.6	33.1	33.6	34.0	34.4	34.8	35.1	35.4	35.7	36.0	36.2	36.4	36.7	36.9	37.1
38.0	27.4	28.8	29.9	30.9	31.7	32.4	33.0	33.6	34.0	34.5	34.9	35.2	35.6	35.9	36.2	36.4	36.7	36.9	37.2	37.4	37.6
38.5	27.7	29.2	30.3	31.3	32.1	32.8	33.4	34.0	34.5	34.9	35.3	35.7	36.0	36.4	36.7	36.9	37.2	37.4	37.6	37.9	38.0
39.0	28.1	29.5	30.7	31.7	32.5	33.2	33.9	34.4	34.9	35.4	35.8	36.2	36.5	36.8	37.1	37.4	37.7	37.9	38.1	38.3	38.5
39.5	28.4	29.9	31.1	32.1	32.9	33.7	34.3	34.9	35.4	35.8	36.3	36.6	37.0	37.3	37.6	37.9	38.1	38.4	38.6	38.8	39.0
40.0	28.8	30.3	31.5	32.5	33.3	34.1	34.7	35.3	35.8	36.3	36.7	37.1	37.4	37.8	38.1	38.4	38.6	38.9	39.1	39.3	39.5
40.5	29.2	30.7	31.9	32.9	33.8	34.5	35.2	35.7	36.3	36.7	37.2	37.6	37.9	38.2	38.6	38.8	39.1	39.4	39.6	39.8	40.0
41.0	29.5	31.0	32.3	33.3	34.2	34.9	35.6	36.2	36.7	37.2	37.6	38.0	38.4	38.7	39.0	39.3	39.6	39.8	40.1	40.3	40.5
41.5	29.9	31.4	32.7	33.7	34.6	35.4	36.0	36.6	37.2	37.6	38.1	38.5	38.8	39.2	39.5	39.8	40.1	40.3	40.6	40.8	41.0
42.0	30.2	31.8	33.1	34.1	35.0	35.8	36.5	37.1	37.6	38.1	38.5	38.9	39.3	39.7	40.0	40.3	40.6	40.8	41.1	41.3	41.5
42.5	30.6	32.2	33.4	34.5	35.4	36.2	36.9	37.5	38.0	38.5	39.0	39.4	39.8	40.1	40.5	40.8	41.0	41.3	41.5	41.8	42.0
43.0	30.9	32.5	33.8	34.9	35.8	36.6	37.3	37.9	38.5	39.0	39.4	39.9	40.2	40.6	40.9	41.2	41.5	41.8	42.0	42.3	42.5
43.5	31.3	32.9	34.2	35.3	36.2	37.0	37.8	38.4	38.9	39.4	39.9	40.3	40.7	41.1	41.4	41.7	42.0	42.3	42.5	42.8	43.0
44.0	31.6	33.3	34.6	35.7	36.7	37.5	38.2	38.8	39.4	39.9	40.4	40.8	41.2	41.5	41.9	42.2	42.5	42.8	43.0	43.3	43.5
44.5	32.0	33.7	35.0	36.1	37.1	37.9	38.6	39.3	39.8	40.3	40.8	41.2	41.6	42.0	42.3	42.7	43.0	43.2	43.5	43.7	44.0
45.0	32.4	34.0	35.4	36.5	37.5	38.3	39.0	39.7	40.3	40.8	41.3	41.7	42.1	42.5	42.8	43.1	43.4	43.7	44.0	44.2	44.5
45.5	32.7	34.4	35.8	36.9	37.9	38.7	39.5	40.1	40.7	41.2	41.7	42.2	42.6	42.9	43.3	43.6	43.9	44.2	44.5	44.7	45.0
46.0	33.1	34.8	36.2	37.3	38.3	39.2	39.9	40.6	41.2	41.7	42.2	42.6	43.0	43.4	43.8	44.1	44.4	44.7	45.0	45.2	45.5
46.5	33.4	35.2	36.6	37.7	38.7	39.6	40.3	41.0	41.6	42.1	42.6	43.1	43.5	43.9	44.2	44.6	44.9	45.2	45.4	45.7	45.9
47.0	33.8	35.5	36.9	38.1	39.1	40.0	40.8	41.4	42.1	42.6	43.1	43.6	44.0	44.4	44.7	45.1	45.4	45.7	45.9	46.2	46.4
47.5	34.1	35.9	37.3	38.5	39.5	40.4	41.2	41.9	42.5	43.0	43.6	44.0	44.4	44.8	45.2	45.5	45.8	46.1	46.4	46.7	46.9
48.0	34.5	36.3	37.7	38.9	40.0	40.8	41.6	42.3	42.9	43.5	44.0	44.5	44.9	45.3	45.7	46.0	46.3	46.6	46.9	47.2	47.4
48.5	34.8	36.7	38.1	39.3	40.4	41.3	42.1	42.8	43.4	44.0	44.5	44.9	45.4	45.8	46.1	46.5	46.8	47.1	47.4	47.7	47.9
49.0	35.2	37.0	38.5	39.7	40.8	41.7	42.5	43.2	43.8	44.4	44.9	45.4	45.8	46.2	46.6	47.0	47.3	47.6	47.9	48.2	48.4
49.5	35.5	37.4	38.9	40.1	41.2	42.1	42.9	43.6	44.3	44.9	45.4	45.9	46.3	46.7	47.1	47.4	47.8	48.1	48.4	48.6	48.9
50.0	35.9	37.8	39.3	40.5	41.6	42.5	43.3	44.1	44.7	45.3	45.8	46.3	46.8	47.2	47.6	47.9	48.3	48.6	48.9	49.1	49.4

*A pitch pine stump basal diameter must be 7" for the tree to be estimated to have a 5" DBH measure. A 5" DBH measurement is required to meet the definition of a tree.

** A more conservative 6" stump diameter measurement was used to estimate the DBH of cut Japanese black pines to meet a definition of a tree, to offset any differences in the two plant species.

SURVIVAL AND GROWTH OF TRANSPLANTED LARGE- AND SMALL-CALIPER RED OAKS

by Daniel K. Struve[1], Laura Burchfield[2], and Cathy Maupin[3]

Abstract. Red oak (*Quercus rubra* L.) of 2 caliper sizes, 8.4 and 3.6 cm (3.3 and 1.4 in.), and 2 vigor classes (high and low) within the small-caliper trees, were transplanted to compare growth and establishment over a 4-year period. Possible confounding factors such as pre-transplant vigor, genetics, relative root-ball to backfill volume, and relative canopy to root-ball volume were controlled to determine whether small-caliper trees establish more rapidly than large-caliper trees. Large-caliper trees had high mortality, 58%, while no small-caliper trees died. Based on trunk caliper and height growth after transplanting, surviving large-caliper trees established faster than small-caliper trees—demonstrating that transplanted large-caliper red oaks can establish as rapidly as small-caliper red oaks.

Key Words. Transplant establishment; trunk-caliper increase.

Transplanting stress is a temporary condition of distress resulting from injuries, depletion, and impaired function. It is a process of recovery and a period of adjustment to a new environment (Rieveld 1989). It is generally accepted that large trees experience greater transplant stress than smaller trees. This perception is based more on observation than on experimental evidence. Nursery production practices associated with large (greater than 10-cm [4-in.] caliper) tree production may be more responsible than innate large tree biology for increased transplant stress, reduced survival, and extended establishment periods. Under typical production practices, large trees are the last ones harvested from a nursery block; the vigorous trees (the first to reach harvestable size) are dug at smaller caliper sizes. The more vigorous (genetically superior) trees are harvested first; slower-growing (genetically inferior) trees are harvested later as large-caliper trees. Thus, trees harvested as large trees may be genetically inferior to those trees dug at smaller sizes.

Another uncontrolled genetic consideration is seed source. Significant provenance (Kriebel et al. 1977; Kriebel et al. 1988) and mother tree (Struve and McKeand 1993, 1994) differences in survival and growth have been found. Transplanting studies typically do not account for intraspecific genetic differences among planting stock types. The mother tree (the tree from which the open-pollinated seed was collected) significantly affects transplant survival and regrowth (Kormanik et al. 1989).

Large trees may also be physiologically inferior to smaller trees. Root pruning and soil compaction associated with harvesting trees can reduce the vigor of the remaining trees in the nursery block. Increment bores of transplanted willow oaks (*Quercus phellos*) showed that 2 to 5 years before transplanting, the rate of trunk caliper growth began to decrease (Neal and Whitlow 1997). The data suggest that the declining trunk caliper increment occurred concomitant with the first harvests within the nursery block.

Watson (1985) developed a hypothesis to explain the longer establishment periods for large trees. It was based on the time to re-establish the pre-transplant shoot to root ratio. Watson (1985) assumed, and Gilman demonstrated (Gilman 1989, 1990; Gilman and Kane 1991), that large and small trees had similar crown spread to root spread ratios, and by deduction, similar root elongation rates. Although harvesting removes proportionally similar amounts of the root system (Gilman 1988a, 1988b), larger trees take longer to establish than small trees because more time is need to re-establish the original shoot to root ratio (Watson 1985). To date, only one study has tested this hypothesis (Gilman et al. 1998). Small (6.8-cm [2.7-in.] caliper) trees had faster height and trunk caliper growth after transplanting than large (9.3-cm [3.7-in.] caliper) trees, but several possible confounding factors were not accounted for.

Another possible confounding factor in transplanting studies is the amount of soil amended when trees of different sizes are transplanted. Typical landscape practice is to make the planting hole 15 to 30 cm [6 to 12 in.] larger than the root ball. Thus, rela-

tively more soil is amended when small-caliper trees are transplanted than when large trees are. Soil amendment, even if only loosening the compacted soil, has been proposed as a method to reduce transplant shock and speed establishment (Barnett et al. 1983; Watson 1986; Watson and Kupkowski 1991; Watson 1992).

A final possible confounding factor considered in this study is the relative canopy to root-ball volume. Small (10-cm [4-in.] caliper) trees have a smaller canopy to root-ball volume ratio than large (greater than 10-cm caliper) trees because small tree root-ball depth is 75% of root-ball diameter, whereas large tree root-ball depth is 66% of root-ball diameter (AAN 1996).

This study was conducted to determine the survival and establishment of large (8.4-cm [3.3-in.] caliper) and small (3.8-cm [1.5-in.] caliper) red oak *(Quercus rubra)* trees while accounting for the possible confounding effects of seed source, cultural practices, pre-transplant physiological vigor, relative root-ball to canopy volume ratio, and relative root-ball to backfill volume.

MATERIALS AND METHODS

Two sizes of red oak trees were transplanted large caliper (8.4 cm [3.3 in.]) and small (3.6 cm [1.4 in.]) in spring 1996. Large trees were selected from forty 1- to 1.3-m (3- to 4-ft) tall, 1-year old, container-grown whips lined out in spring 1988. They were planted on a 2 m within-row and 4 m between-row (approximately 1.8 by 3.6 m [6 by 12 ft]) spacing. The block was clean cultivated the first growing season; sod was established between rows after the second season. A 1.3-m (4-ft) wide clean cultivated strip was maintained within the rows. Annual applications of 2.9 kg × 100 m^{-2} N (6 lb per 1,000 ft^2) from urea, 45-0-0, were broadcast over the clean-cultivated strip. Plants were trained to a central leader and crowns raised to 2 m (6 ft) height.

Small trees were raised from 1- to 2-m (3- to 6-ft) tall container-grown whips lined out in spring 1993 at a similar spacing in an adjacent field. They were maintained under similar cultural conditions as the large trees. Trees of both sizes were raised from open-pollinated acorns collected from the same mother tree in either fall 1986 (large trees) or 1991 (small trees). Thus, the trees in both size classes were half-sibs.

In spring 1996, large trees were harvested by first removing every other tree within a row by sawing them off at 15 cm (6 in.) above the ground. Seven of these trunks were randomly selected and the growth rings measured to document pre-transplant vigor. Twelve trees were dug from the block with a Vermeer 44 (Pella, IA) tree spade. The root-ball diameter averaged 112 cm (44 in.).

Twenty-four small-sized trees were dug from the adjacent block within 5 days of digging the large trees. A Care Tree 32 (Columbus, OH) tree spade was used to dig trees with a 50-cm (20-in.) root ball. There were two vigor classes, low and high, for the small-caliper trees. Low-vigor trees were approximately 1 m (3 ft) tall when lined out; high-vigor trees were 2 m (6 ft) tall when lined out. Thus, survival and growth of large and small-caliper trees grown from low-vigor whips could be compared to each other and survival and growth of small-caliper, high-vigor whips. The high-vigor, small trees were included as representative of those fast-growing trees that would be first dug from a block at smaller caliper sizes. The low-vigor trees represent those slower-growing trees remaining in a block after the rapidly growing trees had been harvested. These putative low-vigor whips would typically be harvested as large-caliper trees.

The planting site was a sod-covered fallow field of Crosby Silt loam soil. Small-caliper trees were planted in holes dug as deep as the soil ball, 41 cm (16 in.), and 30 cm (12 in.) wider than the root ball. Large-caliper trees were planted in holes dug as deep as the soil ball, 74 cm (29 in.), and 269 cm (106 in.) wide. Thus, the backfill to root-ball volume ratio, 4.25:1, for both trees sizes was similar. Native soil was used as backfill. A 5-cm (2-in.) deep wood-chip mulch, the diameter of the planting hole, was placed under each tree. The mulch ring was maintained weed free by mechanical and chemical means. The trees were planted in a randomized complete block design with 12 one-tree replications.

After planting, the crowns of large trees were raised to about 3 m (8 ft) to give a similar crown to root-ball volume ratio as the small-caliper trees. All trees were irrigated 3 times each in 1996 and 1997. No irrigation was applied in 1998. Rainfall from May to October was above average in 1996 and 1997, average in 1998, and significantly below average in 1999. Rainfall ranged from 20 to 22 cm (4 to 9 in.)

below normal during May to October 1999. No fertilizer was applied after transplanting.

Annually for 4 years after transplanting, 5 shoots in the lower crown were measured for current season's shoot extension. Also, 5 leaves from each tree were collected annually and leaf area determined with a LiCor Model 3100 (LiCor, Inc., Lincoln, NB) leaf area meter. Trunk calipers (30 and 15 cm [12 and 6 in.] above grade for the large- and small-caliper trees, respectively) and tree heights were also measured for 4 years after transplanting. In addition, 5 trees (3 low vigor, 2 high vigor) in the small-caliper tree block, which were not dug, served as nontransplanted controls. Similar growth data were taken on these trees as on the transplanted trees. Average shoot length and leaf area were calculated. The data were subject to analysis of variance using SPSS for the personal computer. Means were separated using the Student-Neuman-Kuels test at 0.05 level of significance.

RESULTS

There was no reduction in trunk caliper growth rate for the large-caliper trees before harvest (Figure 1). The whips had an average of 1.1-cm (7/16-in.) caliper increase per year since lining out.

All small-caliper trees survived transplanting for the 3 years of this study. All large-caliper trees survived the first growing season. During the second growing season, 7 trees (58%) died. There was no additional mortality during the third growing season.

Shoot-length increment in 1996 was significantly greater for the large-caliper trees than for the small-caliper trees, whether transplanted or not (Table 1). In the second growing season, shoot extension for the untransplanted trees was greatest; averaging more than 5 times the shoot extension of small-caliper transplanted trees and more than 13 times that of large-caliper trees. In the third growing season, shoot extension for the low-vigor, small-caliper trees was similar to that of the untransplanted trees. Shoot-extension increment for the high-vigor, small-caliper and large-caliper trees was statistically similar.

Average leaf area during the 3-year study for untransplanted trees was significantly greater than large-caliper transplanted trees (Table 1). In the first year, all transplanted trees had similar average leaf area. In the second year, untransplanted and transplanted low-vigor trees had greater leaf area than large-caliper trees. By the third year, average leaf area for the small-caliper trees, whether transplanted or not, was greater than that of transplanted trees of either caliper.

Small trees averaged 2.4 m (94 in.) in height when dug; large trees averaged 5.4 m (211 in.). There was no statistical difference in tree height among the small tree types ($P = 0.59$). Height at the end of 1996 ranged from 2.9 to 3.4 m (9.4 to 11 ft) for the small-caliper trees; large-caliper trees averaged 5.5 m (17.9 ft, Table 1). Increase in tree height during the first growing season

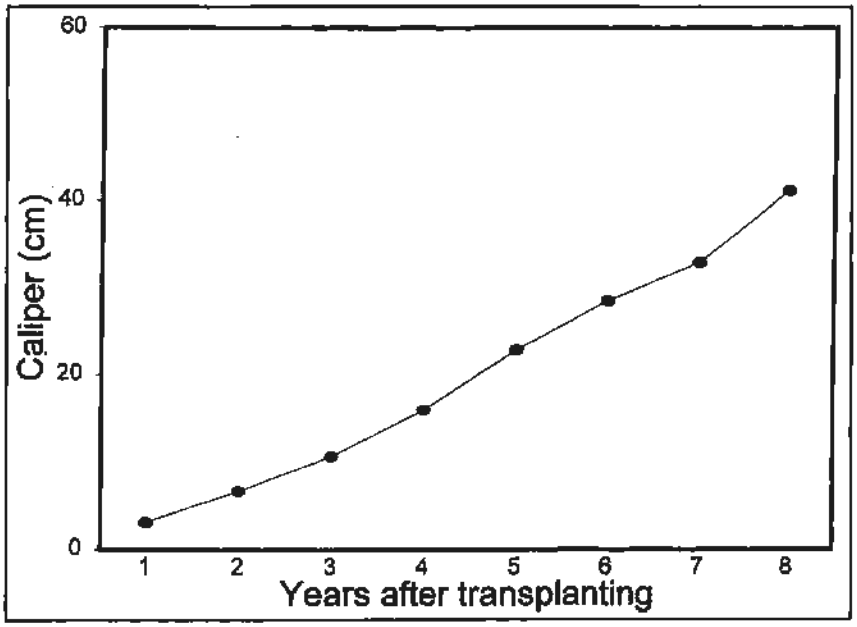


Figure 1. Red oak trunk-caliper growth during 8 years after lining out at 1-m-tall whips. Trunk caliper was measured 15 cm above the ground. These trees were randomly selected from those trees thinned prior to digging the experimental trees. Each point is the mean of 7 trees. Pre-harvest trunk-caliper growth is predicted by the equation: $C = 0.17 + 1.11T$, ($R^2 = 0.99$) where C is trunk caliper, in cm, and T is time, in years, from lining out.

Table 1. Growth of large (8.4-cm caliper) and 2 vigor classes of small (3.6-cm caliper) red oak trees following transplanting. Untransplanted small trees were included as a control.

	Shoot length (cm)			Leaf area (cm^2)			Height (m)				Trunk caliper (m)			
Treatment	1996	1997	1998	1996	1997	1998	1996	1997	1998	1999	1996	1997	1998	1999
Large caliper	15.6 a	2.6 c	6.3 b	41.8 b	41.2b	63.1 b	5.5 a	5.3 a	6.7 a	6.9 a	8.4 a	9.4 a	11.2 a	12.3 a
Small caliper low vigor	6.3 b	7.4 b	25.7 a	50.0 b	67.4 a	107.6 a	2.9 b	3.0 b	4.5 b	5.0 b	3.6 c	5.1 b	6.0 c	6.7 b
Small caliper high vigor	7.3 b	7.7 b	13.1 b	47.6 b	60.4 ab	108.9 a	3.2 b	3.2 b	4.4 b	4.9 b	3.6 c	4.5 b	5.6 c	7.0 b
Small-caliper untransplanted control trees	6.6 b	39.1 a	31.3 a	83.9 a	85.2 a	101.4 a	3.4 b	3.5 b	4.3 b	4.7 b	4.3 b	6.0 b	7.8 b	9.8 ab

Large trees averaged 8.4 cm in trunk caliper where transplanted; small-caliper trees averaged 3.6 cm in trunk caliper. Low-vigor trees averaged 1 m in height when lined out in 1992, whereas high-vigor trees averaged 2 m in height.

Each value is the mean of 5 lateral shoots per plant. Means within a column followed by different letters are significantly different from each other at a = 0.05 level using the Student-Newman-Kuels test.

Each value is the mean of 5 leaves per plant.

Height and caliper values are the average of 12 plants per treatment in 1996, except for small-caliper untransplanted trees, where there were 5 trees. In 1997 and 1998, the values for the large trees are the average of the 5 surviving trees.

averaged 0.8 m (31 in.) for the small-caliper trees; it ranged from 0.5 (19 in.) to 1 m (39 in.) for small-caliper, low-vigor trees and untransplanted trees, respectively, and only 0.1 m (4 in.) for the large trees. Height increase during the second growing season, regardless of tree size, was greatly reduced compared to the first growing season. The reduction in height for the large-caliper trees between 1996 and 1997 reflects both mortality (taller large-caliper trees tended to die in greater numbers than shorter large-caliper trees) and crown dieback in some of the surviving large-caliper trees. During the third growing season, height increased more than 1 m (39 in.) for the large-caliper trees. In the third growing season (1998), small-caliper, transplanted trees of both vigor classes averaged 1.3 m (51 in.) height increases, while untransplanted trees averaged 0.8 m (31 in.). Large-tree height increased 1.4 m (55 in.) in 1998. In the fourth year, large-caliper trees grew an average of 20 cm (8 in.), while the small-caliper trees increased 50, 50, and 40 cm (20, 20, and 16 in.) for the high-vigor, low-vigor, and control trees, respectively. During the study period, there were no significant differences in tree height between transplanted and untransplanted small-caliper trees.

Initial trunk caliper averaged 3.6 and 8.4 cm for small and large trees, respectively. There was no statistical difference ($P = 0.48$) in initial trunk caliper among the small-caliper tree types. Caliper after the first growing season ranged from 3.6 to 4.3 cm for transplanted and untransplanted small-caliper trees, respectively (Table 1). There was no measurable increase in trunk caliper during 1996 for transplanted trees. Untransplanted tree caliper increased 1.7 cm (0.7 in.) annually between 1996 and 1999. Trunk caliper increased 1.5 and 0.9 cm (5/8 and 3/8 in.) for the small-caliper, high- and low-vigor trees, respectively, during 1997. There was no statistical difference in trunk caliper between transplanted and untransplanted small-caliper trees in 1997, but in 1998, untransplanted trees had significantly greater trunk caliper than transplanted trees. For the transplanted small-caliper trees, caliper increased 0.9 and 1.1 cm (3/8 and 7/16 in.), respectively, for the high- and low-vigor trees. In the fourth year, large-tree caliper increased 1.1 cm (0.4 in.), and small-tree caliper increased 0.7, 1.4, and 2 cm (1/4, 9/16, and 3/4 in.), respectively, for the high-vigor, low-vigor and control trees. Small-caliper transplanted trees had significantly smaller caliper than large trees throughout the study period. However, the untransplanted small-caliper trees had statistically similar calipers as the large trees 4 years after transplanting.

DISCUSSION

This study accounted for possible confounding effects of seed source, pre-transplant vigor, initial whip vigor, relative canopy to root-ball volume ratio, and relative root-ball to backfill volume ratio when large-

and small-caliper trees were transplanted. Red oak is a genetically diverse species, not unexpected for an out-crossing, wind-pollinated species (Schwarzmann and Gerhold 1991). Genetic background was partially controlled by transplanting individuals from the same half-sib family. Significant variation in survival and height growth exists among red oak provenances (Kriebel et al. 1977, 1988) and open-pollinated families (Struve and McKeand 1993, 1994). Height growth is under strong genetic control (Struve and McKeand 1993). An unexpected finding in this study was the good performance of the low-vigor, small-caliper trees that were included for their putative genetic inferiority. It is not known why these trees performed better than the high-vigor, small-caliper trees.

Small-caliper trees survived transplanting better than large-caliper trees, 0 versus 58% mortality, respectively. Large-caliper tree death was attributed to planting too deeply and lack of root pruning during production. The planting holes for the large-caliper trees were dug with a backhoe. For the holes that were dug too deeply, subsurface drain tiles were broken. Soil was added to the planting holes, but the soil couldn't be packed firm and plants settled, sometimes as much as 15 cm (6 in.).

Another contributing factor to large-tree mortality was the production history. The trees were never root pruned after lining out, an 8-year period. Large-diameter roots developed during this period. At harvest, these roots were severed. Large-diameter roots do not regenerate roots as rapidly as do small-diameter roots (Johnson et al. 1984; Arnold and Struve 1989). Root pruning prior to harvest increases the percentage of roots within the root ball (Kozlowski and Davies 1975; Watson and Sydnor 1987; Harris and Gilman 1991; Gilman et al. 1992). Gilman and Kane (1991) found that regrowth may be promoted by a high proportion of small-diameter roots within the soil ball. For instance, root pruning prior to harvest stimulated first-year growth of transplanted southern magnolia (Gilman 1992a). Rapid root regeneration is key to transplant survival (Watson and Himelick 1982). Thus, mortality of the large-caliper trees may be partly attributed to root morphology; root regeneration for the large trees would have to come from large-diameter pruned roots.

Many criteria have been used to determine when a tree is established including re-establishment of the static branch:root spread ratio (Watson 1985; Gilman 1988a, 1988b, 1989; Gilman and Kane 1991; Gilman and Beeson 1996), resumption of pre-transplant growth rate (Struve 1992; Gilman and Beeson 1996), shoot xylem water potential relative to untransplanted controls (Beeson 1994; Beeson and Gilman 1992, 1996; Gilman et al. 1992), and unit photosynthetic rate (Struve 1992). These criteria were developed so that landscape managers would know when to stop post-transplanting practices designed to reduce transplant stress, especially when irrigation can safely reduced or eliminated (Gilman 1992b). None of the trees received irrigation during the third growing season, despite a mild drought, and none showed drought symptoms such as foliar discoloration, leaf margin burn, early fall color development or defoliation. Because the trees needed no supplemental irrigation during the drought, they were considered established. A 3-year establishment period for 1.5-in.-caliper trees in USDA Hardiness Zone 5 is consistent with the 1-year-per-inch trunk caliper proposed by Watson (1985) and confirmed by Gilman (1992b), but a year less than that required for the large-caliper trees. Resumption of pre-transplant growth rates also indicates that the plants are established. Prior to transplanting, the trunk caliper of the large-caliper trees increased at 1.1 cm (7/16 in.) annually; the 3-year average after transplanting was 0.9 cm (3/8 in.). The 3-year post-transplant average trunk caliper increase for the small-caliper trees was 0.8, 0.67, and 1.17 cm (5/16, 1/4, and 1/2 in.) for the low-vigor, high-vigor, and untransplanted trees, respectively. However, using this criterion, none of the transplanted trees are established. Post-transplanting annual height increase for the large-caliper trees averaged 0.6 m (23 in.); for the small-caliper trees it was 0.8, 0.55, and 0.45 (31, 21, and 18 in.), respectively, for the low-vigor, high-vigor, and untransplanted trees, respectively. Pre-transplant growth rates averaged 0.7 m (26 in.) for the large and 0.6 m (23 in.) for the small-caliper trees. All trees exceeded their pre-transplant height growth rates in 1998.

One putative benefit from transplanting small-caliper trees is the reduced transplant shock and quicker recovery. Quicker establishment of small-caliper trees suggests that they will soon equal the size of the slower-establishing large trees (Watson 1985). Watson (1985) predicted that a transplanted

10.2-cm (4-in.) caliper tree would equal the size of a transplanted 10-in.-caliper tree after 13 years. Gilman et al. (1998) demonstrated that small-caliper trees (2.5 in. [6.3 cm]) established faster than large-caliper trees (3.5 in. [9.4 cm]). Trunk diameter increase for the small- and large-caliper trees was described by the equations:

$$C_{small} = 6.5 + 0.00567T. (r^2 = 0.959)$$
$$C_{large} = 6.5 + 0.00399T. (r^2 = 0.849)$$

where C_{small} equals small-caliper tree trunk diameter in cm, C_{large} equals large-caliper tree trunk diameter, and T is time in days. Solving the system of equations simultaneously predicts when small-tree caliper size will equal large-caliper tree size. This occurs 5.7 years after transplanting in USDA Hardiness Zone 9, when the trees are 18.3 cm in caliper. It would take 22.8 years in Hardiness Zone 5 using Gilman's (1992b) estimate of differential rate of establishment according to length of growing season.

Linear and quadratic equations for predicting caliper growth were developed for our 4-year data (Table 2). Based on the 4-year results of this study, height growth of the large- and small-caliper trees would be equal after 14.5, 14.7, and 20.7 years (small-caliper–high-vigor, small-caliper–low vigor, and small-caliper control trees, respectively). The trees will be 10.8, 10.9, or 13.4 m (35.1, 35.4, and 43.6 ft) tall, for small-caliper–high vigor, small-caliper–low vigor, and small-caliper control trees, respectively. Quadratic equations, which result in a higher correlation coefficient for the large-caliper height growth (i.e., are better predictors of height growth), predict that the small-caliper tree height growth will never exceed the height growth of the large-caliper trees. Similar results are obtained with linear and quadratic equations for caliper growth, except that caliper growth of untransplanted trees will equal that of large-caliper trees in 11.3 years, or 16 years when the plants are 18.7 or 59 cm (7.4 or 23.2 in.), based on the linear and quadratic equations, respectively (Table 2). Linear and quadratic equations indicate that transplanted small-caliper tree trunk caliper will not surpass large tree caliper. Linear equations predict that large-tree caliper increased at 1.06 cm (7/16 in.) per year compared to 0.86 and 0.88 cm (5/16 in.) for both the high- and low-vigor small-caliper transplanted trees. The untransplanted small-caliper trees are predicted to equal the caliper of the large-sized transplanted trees after 10.5 years when the trees are 15 cm (6 in.) in caliper. However, caution must be exercised in extrapolating the 4-year data of our study.

Table 2. Linear and cubic regression equations and correlation coefficients for tree height and caliper growth 4 years after transplanting. Large-caliper trees averaged 5.5 m in height and 8.4 cm in caliper at transplanting. Small-caliper trees averaged 2.4 m in height and 3.6 cm in caliper when transplanted. High-vigor small trees averaged 2 m in height when lined out, low-vigor small trees averaged 1 m. Five small trees were not transplanted and served as controls. The regression equations were developed from 5, 12, 12, and 5 trees for large-caliper, small-caliper–high-vigor, small-caliper–low-vigor and control trees, respectively.

Regression equation	R^2
Height, linear	
$H_L = 4.70 + 0.42T$	0.46
$H_{SHV} = 1.52 + 0.68T$	0.92
$H_{SLV} = 1.76 + 0.62T$	0.95
$H_{Control} = 2.01 + 0.55T$	0.95
Height, quadratic	
$H_L = 5.60 - 0.35T + 0.13T^2$	0.83
$H_{SHV} = 2.22 + 0.08T + 0.10T^2$	0.94
$H_{SLV} = 2.06 - 0.36T + 0.04T^2$	0.95
$H_{control} = 1.76 + 0.76T - 0.037T^2$	0.96
Caliper, linear	
$C_L = 6.76 + 1.06T$	0.92
$C_{SHV} = 2.42 + 0.86T$	0.95
$C_{SLV} = 2.22 + 0.88T$	0.92
Caliper, quadratic	
$C_L = 8.26 - 0.23T + 0.21T^2$	0.97
$C_{SHV} = 2.82 + 0.52T + 0.057T^2$	0.95
$C_{SLV} = 3.72 - 0.41T + 0.21T^2$	0.99
$C_{Control} = 2.88 + 0.43T + 0.19T^2$	0.99

H_L = height (m) of large-caliper trees
H_{SHV} = height (m) of small-caliper high vigor trees
H_{SLV} = height (m) of small-caliper low vigor trees
$H_{Control}$ = height (m) of untransplanted small-caliper trees
C_L = caliper (cm) of large-caliper trees
C_{SHV} = caliper (cm) of small-caliper high vigor trees
C_{SLV} = caliper (cm) of small-caliper low vigor trees
$C_{Control}$ = caliper (cm) of untransplanted small-caliper trees
T = time in years
All equations were significant at the P = 0.01 level.

Our results may be different from those of Gilman et al. (1998) because we accounted for factors not considered by them: similar genetics, production history, planting-hole to backfill volume, and relative mulch ring diameter.

Based on these results, surviving large-caliper tree caliper growth was greater than small-caliper transplanted tree caliper growth. However transplant survival of the large-caliper trees was only 42%. Large tree survival probably can be improved if they are root pruned every 3 to 4 years during the production cycle. Higher-quality large-caliper nursery stock can be obtained if the arborist knows the nursery's production practices. In particular, one should purchase large-caliper trees from blocks established specifically for large-tree production, rather than purchase the last plants remaining in a block.

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Résumé. Des chênes rouges (*Quercus rubra* L.) de deux calibres différents—8,4 et 3,6 cm—et de deux classes de vigueur différentes—bonne et faible—ont été transplantés pour comparer les taux de croissance et de reprise au cours d'une période de trois ans. Des facteurs potentiellement sujets à confusion, tels la vigueur avant la transplantation, la génétique, le volume relatif de la motte versus celui de la fosse ainsi que le volume relatif de la cime versus celui de la motte, ont été contrôlés pour déterminer si les arbres de petit calibre se rétablissaient plus rapidement que ceux de gros calibre. Les arbres de gros calibre avaient un taux de mortalité plus élevé, soit 58%, alors qu'aucun des arbres de petit calibre n'était mort. En se basant sur le calibre du tronc et le taux de croissance en hauteur après la transplantation, les arbres de plus gros calibre qui avaient survécu reprenaient plus rapidement que les arbres de petit calibre.

Zusammenfassung. Roteichen (*Quercus. rubra* L.) mit den zwei Durchmessergrößen von 8,4 und 3,6 cm und zwei Vitalitätsklassen innerhalb der kleineren Eichengrößen wurden verpflanzt, um das Anwachsen und das weitere Wachstum in einer dreijährigen Periode zu vergleichen. Es wurden begünstigende Faktoren, wie die Vitalität vor dem Verpflanzen, die Genetik, die relative Wurzelballengröße im Vergleich zum Pflanzloch und die Kronengröße in Relation zum Wurzelballvolumen, wurden kontrolliert, um Aussagen darüber zu machen, ob kleinere Bäume sich schneller am Standort etablieren als größere Bäume. Die Größeren Bäume hatten eine höhere Sterberate, nämlich 58 %, während von den kleinen Bäumen keiner starb. Basierend auf dem Stammdurchmesser und Höhenwachstum nach dem Verpflanzen haben sich die überlebenden Bäume mit dem größeren Durchmesser schneller am Standort etabliert als die kleineren Bäume.

Resumen. Se trasplantaron robles rojos de Texas (*Quercus rubra* L.) de dos calibres, 8.4 y 3.6 cm (3.3 y 1.4 pulg) y dos clases de vigor (alta y baja), con el fin de comparar su establecimiento y crecimiento en un periodo de tres años. Se controlaron los posibles factores de confusión tales como vigor pre-trasplante, relación cepellón—volumen de relleno y relación copa—volumen del cepellón, con el fin de determinar si los árboles de calibre pequeño se establecían más rápido que los grandes. Los árboles grandes tuvieron la mortalidad más alta, 58%, mientras que ninguno de los árboles pequeños murió. De acuerdo con el calibre del tronco y el crecimiento en altura después del trasplante, los árboles grandes que sobrevivieron se establecieron más rápidamente que los árboles chicos.

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TREE SIZE AFFECTS ROOT REGENERATION AND TOP GROWTH AFTER TRANSPLANTING[1]

by Gary Watson

Slow growth of trees over 4 inches dbh, following transplanting, is often a source of concern for arborists and landscape contractors. Growth of these trees is often stagnant for several years. Smaller 1- to 3-inch trees, transplanted at the same time, will often equal in size or surpass them before larger trees regain their pretransplanting vigor. In spite of these difficulties, larger trees continue to be transplanted for the immediate advantages they can provide in landscape design.

All newly transplanted trees are subject to an initial period of reduced vigor, but the duration of this period varies. This period is often referred to as transplanting shock. Neither researchers nor practitioners have been able to identify any single, specific cause for the prolonged period of transplanting shock experienced with large transplanted trees. Various physiological stresses are often implicated. All transplanted trees are subject to varying degrees of water stress because the root system is drastically reduced (Watson and Himelick, 1982a). Water stress can reduce photosynthetic activity (Kozlowski and Keller, 1966), potentially diminishing carbohydrate reserves and reducing growth. Recent work has shown that levels of carbohydrate reserves are not reduced in transplanted trees when they are watered adequately following transplanting (Watson and Himelick, 1982b), and may only play a role in cases of severe or prolonged water stress. Stressed trees are often susceptible to a wide variety of insect and disease problems which can result in reduced vigor, distortion of shape, and death (Schoeneweiss, 1981). The causes of transplanting shock are complex and relate to the reduced size of the root system of the transplanted tree. The root-shoot imbalance created by transplanting appears to be the primary cause of transplanting shock with other physiological and pathological problems acting as secondary agents. Until the natural root-shoot balance of the tree is restored, some degree of transplanting stress will exist.

It is the intention here to show the relationship between the duration of stress from transplanting and the length of time necessary to replace that portion of the root system lost during transplanting. When standard nursery practices are used to determine the size, the root ball is proportionate to the crown for both large and small trees (Himelick, 1981). It is important to remember that as the size of the tree increases, the lateral spread of the original root system increases. Although a consistent percentage of the root system is left behind, a greater mass and length of roots is lost from the large tree and these must be replaced at the new site. If the roots of both the large and small trees grow at the same rate, the root system of the larger tree will take much longer to regenerate. This point is illustrated in the following model.

Figure 1 illustrates a model of a small (4 inches dbh) and a large (10 inches dbh) transplanted tree of the same species transplanted at the same time. It shows the reduction in the root system at the time of transplanting and the regeneration of the root system during the succeeding years. The model incorporates several aspects of root development which should be thoroughly

1. This work supported in part by the Theodore Brickman Company, Long Grove, Illinois.

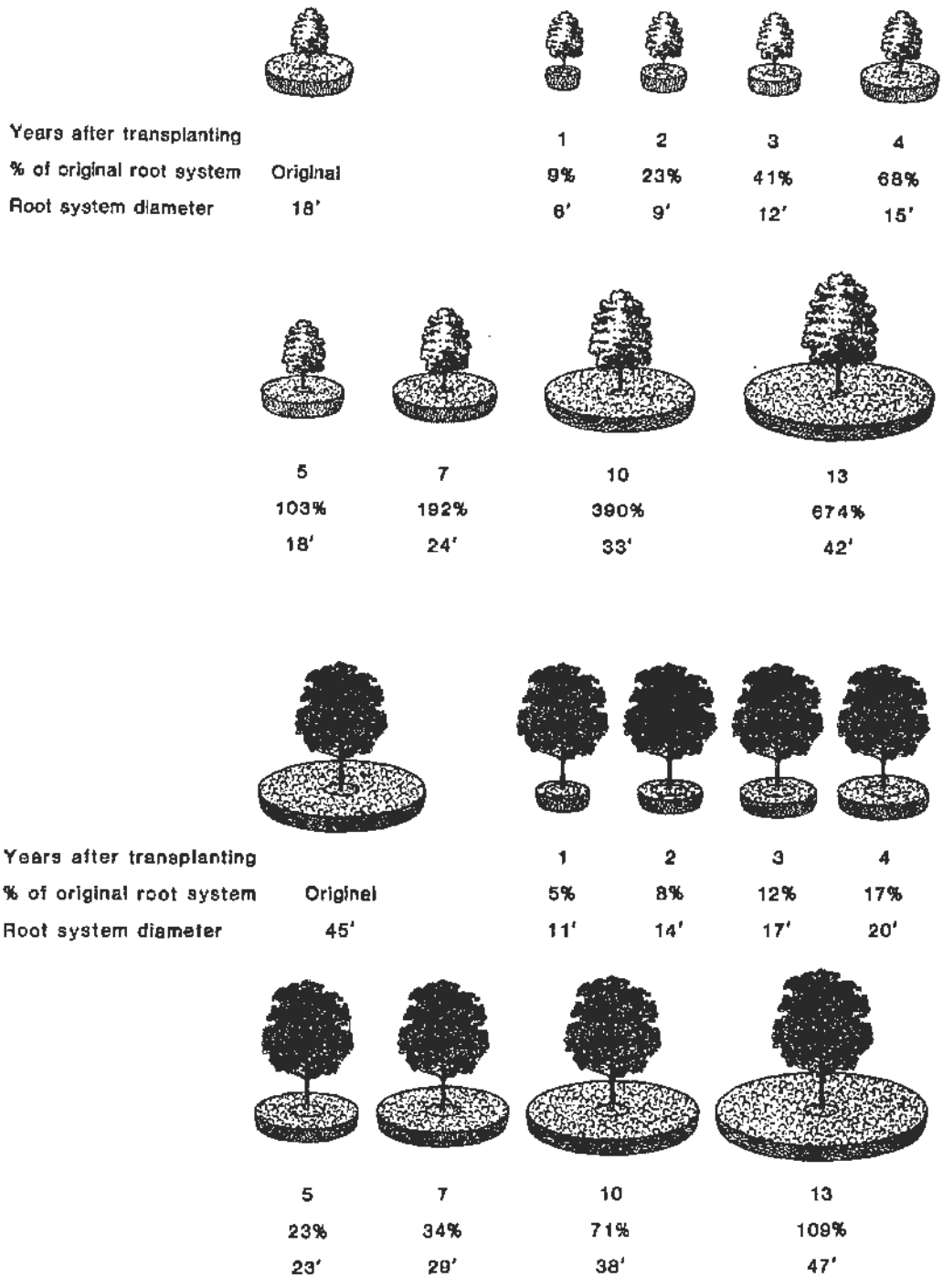

Figure 1. The relationship between root growth and top growth of transplanted trees of 4- and 10-inch dbh at the time of transplanting. The larger tree grows very slowly for many years, while the smaller tree resumes a normal rate after only a few years. Eventually, the two trees are nearly equal in size.

understood in order to fully comprehend the model:

1. The natural root distribution of shade trees is very shallow and widespread. Little, if any, root growth occurs below 48 inches in most soils. Fine roots are heavily concentrated in the top 4-12 inches of soil. Structural or sinker roots penetrate deeper, but seldom below 48 inches. Tree taproots are rare or absent for most tree species. Actual depth of the roots is highly influenced by soil type at the site.

2. Root regeneration occurs laterally from the perimeter of the root ball. The rate of growth of regenerated roots is essentially the same for both large and small trees of transplantable size, if unstressed. Lateral growth out from the soil ball of 18 inches per year is average for a well-maintained tree transplanted in friable, well drained soil. In previous studies, lateral root growth ranged from 12-27 inches per year (Watson and Himelick, 1982b).

3. As roots grow, exploitation of the soil by the fine roots is uniform throughout the lateral spread of the root system. Seldom are there large areas of soil in which roots do not grow unless the soil conditions are unfavorable.

The model is based on the concept that as long as the roots and aerial portions of the tree are out of balance, the vigor of the tree will be reduced. The roots cannot supply sufficient quantities of water and mineral nutrients to the upper portions of the tree for vigorous growth until the natural balance has been restored. The greater the imbalance, the slower the resultant growth. In the model, the root system of the 4-inch tree had a diameter of approximately 45 feet before transplanting. The above- and below-ground portions of the tree were in natural balance. During transplanting this balance is grossly distorted and the root system may be reduced by as much as 98 percent (Watson and Himelick, 1982a). New roots are initiated from callus formed near the cut end of the roots at the edge of the root ball. This occurs soon after transplanting. By using 18 inches per year as an average annual root growth, the smaller tree will replace its original root system in less than 5 years. Since the top of the tree has continued to grow slowly during this period, it may take slightly longer to restore the original root-shoot balance. After 5 years, the regenerated root system of the 10-inch tree will be only about 25 percent of its original size, and the tree remains stressed. As Figure 1 illustrates, a period of 13 years or more is required to restore the original balance of the 10-inch tree. At this time, the root system of the smaller tree is nearly as large as that of the larger tree. Since the root systems are nearly equal in size, it follows that the above-ground portions are also nearly equal. Since the small tree has been growing vigorously for several of the 13 years while the larger tree has been under at least some degree of stress, it is possible for the original 4-inch tree to be larger than the 10-inch tree by this time.

The model can be used to understand the concepts involved in root regeneration and transplanting shock, and to predict the timing of events. It is difficult to model all of the factors that influence root regeneration. Roots of different tree species grow at varying rates. Soil conditions have a profound effect on root growth rates. Promoting vigorous root growth is the best way to minimize the severity and duration of transplanting shock for trees of any size.

The soil environment must be favorable for optimum root growth. Most importantly, moisture, aeration, and nutrient levels must be favorable. When used as backfill, heavy, compacted soils should be modified to improve drainage and aeration. Soil conditions are usually most favorable for the fine root development in the top 4-6 inches of soil, especially in the disturbed clay soils often encountered in urban areas. The deeper soil layers are often waterlogged and oxygen deficient. Modification of this surface soil around the root ball would promote more rapid root regeneration in the early years following transplanting. A large planting hole with the sides sloping at a shallow angle would accomplish this and also provide a large interface between the backfill and the native soil. Only in unusual circumstances should there be difficulties as the roots grow through the interface between the ball and the native soil (Whitcomb, 1979). Mulching the surface would further improve the rooting environment and increase root growth. Litzow and Pellett (1983) have published a review on this subject. Rooting hormone treatments may also be useful in increasing

root regeneration during the initial period of establishment (Prager and Lumis, 1983; Lumis, 1982).

Summary

The model shows why large transplanted trees are likely to have reduced growth for many years following transplanting due to the length of time required to regenerate the roots lost during the transplanting process. The above-ground portion of the tree must be in balance with the root system for proper growth. The size of the above-ground portion of the tree is controlled by the size of the root system. When the root system is reduced or restricted, the growth of the trunk and branches will also be reduced. Since the spread of the regenerated root systems of the large and small transplanted trees differs only by the relatively small difference in size of the original root balls, it follows that the growth of the above-ground portions of the trees must eventually be similar if the root-shoot balance is to be maintained. Trees transplanted into poor sites may never regain proper root-shoot balance and normal vigor.

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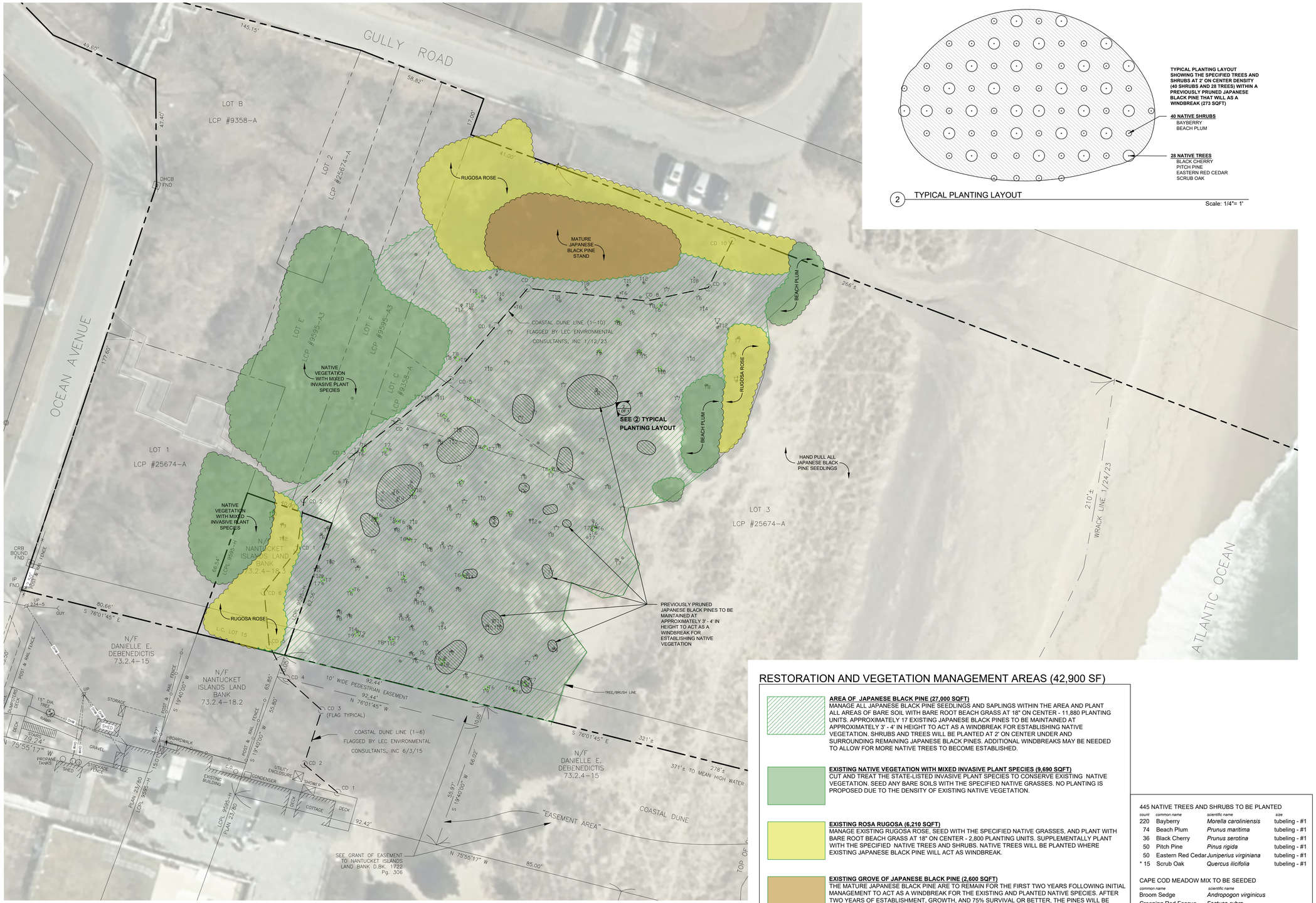

1 RESTORATION PLAN

Scale: 1"= 20'

2 TYPICAL PLANTING LAYOUT

Scale: 1/4"= 1'

RESTORATION AND VEGETATION MANAGEMENT AREAS (42,900 SF)

AREA OF JAPANESE BLACK PINE (27,000 SQFT)
MANAGE ALL JAPANESE BLACK PINE SEEDLINGS AND SAPLINGS WITHIN THE AREA AND PLANT ALL AREAS OF BARE SOIL WITH BARE ROOT BEACH GRASS AT 18" ON CENTER - 11,880 PLANTING UNITS. APPROXIMATELY 17 EXISTING JAPANESE BLACK PINES TO BE MAINTAINED AT APPROXIMATELY 3' - 4' IN HEIGHT TO ACT AS A WINDBREAK FOR ESTABLISHING NATIVE VEGETATION. SHRUBS AND TREES WILL BE PLANTED AT 2' ON CENTER UNDER AND SURROUNDING REMAINING JAPANESE BLACK PINES. ADDITIONAL WINDBREAKS MAY BE NEEDED TO ALLOW FOR MORE NATIVE TREES TO BECOME ESTABLISHED.

EXISTING NATIVE VEGETATION WITH MIXED INVASIVE PLANT SPECIES (9,690 SQFT)
CUT AND TREAT THE STATE-LISTED INVASIVE PLANT SPECIES TO CONSERVE EXISTING NATIVE VEGETATION. SEED ANY BARE SOILS WITH THE SPECIFIED NATIVE GRASSES. NO PLANTING IS PROPOSED DUE TO THE DENSITY OF EXISTING NATIVE VEGETATION.

EXISTING ROSA RUGOSA (6,210 SQFT)
MANAGE EXISTING RUGOSA ROSE, SEED WITH THE SPECIFIED NATIVE GRASSES, AND PLANT WITH BARE ROOT BEACH GRASS AT 18" ON CENTER - 2,800 PLANTING UNITS. SUPPLEMENTALLY PLANT WITH THE SPECIFIED NATIVE TREES AND SHRUBS. NATIVE TREES WILL BE PLANTED WHERE EXISTING JAPANESE BLACK PINE WILL ACT AS WINDBREAK.

EXISTING GROVE OF JAPANESE BLACK PINE (2,600 SQFT)
THE MATURE JAPANESE BLACK PINE ARE TO REMAIN FOR THE FIRST TWO YEARS FOLLOWING INITIAL MANAGEMENT TO ACT AS A WINDBREAK FOR THE EXISTING AND PLANTED NATIVE SPECIES. AFTER TWO YEARS OF ESTABLISHMENT, GROWTH, AND 75% SURVIVAL OR BETTER, THE PINES WILL BE PROPOSED FOR REMOVAL. THIS REMOVAL CAN BE PHASED OVER A TWO OR THREE YEAR PERIOD TO ALLOW ADDITIONAL WINDBREAK FOR THE ESTABLISHING NATIVE PLANTINGS. THE CONSERVATION AGENT WILL BE CONSULTED PRIOR TO ANY REMOVAL, AND DETERMINE PHASING OF THE REMOVAL AT THAT TIME. THE REMOVAL OF THE JAPANESE BLACK PINE SHALL TAKE PLACE DURING THE DORMANT SEASON, BETWEEN OCTOBER AND APRIL, IN AN EFFORT TO NOT ATTRACT TURPENTINE BEETLE.

445 NATIVE TREES AND SHRUBS TO BE PLANTED

count	common name	scientific name	size
220	Bayberry	*Morella caroliniensis*	tubeling - #1
74	Beach Plum	*Prunus maritima*	tubeling - #1
36	Black Cherry	*Prunus serotina*	tubeling - #1
50	Pitch Pine	*Pinus rigida*	tubeling - #1
50	Eastern Red Cedar	*Juniperius virginiana*	tubeling - #1
* 15	Scrub Oak	*Quercus ilicifolia*	tubeling - #1

CAPE COD MEADOW MIX TO BE SEEDED

common name	scientific name
Broom Sedge	*Andropogon virginicus*
Creeping Red Fescue	*Festuca rubra*
Crinkle Hair Grass	*Deschampsia flexuosa*
Fox Sedge	*Carex vulpinoidea*
Little Bluestem	*Schizachyrium scoparium*
Purple Lovegrass	*Eragrostis spectabilis*
Upland Bentgrass	*Agrostis perennans*

* IF SCRUB OAKS HAVE A POOR SURVIVAL RATE FOLLOWING INITIAL PLANTING, THEY WILL BE REPLACED WITH ONE OF THE OTHER PROPOSED NATIVE TREE SPECIES.

WILKINSON
ECOLOGICAL DESIGN

28 Lots Hollow Rd., Orleans, MA 02653
TEL: (508) 255-1113 FAX: (508) 255-9477
WWW.WILKINSONECOLOGICAL.COM

SURVEY PROVIDED BY:

NANTUCKET SURVEYORS LLC
5 WINDY WAY
NANTUCKET, MA 02554
508-228-0240

NOTES:

1. APPROXIMATELY THREE GROWING SEASONS WILL BE REQUIRED TO CONTROL AND/OR ERADICATE INVASIVE PLANT SPECIES. AFTER THREE GROWING SEASONS, MONITORING AND MINIMAL MAINTENANCE WILL BE ONGOING.
2. HERBICIDES ARE TO BE APPLIED BY LICENSED INDIVIDUALS ONLY.
3. ALL RESTORATION PLANTINGS WILL INCORPORATE EXISTING NATIVE SPECIES UNLESS OTHERWISE SPECIFIED IN THE APPROVED DOCUMENTS.
4. ANY DISCREPANCIES BETWEEN THE PLANTING SPECIFICATION AND THE PLAN, THE PLAN SHALL TAKE PRECEDENCE.
5. HAND-WEEDING AND SELECTIVE HERBICIDE TREATMENTS WILL BE REQUESTED AS AN ONGOING CONDITION TO STOP REINTRODUCTION OF INVASIVE AND AGGRESSIVE PLANT SPECIES INTO THE PROJECT AREA.
6. ALL EXPOSED SOILS WILL BE SEEDED WITH NATIVE CAPE COD MEADOW MIX UNLESS OTHERWISE SPECIFIED.
7. IMPLEMENTING OF THE RESTORATION MEASURES SHOWN ON THIS DOCUMENT TO BE OVERSEEN BY A CERTIFIED ECOLOGICAL RESTORATION PRACTITIONER.

CERTIFIED ECOLOGICAL RESTORATION PRACTITIONER
CERP
S. Wilkinson #1147
Exp. 11/15/22
BY THE SOCIETY FOR ECOLOGICAL RESTORATION

TREE IDENTIFICATION TABLE

- ⊙ CUT TREES MARKED BY NATURAL RESOURCE DEPARTMENT 12/28/22
- ◯ SINGLE MULTI-STEMMED TREE
- × T6 STUMP AT GRADE WITH BASAL DIAMETER MEASUREMENT

TOTAL TREES (≥ 6" BASAL DIAMETER): 151

REV	DATE	DESCRIPTION

SCONSET TRUST

2 GULLY ROAD
NANTUCKET, MA

DATE: 2/27/2023	SCALE: 1" = 20'
DRAWN BY: JS	CHECKED BY: IP

FOR PERMITTING PURPOSES ONLY
THIS DRAWING IS NOT INTENDED FOR CONSTRUCTION

RESTORATION PLAN

1 OF 1

17-feb-23 k:\clients\gully rd_2_nan\consult\plans\rest\optan\20250111_site visit sheet_gully rd_2_nan.tu.dwg

Site Access Agreement

Nantucket Islands Land Bank (the "Owner") hereby grants a license to and authorizes Wilkinson Ecological Design, Inc. (“Wilkinson”) and the Joseph S. DiMartino 2011 Family Trust and the Linda J. DiMartino 2011 Family Trust (both Trusts are collectively referred to as “DiMartino”)’s agents and/or contractors retained to perform “the Work,” as defined herein, to enter upon the property owned by Owner located at 8 Ocean Avenue, Nantucket, Massachusetts 02554 (the "Property"), to perform the Work (as defined below) subject to the following terms and conditions (the “License”).

1. The work that is the subject of this License is described in Schedule A attached hereto and incorporated herein by reference (collectively referred to as "the Work").Wilkinson and DiMartino’s agents and/or contractors (collectively referred to as the “DiMartino Contractors”) shall perform the Work at their own expense and in a good and workmanlike manner and in conformity with industry standards, and in the presence of and in consultation with Owner’s representative, Arthur Reade, Esq.

2. Wilkinson and/or the DiMartino Contractors may enter the Property only upon a 3-day advance written notice to the Owner’s designated representative by first class mail or email, as listed below, for the sole purpose of the Work as described in Schedule A.

3. Wilkinson and/or the DiMartino Contractors agree that their entry upon the Property under this License is at their own risk and that access to the Property is afforded on an “as-is, where-is” basis only. Wilkinson and/or the DiMartino Contractors shall be solely responsible for any and all damages arising from their conduct, regardless of the cause.

4. Wilkinson and/or the DiMartino Contractors agree to plan and execute the Work and activities on the Property so as not to interfere unreasonably with the use and occupancy of the Property, or to jeopardize the safety of any persons or property located on the Property. All vehicles, equipment, and other removable items will be placed on Owner’s property only as necessary to conduct the Work, and must be removed when not in use, upon completion of the Work, and upon the termination of this License.

5. Wilkinson and/or the DiMartino Contractors agree to conduct all activities on the Property, including, without limitation, the Work, in compliance with all applicable legal requirements.

6. Wilkinson and/or the DiMartino Contractors hereby agree to promptly provide Owner with copies of all written documentation, should any exist, pertaining to the Work planned for or conducted on the Property, including, without limitation, all documents relating to their activities at the Property which they may send to and/or receive from the Nantucket Conservation Commission. Wilkinson and/or the DiMartino Contractors must provide those documents within five (5) days of receipt of the same. Wilkinson and/or the DiMartino Contractors further agree to provide Owner with copies of all photographs related to their access to the Property.

7. Wilkinson and/or the DiMartino Contractors agree to hold harmless and indemnify Owner and its employees, agents, and contractors for any cost, loss, damage or injury, and against any claim of any nature, arising from or relating to activities of Wilkinson and/or the DiMartino Contractors and their agents, employees, and contractors on the Property under this License or

exercise of its rights under this License, unless such costs, loss, damages and/or claims are caused solely by a negligent act or omission on the part of the Owner.

8. Wilkinson and/or the DiMartino Contractors shall restore, within a reasonable period after completion of the Work and, in any event, upon termination of this License, all areas affected by the performance of the Work to as close to their condition existing immediately prior to commencement of the Work as is reasonably practicable, except for those elements of the Work where such purpose is a permanent change. Such restoration is subject to the reasonable approval and satisfaction of Owner and shall not be unreasonably withheld.

9. This License is for the sole benefit of Wilkinson and/or the DiMartino Contractors and shall not be conveyed, assigned, or otherwise transferred by any of them.

10. This License shall be valid for three (3) years from the date hereof, unless extended in writing by Owner.

11. Notices and notifications required under this License shall be in writing by email and/or first class mail to and given as follows:

If to Owner, to:

Rachael Freeman/Jesse Bell?

If to Wilkinson or DiMartino, to:

Seth Wilkinson
Seth@wilkinsonecological.com
Wilkinson Ecological Design, Inc.
28 Lots Hollow Road
Orleans, MA 02653

With a copy to:

Glenn Wood, Esq.
gwood@rubinrudman.com
Rubin and Rudman, LLP
53 State Street
Boston, MA 02109

and

Rhoda H. Weinman, Esq.
weinman@nantucketislandlaw.net
36 Centre Street, Post Office Box 1365
Nantucket Island, Massachusetts 02554

12. Wilkinson shall carry, at its own expense, insurance coverage with liability limits of $1,000,000 per occurrence, $1,000,000 aggregate for each of personal injury, bodily injury, workers compensation, and damage to the Property arising out of its Work during the term of

this Agreement listing the Owner as an additional insured and loss payee as its interests may appear. Evidence of these policies in the form of insurance certificates must be submitted to the Owner if requested. Wilkinson shall, if requested, submit true and correct copies of the actual policies of insurance to the Owner within ten (10) days of any such request.

13. This License may be modified, amended, supplemented, or extended only by a written instrument signed by the parties hereto or their authorized representatives.

14. The persons signing this License represent and warrant that they have full power and authority to execute and deliver this License on behalf of the party for whom they have signed.

15. This Agreement is made under and shall be governed by the laws of the Commonwealth of Massachusetts.

16. This Agreement may be executed in two or more counterparts, each of which will constitute an original.

17. If any part of this Agreement is void as illegal, the remainder of it will be fully enforceable.

Executed as of April_____, 2023.

NANTUCKET ISLANDS LAND BANK,

By:_____

Jesse Bell, Executive Director

WILKINSON ECOLOGICAL DESIGN, INC.,

By: _____

Seth Wilkinson, President

JOSEPH S. DIMARTINO FAMILY TRUST,

By: _____

LINDA J. DIMARTINO FAMILY TRUST,

By: _____

TRANSFER BUSINESS
Nantucket Land Bank Commission
Regular Meeting of April 25, 2023

1. “M” Exemption Update:

    a. Five-Year Domicile and Ownership Compliance – Release of Lien:

        No. 39620 Wynnshield LLC

2. “O” Exemption Update:

    b. Five-Year Domicile and Ownership Compliance – Release of Lien:

        No. 39742 Jermaine A. Scarlett and Marita H. Scarlett

NANTUCKET LAND BANK COMMISSION WORKSHEET
UNAUDITED FINANCIAL REPORT as of March 31, 2023

STATEMENT OF ACCOUNTS - UNRESTRICTED FUNDS	Feb YIELD	Feb YIELD	2/28/2023	3/31/2023
Nantucket Bank / Operating Fund x8888	0.00	0.00	$45,948.94	$46,249.12
Nantucket Bank / Collection Account x7653	1.36	1.62	$27,608,208.90	$27,124,545.46
Nantucket Bank / Special CD x1135 *matures 5/20/2023**	0.75	0.75	$5,085,966.22	$5,089,206.91
TOTAL UNRESTRICTED FUNDS:			**$32,740,124.06**	**$32,260,001.49**

STATEMENT OF ACCOUNTS - RESTRICTED FUNDS	Feb YIELD	Feb YIELD	2/28/2023	3/31/2023
US Bank / Series A Bonds Reserve Fund / SLGS *mature 12/1/27 & 2/15/32 MktVal*	2.93	2.93	$1,512,774.65	$1,514,719.00
US Bank / Series A Bonds Debt Service Fund *x1002*	0.00	0.00	$20,911.02	$20,911.11
US Bank / Acquisition Fund *x1003*	0.00	0.00	$1.10	$1.10
Nantucket Bank / SHAC Escrow x7038	0.25	0.25	$22,020.56	$22,025.24
Nantucket Bank / NFRM Escrow x9058	0.25	0.25	$10,016.66	$10,018.79
Nantucket Bank / CSMF (Industrial Pk Mitigation) Escrow x1457	0.25	0.25	$32,100.13	$32,106.95
Nantucket Bank / Nabalus Escrow x1473	0.25	0.25	$1,663.57	$1,663.92
Nantucket Bank / MGC Golf Capital Reserve	0.25	0.25	$20,851.93	$195,383.98
Nantucket Bank / SGC Capital Reserve	0.25	0.25	$604,453.18	$904,583.58
Nantucket Bank / NGM Management Reserve	0.25	0.25	$29,206.92	$29,213.12
Hingham Savings / Marble Reserve CD *matures 10/2/2023*	2.23	2.23	$229,934.55	$230,370.45
Citizens Bank / Verrill Dana Acquisition Escrow			$100,000.00	$50,000.00
TOTAL RESTRICTED FUNDS:			**$2,583,934.27**	**$3,010,997.24**
TOTAL FUNDS:			**$35,324,058.33**	**$35,270,998.73**

BONDS:	Principal Outstanding		Payment Due	Annual Payments
2012 Series A Issue *(Final principal payment 2/15/2032)*	$3,435,000	*Interest due 8/15/23, Principal and Interest due 2/15/24*		$428,412.50
2016 Series A Refunding Bond *(Final principal payment 12/1/2027)*	$4,890,000	*Principal and Interest due 12/1/23, Interest due 6/1/23*		$1,056,700.00
TOTAL BONDS:	**$8,325,000**	**TOTAL ANNUAL BOND PAYMENTS:**		**$1,485,112.50**

NOTES:	Principal Outstanding		Payment Due	Annual Payments
Marble Note #19	$1,700,000		*Principal due 1/10/24*	$1,000,000.00
Owen Notes	$1,000,000	*Interest of $25,768.60 due 6/9/23, 9/9/23, 12/9/23, 3/9/24*		$103,074.40
TOTAL NOTES:	**$2,700,000**	**TOTAL ANNUAL NOTE PAYMENTS:**		**$1,103,074.40**
TOTAL DEBT:	**$11,025,000**	**TOTAL ANNUAL DEBT PAYMENTS:**		**$2,588,186.90**

**A 12-month CD with the benefit of withdrawing at any time, if needed, without penalty.*