VETERANS MEMORIAL PARK MASTER PLAN

Open Space and Recreation Committee

Tisbury, MA

July 2024

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EXECUTIVE SUMMARY

The Veterans Memorial Park Master Plan was developed to improve stormwater management and nutrient loading while maintaining recreational opportunities at the Park. Veterans Memorial Park is a 10.62 acre parcel owned by the Town of Tisbury between Beach Street, State Road, Causeway Road, and Lagoon Pond Road. The Park is home to a number of recreational amenities including soccer fields, two baseball/softball fields, a basketball court, a volleyball court, a playground, and a swing set. It is also home to the annual Beach Road Music Festival and an antique car show. Currently these uses are negatively impacted by poor drainage/stormwater runoff from within the Park and any contributing area draining to the park.

Veterans Memorial Park sits in the watershed for Lagoon Pond. Lagoon Pond is currently impaired and has a Total Maximum Daily Load (TMDL) for Total Nitrogen (TN) that was promulgated in 2015. Stormwater runoff from impervious surfaces contributes 11% of the controllable nitrogen sources to Lagoon Pond. This Master Plan presents the preferred approach to achieve the goal of addressing the impacts of existing stormwater runoff, including on water quality, while maintaining recreation at Veterans Memorial Park.

Design elements include relocated and improved recreational amenities, a perimeter walking path, gathering areas, tree plantings, and stormwater control measures including extended detention constructed wetlands, bioretention, and a wet swale. Implementation of the stormwater control measures detailed in this Master Plan is expected to reduce stormwater runoff entering the Park and treat approximately 12.5 kilograms nitrogen.

The planning level cost estimate to implement the entire Master Plan is $2,300,000. Additional engineering design, permitting, and planning will be required to advance implementation of the Master Plan to the construction stage.

INTRODUCTION

This Master Plan was developed by the Horsley Witten Group (HW) in collaboration with the Town of Tisbury Open Space and Recreation Committee (OSRC) to improve stormwater management while maintaining recreational opportunities in the Park. Veterans Memorial Park sits on a 10.62 acre parcel owned by the Town of Tisbury between Beach Street, State Road, Causeway Road, and Lagoon Pond Road (Figure 1). The Beach Street entrance to the Park is approximately a five-minute walk from the Steamship Authority Vineyard Haven Ferry Terminal.

Figure 1 Locus Map

Veterans Memorial Park is host to a number of recreational and non-recreational uses. Youth soccer utilizes the soccer fields every season except winter. Women's and men's softball leagues use the ball fields in the evenings from May through August. The basketball court, volleyball court, playground, and swing set are also in use. Other, non-recreational, uses of the park include the Beach Road Music Festival (an annual 3-day music festival that most recently attracted close to 10,000 people per day) and a car show hosted by the Tisbury Fire Department to benefit the Fallen Firefighters Fund.

Stormwater naturally accumulates in Veterans Memorial Park from rainfall within the park and from stormwater runoff from the immediately surrounding impervious surfaces, leading to standing water and "swampy" areas long after a rainfall has completed. A shallow depth to groundwater, 5 to 6 feet below ground surface, exists across the park as documented by the isolated wetland, low-lying elevation compared to Mud Creek, and as illustrated in the 2008 draft Veterans Memorial Park Reconstruction Design Report (Environmental Partners). Designs from this report were never implemented. Stormwater drainage to and within Veterans Memorial Park requires improvement, as currently site conditions after rainfall events at times conflicts with recreational uses of the Park.

Veterans Memorial Park sits in the watershed for Lagoon Pond. Lagoon Pond is currently impaired and has a Total Maximum Daily Load (TMDL) for Total Nitrogen (TN) that was promulgated in 2015. Stormwater runoff from impervious surfaces contributes 11% of the controllable nitrogen sources to Lagoon Pond, which currently exceeds its TMDL by 16.18 kg TN per day, or 5,905.70 kg TN per year. The South End Basin, the sub-embayment that the Park contributes to, needs to see a TN reduction of 2.38 kg TN per day, or 868.7 kg TN per year (Commonwealth of Massachusetts).

To achieve the goal of improving stormwater management while maintaining recreational opportunities to the extent possible, HW evaluated site conditions within Veterans Memorial Park and the surrounding watershed, explored conceptual alternatives, and developed a final concept for proposed park improvements with the goal of achieving the parameters set forth by the Tisbury Open Space and Recreation Committee in an email from committee member Gerry Hokanson on September 19, 2023. This Master Plan details much of this process and represents the first phase of planning and implementation of stormwater improvements at Veterans Memorial Park.

SITE EVALUATION

DATA COLLECTION

Town and state mapping information, previous studies, and other information on the physical conditions of the park was compiled and reviewed. On November 3, 2022 HW staff visited the Park and surrounding contributing watershed to the Park's stream draining to Muddy Pond to conduct an initial assessment for potential opportunities for stormwater management. During the site visit HW staff observed conditions within the Park, logged existing drainage infrastructure throughout the watershed, confirmed the extent of the watershed boundary, identified and geolocated preliminary stormwater control measure (SCM) opportunities, and observed constraints for those opportunities. Tisbury OSRC members accompanied the HW team for a portion of the day. The Veterans Memorial Park watershed – the land area that contributes runoff to the park – was delineated using a combination of existing GIS-based topography, stormwater drainage system maps, and field observations. Figure 2 depicts the Veterans Memorial Park watershed, which has an area of just over 55 acres.

Figure 2 The Veterans Memorial Park Watershed

CONCEPTUAL DESIGNS

Twelve preliminary SCM opportunities were identified during site investigations. Through input from representatives from the Tisbury Town Manager's office, the Tisbury OSRC, and the Tisbury Water Resources Committee, six SCM designs were advanced to the approximate 25% preliminary design stage for two alternative plans for Veterans Memorial Park. The remaining SCMs were removed from future consideration. Following further deliberation from Tisbury representatives three SCMs were included in this Veterans Memorial Park Master Plan and brought to the 30% design stage (Figure 3). Existing and future recreational needs were discussed and incorporated throughout this process. See Appendix A for the 30% design plan set for this Master Plan.

PREFERRED VETERANS MEMORIAL PARK DESIGN

OVERALL STORMWATER PLAN

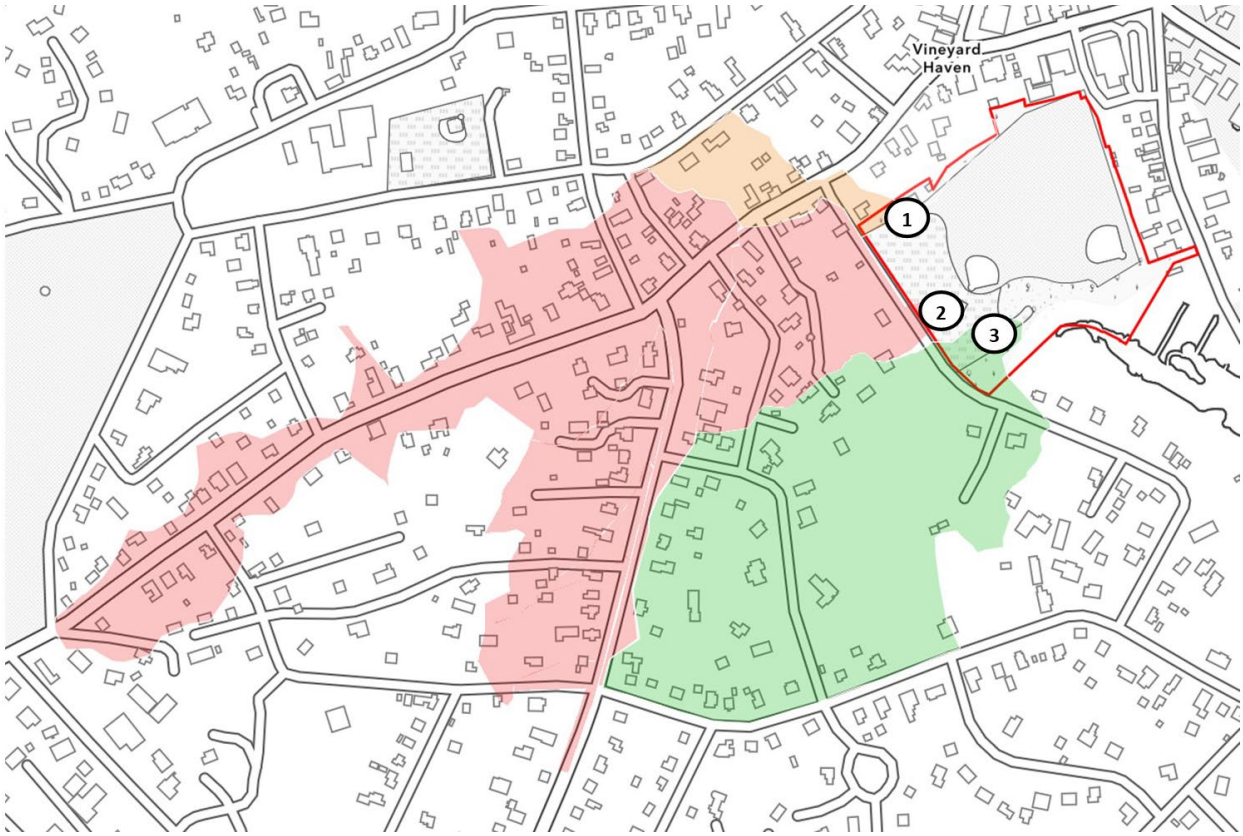

Figure 3 Drainage Areas to Stormwater Control Measures

Stormwater Control Measure Name and location	Total Drainage Area to SCM	Impervious Area in Drainage Area	Percent Impervious in Drainage Area
1) Causeway Road 1	2.7 acres	1.17 acres	43%
2) Causeway Road 2	31.2 acres	12.6 acres	40%
3) Causeway Road 3	21.28 acres	4.27 acres	20%

SUMMARY OF STORMWATER CONTROL MEASURES

(1) Causeway Road 1

Summary

Contributing drainage area: 2.70 acres

Contributing impervious area: 1.17 acres

Water quality volume: 1,306ft^3

Percent of 1-inch storm treated: 31%

Nitrogen Removed: 1.0kg

Description: A bioretention area on the north side of the existing sidewalk connected via an underground pipe to a wet swale with a permanent pool on the south side of the sidewalk. Low walls are built to ensure the integrity of the slope.

Maintenance: Inspections on at least an annual basis. Annual vegetation management, invasive plant monitoring, litter and debris removal, and sediment removal and surface re-stabilization.

(2) Causeway Road 2

Summary

Contributing drainage area: 31.2 acres

Contributing impervious area: 12.6 acres

Water quality volume: 15,507ft^3

Percent of 1-inch storm treated: 46%

Nitrogen Removed: 7.6kg

Description: Stormwater within the existing drainage pipe in Causeway Road is diverted into an extended detention constructed wetlands. Designs call for a permanent pool, a low marsh zone, a high marsh zone, an overflow spillway, a walking path, and a boardwalk crossing.

Maintenance: Inspections on at least an annual basis. Annual vegetation management, invasive plant monitoring, litter and debris removal, and sediment removal and surface re-stabilization.

(3) Causeway Road 3

Summary

Contributing drainage area: 21.28 acres

Contributing impervious area: 4.27 acres

Water quality volume: 13,111ft^3

Percent of 1-inch storm treated: 57%

Nitrogen Removed: 3.9kg

Description: An extended detention constructed wetlands collects stormwater from the surface of Causeway Road. Designs call for a permanent pool, a low marsh zone, and a high marsh zone.

Maintenance: Inspections on at least an annual basis. Annual vegetation management, invasive plant monitoring, litter and debris removal, and sediment removal and surface re-stabilization.

WETLAND RESTORATION

A large stand of invasive phragmites is adjacent to stormwater control measures Causeway Road 2 and Causeway Road 3. Master Plan designs call for restoring this wetland by removing the phragmites. Typically this is done using the cut-drip method, in which the stalks of the phragmites are hand cut and a licensed applicator drips a small amount of herbicide directly into each stalk. Restoring this wetland would help reduce the likelihood of the highly invasive phragmites invading the stormwater control measures in the near future.

NITROGEN REDUCTION

Lagoon Pond is impaired and has a Total Maximum Daily Load (TMDL) for Total Nitrogen (TN) that was promulgated in 2015. Stormwater runoff from impervious surfaces contributes 11% of the controllable nitrogen sources to Lagoon Pond. At the time of this Master Plan efforts are underway by the Massachusetts Department of Environmental Protection to classify any watershed with a TMDL as a "Nitrogen Sensitive Area." If enacted as currently proposed, this classification would require one of two things: 1) Every home with an on-site septic system in a Nitrogen Sensitive Area must upgrade to "best available nitrogen reducing technology" within five years; or 2) a community in a Nitrogen Sensitive Area must obtain a Department of Environmental Protection approved Watershed Permit. In order to be approved for a Watershed Permit, the community must demonstrate that it can achieve a 75% reduction in the excess nitrogen load within twenty years. When implemented the SCMs included in this Master Plan are estimated to account for a reduction of approximately 12.5 kilograms of nitrogen to Lagoon Pond. This moves the Town of Tisbury closer to the 75% excess nitrogen load reduction required to receive a watershed permit should the Town choose to go that route.

FUTURE RECREATION

When implemented this Master Plan will allow for the continued use of the majority of the existing recreational amenities at Veterans Memorial Park. The soccer fields on site will be minimally impacted. Local softball leagues, and the general public, will continue to have one baseball/softball field at their disposal. The playground, volleyball court, and basketball court will remain on site and passive recreation will be enhanced by the addition of a walking path around the entirety of the Park, gathering areas near Park entrances, and an expanded playground.

SOCCER

Youth soccer was emphasized as a priority use by the Tisbury Open Space and Recreation Committee. As designed the field space can hold up to one under-10 game (9v9) and one under-14 game (11v11) concurrently. There is no construction as it relates to the youth soccer fields. As such the configuration and orientation of fields can be adapted as desired or needed.

SOFTBALL

To provide sufficient space for the prioritized youth soccer on site, this Master Plan eliminates the softball field on the southwest side of the Park while maintaining the softball field on the southeast side of the Park adjacent to the Lagoon Pond Road parking lot. While the outfield overlaps with soccer fields on site, these are not expected to be conflicting uses. Adult softball games typically only use the field in the from the end of May through August. There is a two to three-week period from the end of May through early June where this use potentially conflicts with soccer on the site. Scheduling coordination will be required during this two to three-week period.

VOLLEYBALL AND BASKETBALL

In order to make room for stormwater management designs Causeway Road 2 and Causeway Road 3 the basketball court and volleyball court were reoriented and relocated to the north of their current location. Both courts run north-south adjacent to the walking path. This location is easily accessible to users who park along Causeway Road.

PLAYGROUND

While its location has shifted slightly, the playground will remain in the southwest corner of the Park. This location provides direct access from parking on Causeway Road via an existing set of stairs or from an ADA-compliant path from the proposed improved parking lot off of Causeway Road. While advancing designs take into account more specific playground components at this stage the playground includes a swing set, a merry-go round, two play structures, a couple of rockers, and two benches. Due to its location adjacent to Causeway Road 2, the playground will require a fence to prevent accidents from occurring.

PASSIVE RECREATION

Current walking trails on site run along the northern and eastern edges of the Park. Designs within this Master Plan include a passive walking trail around the perimeter of the entire Park. This walking trail includes trees to provide shade throughout and a boardwalk over stormwater management design Causeway Road 2. This master plan also includes a shade structure in the northeast corner

of the Park to welcome those who park in the Beach Road parking lot or walk from the ferry terminal. This will also provide an opportunity for all users of the Park, whether they are walking or engaged in recreation, to escape the heat and get out of the sun.

IMPLEMENTATION

There are several critical steps to turning the Master Plan into a reality, including engineering design, permitting, and implementation planning.

ADVANCED DESIGN

The stormwater management designs presented in this Master Plan are advanced to approximately the 30% level and based on site information derived from watershed and structural observations made by HW in the field, previous studies, and available GIS. Additional information will be required to advance design further including, but not limited to, resource area delineations, site soil/subsurface evaluations, and topographic surveys.

The Town of Tisbury should anticipate several levels of design to be completed:50% design, 75% design (permit ready), and 100% design (final construction plans and documents). A 50% design plan set includes the details of structures, where applicable, key elevations, and preliminary grading. A permit ready 75% design plan set includes impacted resource area calculations, an erosion control plan, a construction sequence, final grading, material quantities, and planning level costs. A final construction 100% design plan set includes any changes made during the permitting process, material specifications, and final engineers costs estimates.

PERMITTING

Due to the presence of an isolated vegetated wetlands along the western edge and a salt marsh on the southern edge of Veterans Memorial Park, Wetlands Protection Act permitting will be required for Causeway Road 1, Causeway Road 2, and Causeway Road 3. Initial discussions with the Town of Tisbury Conservation Agent should begin prior to the significant advancement of designs for those SCMs.

Permits related to connections with the Town drainage system may be required. Excavation work may possibly trigger Massachusetts Historic Commission requirements and archaeological evaluations.

COMMUNITY ENGAGEMENT

As Veterans Memorial Park is a heavily used public resource, community involvement during advanced design, permitting, and implementation is critical to the success of the project. Community engagement should be conducted in

a thoughtful and meaningful manner in order to reach as much of the public as possible. Considerations should include having a project website, partnering with community groups to reach vulnerable and underrepresented populations, staggering the time of public meetings, and determining the need for translation or sign language services.

IMPLEMENTATION PLANNING

As designs are completed and permitted, the Town will need to plan out the steps required to bring the designs to construction. This includes determining where funding for the project will come from, including applying for any grants or bringing a request to Town Meeting, considering whether there should be any time-of-year constraints on construction, developing bid package documents and undertaking the public bidding process, and deciding what entity will be responsible for construction oversight.

MAINTENANCE

Maintenance, on a seasonal or yearly basis, will be required to ensure the SCMs continue to function properly. As designs advance an Operations and Maintenance Plan should be created for each SCM. In general, all SCMs should be inspected at least once a year and after storm events of greater than or equal to 2.5 inches of precipitation. Bioretention areas, extended detention constructed wetlands, and the wet swale should receive vegetation management, invasive plant monitoring, litter and debris removal, and sediment removal and surface re-stabilization on an annual basis. Components connecting into existing drainage infrastructure should be cleaned periodically to ensure that sediment and debris accumulation does not impact inflow. General maintenance inspection forms are included as Appendix B.

PLANNING LEVEL COSTS

The numbers provided below are planning level construction costs, are based on rough assumptions and are subject to change as designs advance. A contingency is included in each of the numbers. More information on costs can be found in Appendix C. Currently costs do not include:

- Street Opening Permits/Bonds For Off Site Work.
- Police/Traffic Details.
- Lighting.
- Temporary Water.
- Permitting.
- Soil Management Plan.

	APPROXIMATE COST
Site Clearing and Preparation	$200,000
Site and Drainage Improvements	$300,000

These costs include earthworks, drainage infrastructure, and the parking lot.

Landscape Improvements	$1,200,000

These costs include playground equipment, site amenities, recreation, and plantings.

Construction Contingency	$340,000
Construction Administration	$204,000

APPROXIMATE TOTAL:

$2,300,000

REFERENCES

Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs. Final Lagoon Pond Estuarine System Total Maximum Daily Loads for Total Nitrogen. July 2015.

Environmental Partners Group. Draft Veterans Memorial Park Reconstruction Design Report and QA/QC Plan. August 27, 2008.

Appendix A: Master Plan 30% Design

LEGEND

- PROPERTY LINE
- HARDSCAPING
- STONE DUST PATH
- SAND
- DIRT
- TREES
- BENCH
- TABLE & CHAIRS
- SHADE CANOPY
- TIMBER WALKWAY
- CHAIN LINK FENCE
- SPLIT RAIL FENCE
- PARKING LOT
- NATIVE PLANT RESTORATION AREA
- UNDER 14 SOCCER FIELD AND BUFFER
- UNDER 10 SOCCER FIELD AND BUFFER
- SEDIMENT FOREBAY
- STORMWATER PERMANENT POOL
- DRY STORMWATER AREA
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED DRAIN PIPE
- STORMWATER OUTFLOW
- EXISTING DRAINAGE STRUCTURE
- EXISTING DRAIN PIPE

VETERAN'S MEMORIAL PARK - MASTER PLAN

CLIENT: TISBURY OPEN SPACE & REC. COMMITTEE

July 2024

Horsley Witten Group
Sustainable Environmental Solutions
113 R2 Water Street • Exeter, NH • 03833
603-658-1660 • horsleywitten.com

SEAL OF TISBURY MASS. INCORPORATED JULY 8, 1671

GRAPHIC SCALE
40 0 20 40 80 160
(in feet)
1 INCH = 40 FEET

NORTH

LEGEND

- PROPERTY LINE
- HARDSCAPING
- STONE DUST PATH
- SAND
- DIRT
- TREES
- BENCH
- TABLE & CHAIRS
- SHADE CANOPY
- TIMBER WALKWAY
- CHAIN LINK FENCE
- SPLIT RAIL FENCE
- PARKING LOT
- NATIVE PLANT RESTORATION AREA
- UNDER 14 SOCCER FIELD AND BUFFER
- UNDER 10 SOCCER FIELD AND BUFFER
- SEDIMENT FOREBAY
- STORMWATER PERMANENT POOL
- DRY STORMWATER AREA
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED DRAIN PIPE
- STORMWATER OUTFLOW
- EXISTING DRAINAGE STRUCTURE
- EXISTING DRAIN PIPE

BIORETENTION
INFLOW
PROPERTY LINE
CAUSEWAY 1
WET SWALE
OUTFLOW
VOLLEYBALL COURT
GATHERING AREA
BASKETBALL COURT
CIRCULATION PATH
ENCLOSED PLAYGROUND AREA ~ 6,638 s.f.
SPLIT RAIL FENCE
EXTENDED DETENTION CONSTRUCTED WETLAND
PLANT LOW AREA WITH WET-TOLERANT NATIVES
BLEACHERS
330'x185'
240' X 150'
MENS SLOW PITCH
WOMENS SLOW PITCH
WOMENS FAST PITCH
LITTLE LEAGUE
EXISTING ENTRY PATH
PLANTING AREA
ENTRANCE/ GATHERING AREA
SHADE CANOPY
PICNIC TABLES AND CAFE SEATING
PLANTING AREA
SHADE GROVE
RETAIN AND/OR RELOCATE EXISTING SOFTBALL INFRASTRUCTURE AS NECESSARY
FLOW
INFLOW
GATHERING AREA
BENCH
CAUSEWAY 2
ENTRANCE/ GATHERING AREA
WETLAND RESTORATION AREA
RE-GRADED & STRIPED PARKING AREA
TABLE & SEATING
EXTENDED DETENTION CONSTRUCTED WETLAND
CAUSEWAY 3
OUTFLOW
FLOW
FOREBAY WITH FLOW CONTROL STRUCTURE
INFLOW
PROPERTY LINE

GRAPHIC SCALE
40 0 20 40 80 160
(in feet)
1 INCH = 40 FEET

MAGNETIC NORTH
GRID NORTH

Revisions

Rev.	Date	By	Appr.	Description
1	----	----	----	----
2	----	----	----	----
3	----	----	----	----
4	----	----	----	----
5	----	----	----	----
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Designed By: MDL
Drawn By: MDL
Checked By: RAG
Date: DECEMBER 2023

Plan Set: VETERAN'S MEMORIAL PARK
30% MASTER PLAN
TISBURY, MASSACHUSETTS

Plan Title: OVERALL SITE PLAN

Prepared For:
Tisbury Open Space & Rec. Committee
66 High Point Lane
Vineyard Haven, MA 02568
Phone: 508-696-4270
Fax: ----

Survey Provided By:
---- ----
---- Phone: ----
---- Fax: ----
Dated: ----

Registration:

Project Number: 20090
Sheet : 1 of 5
Sheet Number: C - 1

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PROPOSED RECREATIONAL FACILITIES

ACTIVITY	DIMENSIONS	NUMBER OF FIELDS
U-14 SOCCER	300'L X 150' W	2
U-14 SOCCER	210'L X 120' W	4
MEN'S SLOW PITCH SOFTBALL	300' FENCE	1
WOMEN'S FAST PITCH SOFTBALL	175' FENCE	1
BASKETBALL	84'L X 50'W	1
VOLLEYBALL	59'L X 29'W	1

330'x185'

240' X 150'

MENS SLOW PITCH

WOMENS SLOW PITCH

WOMENS FAST PITCH

LITTLE LEAGUE

OUTFLOW

VOLLEYBALL COURT

GATHERING AREA

BASKETBALL COURT

CIRCULATION PATH

ENCLOSED PLAYGROUND AREA ~ 6,638 s.f.

SHADE GROVE

CAUSEWAY 2

WETLAND RESTORATION AREA

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description
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Checked By: RVG

Drawn By: MCL

Designed By: MDL

Date: DECEMBER 2023

Plan Set: VETERAN'S MEMORIAL PARK
30% MASTER PLAN
TISBURY, MASSACHUSETTS

Plan Title: RECREATION SITE PLAN

Prepared For:
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Survey Provided By:
---- ----
---- Phone: ----
---- Fax: ----
Dated: ----

Registration:

Project Number: 20090

Sheet : 2 of 5

Sheet Number: C - 2

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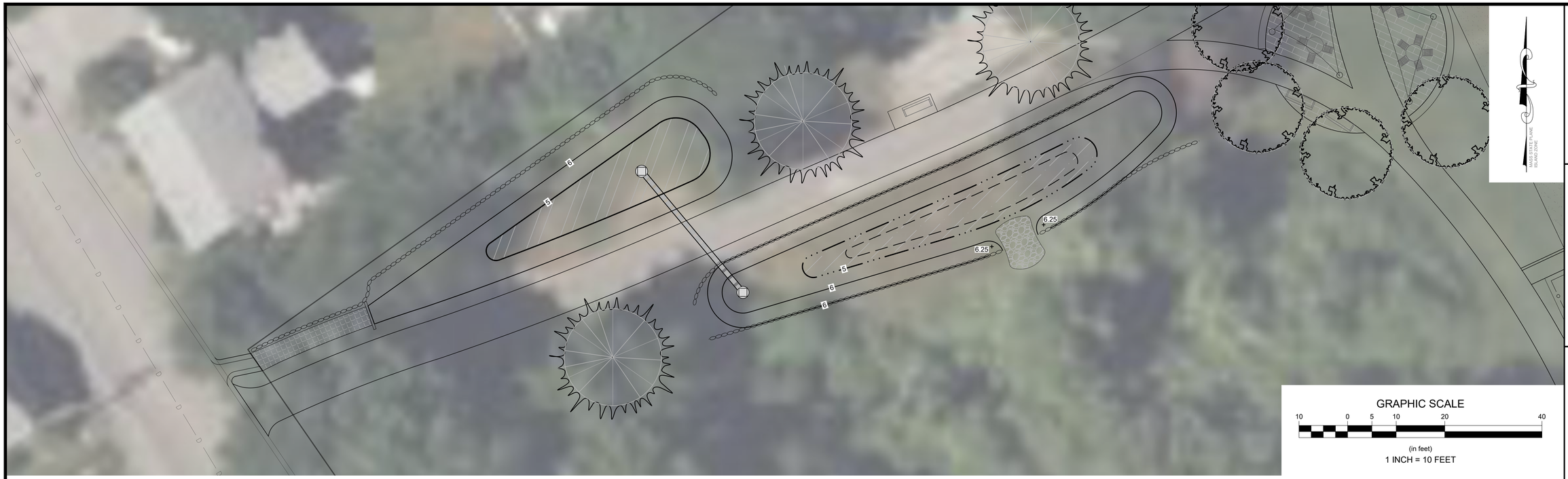

GRAPHIC SCALE

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(in feet)

1 INCH = 10 FEET

MASS STATE PLANE
NAD83 (FEET)

Revisions

Rev.	Date	By	Appr.	Description
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3				
4				
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Drawn By: MCL
Checked By: RvG
Designed By: KDL
Date: DECEMBER 2023

Plan Set:

VETERAN'S MEMORIAL PARK
30% MASTER PLAN
TISBURY, MASSACHUSETTS

Plan Title:

STORMWATER 1

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Survey Provided By:

Phone: ----
Fax: ----
Dated: ----

Registration:

Project Number: 20090

Sheet : 3 of 5

Sheet Number:
C - 3

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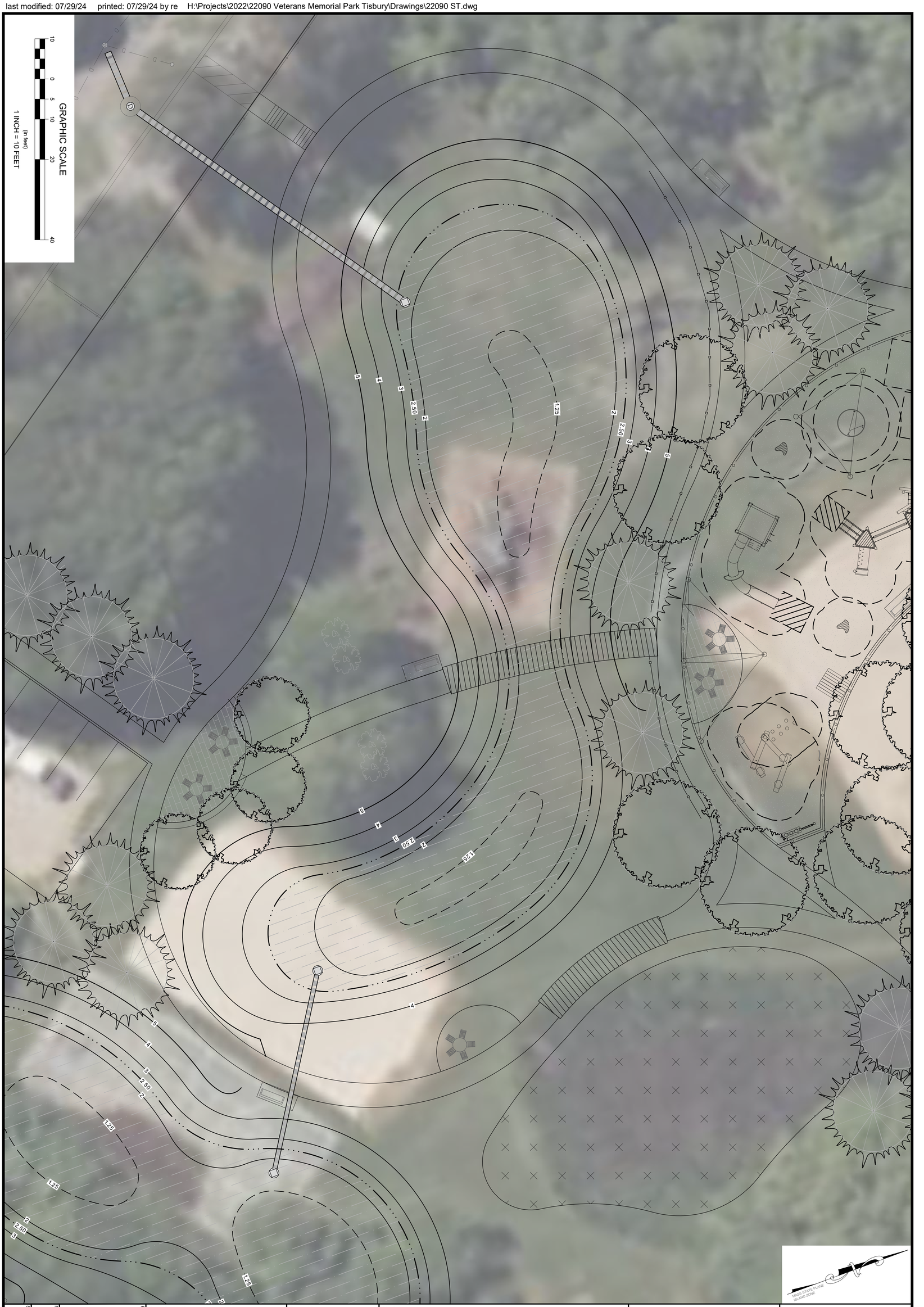

Sheet Number: C - 4

Project Number: 20090

Sheet: 4 of 5

Registration:

Survey Provided By:

Phone: ----
Fax: ----
Dated: ----

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Plan Set:
VETERAN'S MEMORIAL PARK
30% MASTER PLAN
TISBURY, MASSACHUSETTS

Plan Title:
STORMWATER 2

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Date:	Designed By:	Drawn By:	Checked By:
DECEMBER 2023	MCL	MCL	RAC

Revisions

Rev.	Date	By	Appr.	Description
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NEW STATE PLANE DATUM ZONE

Sheet Number: C - 5

Project Number: 20090

Sheet: 5 of 5

Registration:

Survey Provided By:

Phone: ----
Fax: ----
Dated: ----

Prepared For:
Tisbury Open Space & Rec. Committee
66 High Point Lane
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Plan Set:
VETERAN'S MEMORIAL PARK
30% MASTER PLAN
TISBURY, MASSACHUSETTS

Plan Title:
STORMWATER 3

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Date:	Designed By:	Drawn By:	Checked By:
DECEMBER 2023	MCL	MCL	RAC

Revisions

Rev.	Date	By	Appr.	Description
1	----	----	----	----
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3				
4				
5				
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Appendix B: Stormwater Control Measure Maintenance Checklists

BIORETENTION MAINTENANCE INSPECTION FORM

Facility Number:_____ Date:_____ Time:_____

Subdivision Name:_____ Watershed:_____

Weather:_____ Inspector(s):_____

Date of Last Rainfall:_____ Amount:_____ Inches Streets:_____

Mapbook Location:_____ GPS Coordinates:_____

Property Classification: Residential 9 Government 9 Commercial 9 Other:_____

Confined 9 Unconfined 9 Barrel Size_____ As-built Plan Available? Yes 9 No 9

Is Facility Inspectable? Yes 9 No 9 Why?_____ Comments Specific Location(s):_____

Scoring Breakdown:

N/A = Not Applicable
N/I = Not Investigated
0 = Not a Problem
1 = Monitor (potential for future problem exists)
2 = Routine Maintenance Required
3 = Immediate Repair Necessary
*** Use open space in each section to further explain scoring as needed**

1. Outfall Channel(s) from Facility						
Woody growth within 5' of outfall barrel	N/A	N/I	0	1	2	3
Outfall channel functioning	N/A	N/I	0	1	2	3
Manholes, frames and covers	N/A	N/I	0	1	2	3
Released water undercutting outlet	N/A	N/I	0	1	2	3
Erosion	N/A	N/I	0	1	2	3
Displaced rip rap	N/A	N/I	0	1	2	3
Excessive sediment deposits	N/A	N/I	0	1	2	3
Other:	N/A	N/I	0	1	2	3
2. Outlet / Overflow Spillway						
Woody growth or unauthorized plantings	N/A	N/I	0	1	2	3
Erosion or back cutting	N/A	N/I	0	1	2	3
Soft or boggy areas	N/A	N/I	0	1	2	3
Obstructions / debris	N/A	N/I	0	1	2	3
3. Filter						
Existing as required			No		Yes	
Sediment accumulation > 1"			No		Yes	
Ponding more than 2 days after rain			No		Yes	
Vegetation	N/A	N/I	0	1	2	3
Depth & material of layers	Depth:_____		Material:_____			
Sediment accumulation in soil bed	N/A	N/I	0	1	2	3
Oil/ chemical accumulation on soil bed	N/A	N/I	0	1	2	3
Filter fabric	N/A	N/I	0	1	2	3
Other:	N/A	N/I	0	1	2	3

4. Underdrains							
Broken	N/A	N/I	0	1	2	3	
Daylighted	N/A	N/I	0	1	2	3	
Clogging	N/A	N/I	0	1	2	3	
5. Pretreatment							
Maintenance access	N/A	N/I	0	1	2	3	
Pretreatment a practice other than a stone diaphragm and/ or grass filter strip			No		Yes		Of so,_____(code)
Stone diaphragm level	N/A	N/I	0	1	2	3	
Stone diaphragm clogged with sediment/debris	N/A	N/I	0	1	2	3	
Grass filter strip erosion	N/A	N/I	0	1	2	3	
Evidence of short circuiting, rails/ gullies in filter strip			No		Yes		
Level spreader	N/A	N/I	0	1	2	3	
Other:	N/A	N/I	0	1	2	3	
6. Upland Characteristics							
Excessive trash / debris	N/A	N/I	0	1	2	3	
Bare soil present	N/A	N/I	0	1	2	3	
Sand in parking lot	N/A	N/I	0	1	2	3	
7. Inflow Points							
Number of inflow pipes:_____	Direction: N		E		W	S	
Endwalls, headwalls, end sections	N/A	N/I	0	1	2	3	
Inlet/ outflow pipes	N/A	N/I	0	1	2	3	
Discharge undercutting outlet or displacing rip-rap	N/A	N/I	0	1	2	3	
Discharge water is causing outfall to erode	N/A	N/I	0	1	2	3	
Sediment accumulation	N/A	N/I	0	1	2	3	
8. Special Structures							
Manhole access (steps, ladders)	N/A	N/I	0	1	2	3	
Vehicular access	N/A	N/I	0	1	2	3	
Concrete/masonry condition	N/A	N/I	0	1	2	3	
Sediment / trash accumulation	N/A	N/I	0	1	2	3	
Manhole lockable nuts	N/A	N/I	0	1	2	3	
9. Miscellaneous							
Encroachment in facility area and/or easement area by buildings	N/A	N/I	0	1	2	3	
Complaints from local residents	N/A	N/I	0	1	2	3	
Graffiti	N/A	N/I	0	1	2	3	
Public hazards	N/A	N/I	0	1	2	3	
Were any pad locks cut and replaced			No		Yes		How many?_____
Other:	N/A	N/I	0	1	2	3	

N/A = Not Applicable
N/I = Not Investigated
0 = Not a Problem
1 = Monitor for Future Repairs
2 = Routine Repairs Needed
3 = Immediate Repair Needed

Overall Condition of Facility

Total number of concerns receiving a: **(1)_____ - Need Monitoring**
(2)_____ - Routine Repair
(3)_____ - Immediate Repair Needed

Inspector's Summary

Pictures **Clock/Degrees**

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____
5. _____ _____
6. _____ _____
7. _____ _____
8. _____ _____
9. _____ _____
10. _____ _____
11. _____ _____
12. _____ _____
13. _____ _____
14. _____ _____
15. _____ _____

N/A = Not Applicable **1 = Monitor for Future Repairs**
N/I = Not Investigated **2 = Routine Repairs Needed**
0 = Not a Problem **3 = Immediate Repair Needed**

Sketches, If Necessary:

N/A = Not Applicable
N/I = Not Investigated
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2 = Routine Repairs Needed
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POND / WETLAND MAINTENANCE INSPECTION FORM

Facility Number:_____ Date:_____ Time:_____

Subdivision Name:_____ Watershed:_____

Weather:_____ Inspector(s):_____

Date of Last Rainfall:_____ Amount:_____ Inches Streets:_____

Mapbook Location:_____ GPS Coordinates:_____

Property Classification: Residential 9 Government 9 Commercial 9 Other:_____

Type of Practice: Wet Pond 9 Dry Pond 9 Micropool ED 9 Multiple Pond System 9 Pocket Pond 9

Shallow Wetland 9 Shallow ED 9 Pond/ Wetland 9 Pocket Wetland 9

Confined 9 Unconfined 9 Barrel Size_____ As-built Plan Available? Yes 9 No 9

Is Facility Inspectable? Yes 9 No 9 Why?_____ Comments Specific Location(s):_____

Scoring Breakdown:

N/A = Not Applicable
N/I = Not Investigated
0 = Not a Problem
1 = Monitor (potential for future problem exists)
2 = Routine Maintenance Required
3 = Immediate Repair Necessary
*** Use open space in each section to further explain scoring as needed**

1. Outfall Channel(s) from Pond						
Woody growth within 5' of outfall barrel	N/A	N/I	0	1	2	3
Outfall channel functioning	N/A	N/I	0	1	2	3
Manholes, Frames and Covers	N/A	N/I	0	1	2	3
Released water undercutting outlet	N/A	N/I	0	1	2	3
Erosion	N/A	N/I	0	1	2	3
Displaced rip rap	N/A	N/I	0	1	2	3
Excessive sediment deposits	N/A	N/I	0	1	2	3
Other:	N/A	N/I	0	1	2	3
2. Downstream Dam Bank						
Cracking, bulging, or sloughing of dam	N/A	N/I	0	1	2	3
Erosion and/or loss of dam material	N/A	N/I	0	1	2	3
Animal burrows	N/A	N/I	0	1	2	3
Soft spots or boggy areas	N/A	N/I	0	1	2	3
Woody growth or unauthorized plantings on dam	N/A	N/I	0	1	2	3
Other:	N/A	N/I	0	1	2	3
3. Upstream Dam Bank						
Cracking, bulging, or sloughing of dam	N/A	N/I	0	1	2	3
Erosion and/or loss of dam material	N/A	N/I	0	1	2	3
Animal Burrows	N/A	N/I	0	1	2	3
Soft spots or boggy areas	N/A	N/I	0	1	2	3
Woody growth or unauthorized plantings on dam	N/A	N/I	0	1	2	3
Other:	N/A	N/I	0	1	2	3

4. Emergency Spillway							
Woody growth or unauthorized plantings	N/A	N/I	0	1	2	3	
Erosion or back cutting	N/A	N/I	0	1	2	3	
Soft or boggy areas	N/A	N/I	0	1	2	3	
Obstructions / debris	N/A	N/I	0	1	2	3	

5. Principal Spillway Built to Plans							
# of Barrels:_____ Size:_____	RCP	CMP	PVC	STEEL	or	MASONRY	(Circle One)
Confined space entry permit required for entry into all riser and barrels			Entry Approved 9			Entry Denied 9	
Minor spalling or parging (<1")	N/A	N/I	0	1	2	3	
Major spalling (exposed rebar)	N/A	N/I	0	1	2	3	
Joint failure	N/A	N/I	0	1	2	3	
Loss of joint material	N/A	N/I	0	1	2	3	
Leaking	N/A	N/I	0	1	2	3	
Corrosion	N/A	N/I	0	1	2	3	
Protective material deficient	N/A	N/I	0	1	2	3	
Misalignment or split seams / joints	N/A	N/I	0	1	2	3	
Other:	N/A	N/I	0	1	2	3	

6. Riser Built to Plans							
Size:_____	CONC	CMP	or	MASONRY		(Circle One)	
Minor spalling or parging (<1")	N/A	N/I	0	1	2	3	
Major spalling (exposed rebar)	N/A	N/I	0	1	2	3	
Joint failure	N/A	N/I	0	1	2	3	
Loss of joint material	N/A	N/I	0	1	2	3	
Leaking	N/A	N/I	0	1	2	3	
Manhole access and steps acceptable	N/A	N/I	0	1	2	3	
Corrosion	N/A	N/I	0	1	2	3	
Protective material deficient	N/A	N/I	0	1	2	3	
Misalignment or split seams / joints	N/A	N/I	0	1	2	3	
Anti-vortex device secure / acceptable	N/A	N/I	0	1	2	3	
Sediment Accumulation within riser	N/A	N/I	0	1	2	3	
Woody or vegetative growth within 25' of riser	N/A	N/I	0	1	2	3	
Safety Rebar/pipes in place	N/A	N/I	0	1	2	3	
Safety Rebar/pipes corroded	N/A	N/I	0	1	2	3	
Other:	N/A	N/I	0	1	2	3	

7. Low Flow Built to Plans							
Orifice and/or trash rack obstructed	N/A	N/I	0	1	2	3	
Trash Rack Corrosion	N/A	N/I	0	1	2	3	
Other:	N/A	N/I	0	1	2	3	

8. Weir Trash Rack							
Structurally sound	N/A	N/I	0	1	2	3	
Debris removal necessary	N/A	N/I	0	1	2	3	
Corrosion	N/A	N/I	0	1	2	3	

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9. Control Valve(s) Built to Plans							
Size:_____ Type:_____							
Operation limited	N/A	N/I	0	1	2	3	
Exercised	N/A	N/I	0	1	2	3	
Leaks	N/A	N/I	0	1	2	3	
Chains & Locks	N/A	N/I	0	1	2	3	
Set to design opening	N/A	N/I	0	1	2	3	
Other:	N/A	N/I	0	1	2	3	
10. Pond Drain Valve							
Operation limited	N/A	N/I	0	1	2	3	
Exercised	N/A	N/I	0	1	2	3	
Leaks	N/A	N/I	0	1	2	3	
Chained & locked correctly	N/A	N/I	0	1	2	3	
Other:	N/A	N/I	0	1	2	3	
11. Toe & Chimney Drains Clear & Functioning	N/A	N/I	0	1	2	3	
12. Rip-Rap Pilot Channel (Micropool only)							
Sediment or debris build up	N/A	N/I	0	1	2	3	
Erosion/ Undermining	N/A	N/I	0	1	2	3	
13. Permanent Pool							
Visible pollution	N/A	N/I	0	1	2	3	
Shoreline and / or side slope erosion	N/A	N/I	0	1	2	3	
Aquatic bench inadequately vegetated	N/A	N/I	0	1	2	3	
Abnormally high or low water (pool) levels	N/A	N/I	0	1	2	3	
Sediment / debris accumulation	N/A	N/I	0	1	2	3	
Bathometric study recommended			No		Yes		
Other?	N/A	N/I	0	1	2	3	
14. Dry Storage							
Vegetation sparse	N/A	N/I	0	1	2	3	
Undesirable woody or vegetative growth	N/A	N/I	0	1	2	3	
Low flow channels obstructed	N/A	N/I	0	1	2	3	
Standing water or spots	N/A	N/I	0	1	2	3	
Sediment or debris accumulation	N/A	N/I	0	1	2	3	
Bathometric study recommended			No		Yes		
Other:	N/A	N/I	0	1	2	3	
15. Pretreatment							
Maintenance access	N/A	N/I	0	1	2	3	
Is pretreatment a practice other than a forebay			No		Yes		Of so,_____(code)
Dredging required			No		Yes		
Hard pad condition (Wet pond only)	N/A	N/I	0	1	2	3	
Fixed vertical sediment depth marker present			No		Yes		
Marker Reading_____							
Sediment accumulation	N/A	N/I	0	1	2	3	Estimated % full_____%

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16. Inflow Points									
Number of inflow pipes:_____	Direction:		N		E		W	S	
Endwalls, headwalls, end sections	N/A	N/I	0	1	2	3			
Outfall pipes	N/A	N/I	0	1	2	3			
Discharge undercutting outlet or displacing rip-rap	N/A	N/I	0	1	2	3			
Discharge water is causing outfall to erode	N/A	N/I	0	1	2	3			
Sediment accumulation	N/A	N/I	0	1	2	3			
17. Wet Pond Vegetation									
Invasive plants	N/A	N/I	0	1	2	3			
% cover_____									
Vegetation matches landscape design plan	N/A	N/I	0	1	2	3			
Planting needed	N/A	N/I	0	1	2	3			
Shore erosion	N/A	N/I	0	1	2	3			
Coverage needs improvement	N/A	N/I	0	1	2	3			
18. Pond Buffer									
Encroachment by structures	N/A	N/I	0	1	2	3			
Clearing of vegetation	N/A	N/I	0	1	2	3			
Planting needed	N/A	N/I	0	1	2	3			
Predominant vegetation types:	Forested 9		Shrubs 9			Meadow 9		Maintained Grass 9	Other:___
19. Special Structures									
Manhole access (steps, ladders)	N/A	N/I	0	1	2	3			
Vehicular access	N/A	N/I	0	1	2	3			
Concrete/masonry condition	N/A	N/I	0	1	2	3			
Trash racks	N/A	N/I	0	1	2	3			
Elbows	N/A	N/I	0	1	2	3			
Sediment / trash removal	N/A	N/I	0	1	2	3			
Manhole lockable nuts	N/A	N/I	0	1	2	3			
20. Miscellaneous									
Encroachment in pond area and/or easement area	N/A	N/I	0	1	2	3			
Fence condition	N/A	N/I	0	1	2	3			
Safety signs	N/A	N/I	0	1	2	3			
Complaints from local residents	N/A	N/I	0	1	2	3			
Graffiti	N/A	N/I	0	1	2	3			
Public hazards	N/A	N/I	0	1	2	3			
Were any pad locks cut and replaced			No		Yes		How Many?_____		

N/A = Not Applicable
N/I = Not Investigated
0 = Not a Problem
1 = Monitor for Future Repairs
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3 = Immediate Repair Needed

Overall Condition of Facility

Total number of concerns receiving a: **(1)_____ - Need Monitoring**
(2)_____ - Routine Repair
(3)_____ - Immediate Repair Needed

Inspector's Summary

Pictures	Clock/Degrees	Prin. Spill. Barrel Joints	Clock/Degrees
1.		1.	
2.		2.	
3.		3.	
4.		4.	
5.		5.	
6.		6.	
7.		7.	
8.		8.	
9.		9.	
10.		10.	
11.		11.	
12.		12.	
13.		13.	
14.		14.	
15.		15.	

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0 = Not a Problem
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Sketches, If Necessary:

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Appendix C: Engineers Opinion of Probable Cost

Project: Veteran's Memorial Park Master Plan

Horsley Witten Group
Sustainable Environmental Solutions

Location: Tisbury, MA
Project #: 22090

Submission: Engineer's Opinion of Probable Cost 30%
Date: July 2024

Estimator: MCL/CDC
Checked By: RAC

30% OPINION OF PROBABLE COST

Veteran's Memorial Park Master Plan		**$2,300,000**
Site Clearing and Preparation		**$200,000**
Site and Drainage Improvements		**$300,000**
Earthworks		$132,600
Drainage Infrastructure		$44,000
Parking Lot		$41,100
Landscape Improvements		**$1,200,000**
Playground Equipment		$591,500
Site Amenities		$290,500
Recreation		$198,000
Plantings		$102,400
CONSTRUCTION COSTS		**$1,700,000**
Contingency	20%	$340,000
TOTAL CONSTRUCTION COSTS		**$2,040,000**
Construction Administration[4]	10%	$204,000
TOTAL ESTIMATED COST		**$2,300,000**

ASSUMPTIONS & NOTES:

1. Price assumes no hazardous material removal.

[4] Construction Administration cost includes full administration services by the project designer for all construction phases of the project. Services include project oversight, meetings, shop drawing review, field visits and periodic observations of construction. This cost will vary significantly based upon the amount work services to be provided. As-built plans and other project closure services are not included.

[5] It is assumed annual maintenance costs will range from year to year and end over time. Probable costs for 3 years is included for planning purposes.

Qualifications:

The following items are not included in the scope of work:
Street Opening Permits / Bonds For Off Site Work
Police / Traffic Details
Lighting
Dewatering
Temporary Water
Permitting
Soil Management Plan